

9<sup>th</sup> International conference of the EARLI SIG 14  
Learning and Professional Development



INTERACTION, LEARNING AND  
PROFESSIONAL DEVELOPMENT

12<sup>th</sup> – 14<sup>th</sup> September 2018  
Geneva, Switzerland

CONFERENCE PROGRAM



[www.unige.ch/earlisig14](http://www.unige.ch/earlisig14)



FONDS NATIONAL SUISSE  
DE LA RECHERCHE SCIENTIFIQUE



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Schweizerische Gesellschaft für Bildungsforschung  
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UNIVERSITÉ  
DE GENÈVE

## EARLI SIG 14

Geneva 12<sup>th</sup> to 14<sup>th</sup> September 2018

## Program overview

	Symposia	Papers	Posters	Round tables	Data sessions
English	12	140	15	10	6
French	6	31	-	3	-

	12 <sup>th</sup> September 2018	13 <sup>th</sup> September 2018	14 <sup>th</sup> September 2018
8:00	<b>8:00-9:00</b> Registration	<b>8:00-8:30</b> Registration	<b>8:00-8:30</b> Registration
8:30		<b>8:30-10:30</b>	<b>8:30-10:30</b>
9:00	<b>9:00-9:30</b> Opening ceremony MR080	<b><u>Parallel sessions D</u></b> - 4 Symposium sessions - 1 Paper session French - 5 Paper sessions English	<b><u>Parallel sessions G</u></b> - 3 Symposium sessions - 1 Paper session French - 4 Paper sessions English
9:30	<b>9:30-10:30</b>		
10:00	Keynote address 1 Claire Tourmen MR080		
10:30	<b>10:30-11:00</b> Coffee break	<b>10:30-11:00</b> Coffee break	<b>10:30-11:00</b> Coffee break
11:00	<b>11:00-12:30</b>	<b>11:00-12:00</b>	<b>11:00-12:00</b>
11:30	<b><u>Parallel sessions A</u></b> - 1 Symposium session - 1 Round Table session - 1 Data session - 1 Paper session French - 5 Paper sessions English	Keynote address 2 Pierre Dillenbourg MR080	Keynote address 3 Helen Melander MR080
12:00		<b>12:00-13:30</b> Lunch Marx Cafeteria	<b>12:00-13:00</b> Lunch Marx Cafeteria
12:30	<b>12:30-14:00</b>	<i>VOCA Board meeting M3141 (3<sup>rd</sup> floor)</i>	
13:00	Lunch		<b>13:00-14:30</b>
13:30	Marx Cafeteria	<b>13:30-15:30</b>	<b><u>Parallel sessions H</u></b> - 2 Symposium sessions - 1 Paper session French - 3 Paper sessions English
14:00	<b>14:00-16:00</b> <b><u>Parallel sessions B</u></b> - 2 Symposium sessions - 1 Paper session French - 5 Paper sessions English	<b><u>Parallel sessions E</u></b> - 4 Symposium sessions - 1 Paper session French - 5 Paper sessions English	
14:30			<b>14:30-15:00</b> Coffee break
15:00			<b>15:00-16:30</b>
15:30		<b>15:30-16:00</b> Coffee break	<b><u>Parallel sessions I</u></b> - 1 Symposium session - 1 Paper session French - 3 Paper sessions English
16:00	<b>16:00-16:30</b> Coffee break	<b>16:00-17:30</b>	
16:30	<b>16:30-18:00</b> <b><u>Parallel sessions C</u></b> - 4 Poster sessions - 2 Round Table sessions - 1 Paper session French - 3 Paper sessions English	<b><u>Parallel sessions F</u></b> - 1 Symposium session - 1 Round Table session - 1 Data session - 1 Paper session French - 6 Paper sessions English	<b>16:30-17:00</b> Closing ceremony MR080
17:00			
17:30		<b>17:35-18:30</b>	
18:00	<b>18:00-20:00</b>	SIG Meeting, with best paper award announcement MR080	
18:30	Welcome reception with music & Springer book presentation		
19:30		<b>19:30</b> Conference dinner at Grand Hotel Kempinski	

<b>Date: Tuesday, 11/Sep/2018</b>	
<b>5:00pm - 6:30pm</b> Uni Mail Hall	<b>Registration</b>
<b>7:00pm - 8:00pm</b> Kiosque des Bastions	<b>Pre-conference welcome drink</b>
<b>Date: Wednesday, 12/Sep/2018</b>	
<b>8:00am - 6:30pm</b> Uni Mail Hall	<b>Registration</b>
<b>9:00am - 9:30am</b> MR080	<b>Opening ceremony</b>
<b>9:30am - 10:30am</b> MR080	<b>Keynote address</b> Session Chair: <b>Stephen Richard Billett</b> Claire Tourmen <b>Interacting: at the heart of learning</b>
<b>10:30am - 11:00am</b> Uni Mail Hall	<b>Coffee break</b>
<b>11:00am - 12:30pm</b> MR160	<b>A01 - Symposium: Apprentissage et développement professionnel dans le domaine de la santé</b> Session Chair: <b>Nathalie Muller Mirza</b> Session Chair: <b>Michèle Grossen</b>
<b>11:00am - 12:30pm</b> MR170	<b>A02 - Round Table: Reflexivity and professional development</b> Session Chair: <b>Bev Fluckiger</b>
<b>11:00am - 12:30pm</b> M1130	<b>A03 - Data session: Accounting for time and change</b> Session Chair: <b>Allison Littlejohn</b> Session Chair: <b>Nick Hopwood</b>
<b>11:00am - 12:30pm</b> M1140	<b>A04 - Paper Session Fr: Transformations identitaires et employabilité</b> Session Chair: <b>Sandrine Cortessis</b>
<b>11:00am - 12:30pm</b> M1150	<b>A05 - Paper Session: Learning in informal contexts</b> Session Chair: <b>Béatrice Arend</b>
<b>11:00am - 12:30pm</b> M1160	<b>A06 - Paper Session: Career and professional development</b> Session Chair: <b>Katja Vähäsantanen</b>
<b>11:00am - 12:30pm</b> M1170	<b>A07 - Paper Session: Learning in higher education</b> Session Chair: <b>Isabel Raemdonck</b>
<b>11:00am - 12:30pm</b> M2150	<b>A08 - Paper Session: The development of vocational education and training</b> Session Chair: <b>Alessia Eletta Coppi</b>
<b>11:00am - 12:30pm</b> M2160	<b>A09 - Paper Session: Inovation and technology in higher education</b> Session Chair: <b>Peggy Lambriex-Schmitz</b>
<b>12:30pm - 2:00pm</b> Uni Mail Marx Cafeteria	<b>Lunch</b>
<b>2:00pm - 4:00pm</b> MR160	<b>B01 - Symposium: Shadow Organizing: Interaction, Learning and Professional Development</b> Session Chair: <b>Silvia Gherardi</b> Invited symposium
<b>2:00pm - 4:00pm</b> MR170	<b>B02 - Symposium: Hybrid training spaces</b> Session Chair: <b>Laurent Veillard</b>
<b>2:00pm - 4:00pm</b> M1130	<b>B03 - Paper session Fr: Formation et développement professionnel des enseignants</b> Session Chair: <b>Sylvain Doussot</b>
<b>2:00pm - 4:00pm</b> M1140	<b>B04 - Paper session: Learning at work</b> Session Chair: <b>Christof Nägele</b>
<b>2:00pm - 4:00pm</b> M1150	<b>B05 - Paper session: Learning in teams</b> Session Chair: <b>Andreas Widmann</b>
<b>2:00pm - 4:00pm</b>	<b>B06 - Paper session: Teachers learning and professional development</b>

M1160	Session Chair: <b>Merel M. van der Wal</b>
<b>2:00pm - 4:00pm</b>	<b>B07 - Paper session: The development of expertise and competences</b>
M1170	Session Chair: <b>Alex Sandro Gomes</b>
<b>2:00pm - 4:00pm</b>	<b>B08 - Paper session: Integrating education and work in vocational training</b>
M2150	Session Chair: <b>Alessia Evi-Colombo</b>
<b>4:00pm - 4:30pm</b>	<b>Coffee break</b>
Uni Mail Hall	
<b>4:30pm - 6:00pm</b>	<b>C01 - Poster session: Addressing the challenges of work-based learning</b>
Uni Mail Hall - Poster Section A	Session Chair: <b>Sarojni Choy</b>
<b>4:30pm - 6:00pm</b>	<b>C02 - Poster session: Learning in apprenticeship across contexts</b>
Uni Mail Hall - Poster Section B	Session Chair: <b>Stephen Richard Billett</b>
<b>4:30pm - 6:00pm</b>	<b>C03 - Poster session: Learning and development in organisations</b>
Uni Mail Hall - Poster Section C	Session Chair: <b>Nathalie Delobbe</b>
<b>4:30pm - 6:00pm</b>	<b>C04 - Poster session: Learning and professional development of teachers</b>
Uni Mail Hall - Poster Section D	Session Chair: <b>Päivi Tynjälä</b>
<b>4:30pm - 6:00pm</b>	<b>C05 - Round Table Fr: Analyse du travail et développement des compétences</b>
MR160	Session Chair: <b>Germain Poizat</b>
<b>4:30pm - 6:00pm</b>	<b>C06 - Round Table: Responding to the challenges of uncertain work conditions</b>
MR170	Session Chair: <b>Christian Harteis</b>
<b>4:30pm - 6:00pm</b>	<b>C07 - Paper session Fr: Simulation, formation et santé</b>
M1150	Session Chair: <b>Lucien Tisserand</b>
<b>4:30pm - 6:00pm</b>	<b>C08 - Paper session: Learning through verbal interactions</b>
M1160	Session Chair: <b>Martin Johnson</b>
<b>4:30pm - 6:00pm</b>	<b>C09 - Paper session: Linking education and work in higher education</b>
M1170	Session Chair: <b>Juergen Seifried</b>
<b>4:30pm - 6:00pm</b>	<b>C10 - Paper session: Adult learning processes within the context of work</b>
M2150	Session Chair: <b>Ray Smith</b>
<b>6:00pm - 8:00pm</b>	<b>Welcome reception</b>
Uni Mail Hall	Standing dinner, music and Springer book presentation
<b>Date: Thursday, 13/Sep/2018</b>	
<b>8:00am - 6:30pm</b>	<b>Registration 3: Registration</b>
Uni Mail Hall	
<b>8:30am - 10:30am</b>	<b>D01 - Symposium: The sequential organization of instructions in and for the professions</b>
MR160	Session Chair: <b>Oskar Lindwall</b> Invited symposium
<b>8:30am - 10:30am</b>	<b>D02 - Symposium: Relationships as Risks and Resources for Resilience</b>
MR170	Session Chair: <b>Susan Beltman</b>
<b>8:30am - 10:30am</b>	<b>D03 - Symposium: The use of role-play simulations of political decision-making</b>
M2160	Session Chair: <b>Dorothy Duchatelet</b>
<b>8:30am - 10:30am</b>	<b>D04 - Symposium: Workplace difficulties in teachers' professional conversations</b>
M2170	Session Chair: <b>Kristine Balslev</b> Session Chair: <b>Soraya De Simone</b>
<b>8:30am - 10:30am</b>	<b>D05 - Paper session Fr: Tutorat et apprentissages en situation de travail</b>
M1130	Session Chair: <b>Marine Pelé-Peycelon</b>
<b>8:30am - 10:30am</b>	<b>D06 - Paper session: Language teaching and learning</b>
M1140	Session Chair: <b>Maria Pannatier</b>

8:30am - 10:30am M1150	<b>D07 - Paper session: Knowledge, concepts and epistemic development</b> Session Chair: <b>Monika Nerland</b>
8:30am - 10:30am M1160	<b>D08 - Paper session: Teachers learning and professional development</b> Session Chair: <b>Michael Goller</b>
8:30am - 10:30am M1170	<b>D09 - Paper session: Learning in organisations</b> Session Chair: <b>David Guile</b>
8:30am - 10:30am M2150	<b>D10 - Paper session: Work and education as uncertain contexts for professional learning and development</b> Session Chair: <b>Susanne Weber</b>
10:30am - 11:00am Uni Mail Hall	<b>Coffee break</b>
11:00am - 12:00pm MR080	<b>Keynote address</b> Session Chair: <b>Stephen Richard Billett</b> <b>Pierre Dillenbourg</b> <b>Digital gaps and digital bridges between schools and workplaces</b>
12:00pm - 1:30pm Uni Mail Marx Cafeteria	<b>Lunch</b>
1:30pm - 3:30pm MR160	<b>E01 - Symposium: Emerging perspectives of education in the professions: Learning through practice</b> Session Chair: <b>Christian Harteis</b>
1:30pm - 3:30pm MR170	<b>E02 - Symposium: Interactions et potentiel d'apprentissage des situations professionnelles</b> Session Chair: <b>Paul Olry</b> Session Chair: <b>Patrick Mayen</b> Invited symposium
1:30pm - 3:30pm M2160	<b>E03 - Symposium: The epistemic use of material objects in workplace participatory practices: Exploring the context of health</b> Session Chair: <b>Asa Mäkitalo</b> Session Chair: <b>Laurent Filliettaz</b>
1:30pm - 3:30pm M2170	<b>E04 - Symposium: Emerging directions in research on connectivity for interaction, learning and professional development</b> Session Chair: <b>Sarojini Choy</b> Session Chair: <b>David Guile</b>
1:30pm - 3:30pm M1130	<b>E05 - Paper session Fr: Apprentissage et développement dans les métiers de la santé et du travail social</b> Session Chair: <b>Julien de Miribel</b>
1:30pm - 3:30pm M1140	<b>E06 - Paper session: Learning in vocational education and training</b> Session Chair: <b>Joris Felder</b>
1:30pm - 3:30pm M1150	<b>E07 - Paper session: Emotions in learning and professional development</b> Session Chair: <b>Susanna Paloniemi</b>
1:30pm - 3:30pm M1160	<b>E08 - Paper session: Teachers expertise and professional development</b> Session Chair: <b>Henny P. A. Boshuizen</b>
1:30pm - 3:30pm M1170	<b>E09 - Paper session: Training transfer in organisational contexts</b> Session Chair: <b>Nathalie Delobbe</b>
1:30pm - 3:30pm M2150	<b>E10 - Paper session: Agency and identity in vocational training</b> Session Chair: <b>Ray Smith</b>
3:30pm - 4:00pm Uni Mail Hall	<b>Coffee break</b>
4:00pm - 5:30pm MR160	<b>F01 - Symposium: Learning to work in the margins: interactional and discourse analytical perspectives</b> Session Chair: <b>Ingrid de Saint-Georges</b>
4:00pm - 5:30pm MR170	<b>F02 - Round Table: Measuring and developing professional expertise</b> Session Chair: <b>Andreas Rausch</b>
4:00pm - 5:30pm M1160	<b>F03 - Data session: Observing and measuring complex research objects</b> Session Chair: <b>Juergen Seifried</b> Session Chair: <b>Michael Goller</b>
4:00pm - 5:30pm	<b>F04 - Paper session Fr: Apprentissage et formation des adultes</b>

M1130	Session Chair: <b>Christine Vidal-Gomel</b>
<b>4:00pm - 5:30pm</b>	<b>F05 - Paper session: Learning from collaboration and interprofessional experiences at work</b>
M2170	Session Chair: <b>Joanne Stephens</b>
<b>4:00pm - 5:30pm</b>	<b>F06 - Paper session: Reflexivity and professional development</b>
M1140	Session Chair: <b>Bärbel Fürstenau</b>
<b>4:00pm - 5:30pm</b>	<b>F07 - Paper session: Integrating learning experiences in higher education</b>
M1150	Session Chair: <b>Stephen Richard Billett</b>
<b>4:00pm - 5:30pm</b>	<b>F08 - Paper session: Learning and professional development of primary school teachers</b>
M1170	Session Chair: <b>Bev Fluckiger</b>
<b>4:00pm - 5:30pm</b>	<b>F09 - Paper session: Theories and methodologies for the study of professional learning and development</b>
M2150	Session Chair: <b>Mariana Orozco</b>
<b>4:00pm - 5:30pm</b>	<b>F10 - Paper session: Learning medical practices</b>
M2160	Session Chair: <b>Judith Warren Little</b>
<b>5:35pm - 6:30pm</b>	<b>SIG Business meeting</b>
MR080	
<b>7:30pm - 10:30pm</b>	<b>Conference dinner</b>
Grand Hotel Kempinski	
<b>Date: Friday, 14/Sep/2018</b>	
<b>8:00am - 5:30pm</b>	<b>Registration</b>
Uni Mail Hall	
<b>8:30am - 10:30am</b>	<b>G01 - Symposium: Transformer l'expérience en apprentissage par l'accessibilité cognitive, conative et socio-affective</b>
MR160	Session Chair: <b>Laurence Durat</b>
<b>8:30am - 10:30am</b>	<b>G02 - Symposium: Learning and developing 'professional vision' at work</b>
MR170	Session Chair: <b>Barbara Pentimalli</b> Session Chair: <b>Vanessa Rémerly</b>
<b>8:30am - 10:30am</b>	<b>G03 - Symposium: Francophone perspectives on the articulation between learning at work and learning through work</b>
M2150	Session Chair: <b>Lionel Roche</b> Session Chair: <b>Florian Meyer</b>
<b>8:30am - 10:30am</b>	<b>G04 - Paper session Fr: Formation et développement professionnel des enseignants</b>
M1130	Session Chair: <b>Annie Malo</b>
<b>8:30am - 10:30am</b>	<b>G05 - Paper session: The development of skills and expertise</b>
M1140	Session Chair: <b>Asa Mäkitalo</b>
<b>8:30am - 10:30am</b>	<b>G06 - Paper session: Learning in informal contexts</b>
M1150	Session Chair: <b>Patrizia Salzmann</b>
<b>8:30am - 10:30am</b>	<b>G07 - Paper session: Learning and professional development in health</b>
M1160	Session Chair: <b>Katrien Cuyvers</b>
<b>8:30am - 10:30am</b>	<b>G08 - Paper session: Learning in vocational education and training</b>
M1170	Session Chair: <b>Juergen Seifried</b>
<b>10:30am - 11:00am</b>	<b>Coffee break</b>
Uni Mail Hall	
<b>11:00am - 12:00pm</b>	<b>Keynote address</b>
MR080	Session Chair: <b>Laurent Filliettaz</b> Helen Melander <b>Learning in interaction in 'authentic' situations</b>
<b>12:00pm - 1:00pm</b>	<b>Lunch</b>
Uni Mail Marx Cafeteria	
<b>1:00pm - 2:30pm</b>	<b>H01 - Symposium: Collectifs-groupes-équipes de travail et apprentissage en contexte de travail : formes et objet, enjeux scientifiques et méthodes empiriques</b>
MR160	Session Chair: <b>Frédérique Rebetez</b>

	Session Chair: <b>Sephora Boucenna</b>
<b>1:00pm - 2:30pm</b> M1160	<b>H02 - Symposium: Simulations for Professional Learning</b> Session Chair: <b>Helen Jossberger</b>
<b>1:00pm - 2:30pm</b> M1130	<b>H03 - Paper session Fr: Apprentissages et formation professionnelle</b> Session Chair: <b>Jean-Marie Weber</b>
<b>1:00pm - 2:30pm</b> M1140	<b>H04 - Paper session: Learning and professional development of teachers</b> Session Chair: <b>Valerie Lussi Borer</b>
<b>1:00pm - 2:30pm</b> M1150	<b>H05 - Paper session: Workplace learning and vocational training</b> Session Chair: <b>Stephen Richard Billett</b>
<b>1:00pm - 2:30pm</b> M1170	<b>H06 - Paper session: Learning behaviors in work and education contexts</b> Session Chair: <b>Therese Grohnert</b>
<b>2:30pm - 3:00pm</b> Uni Mail Hall	<b>Coffee break</b>
<b>3:00pm - 4:30pm</b> MR160	<b>I01 - Symposium: Collectifs-groupes-équipes de travail et apprentissage en contexte de formation (dans et hors de l'espace de travail) : formes et objet, enjeux scientifiques et méthodes empiriques</b> Session Chair: <b>Frédérique Rebetz</b> Session Chair: <b>Sephora Boucenna</b>
<b>3:00pm - 4:30pm</b> MR170	<b>I02 - Paper session Fr: Professionnalisation des acteurs de l'éducation</b> Session Chair: <b>Robert David</b>
<b>3:00pm - 4:30pm</b> M1160	<b>I03 - Paper session: Adult learning processes within the context of work</b> Session Chair: <b>Judy MacCallum</b>
<b>3:00pm - 4:30pm</b> M1170	<b>I04 - Paper session: Testing, measuring and assessment</b> Session Chair: <b>Josef Guggemos</b>
<b>3:00pm - 4:30pm</b> M1150	<b>I05 - Paper session: Teachers training and professional development</b> Session Chair: <b>Bernadette Charlier</b>
<b>4:30pm - 5:00pm</b> MR080	<b>Closing ceremony</b>

## Presentations

### A01 - Symposium: Apprentissage et développement professionnel dans le domaine de la santé

*Time:* Wednesday, 12/Sep/2018: 11:00am - 12:30pm · *Location:* MR160

*Session Chair:* Nathalie Muller Mirza

*Session Chair:* Michèle Grossen

#### Apprentissage et développement professionnel dans le domaine de la santé: une approche socioculturelle et interactionnelle

*Chair(s):* **Nathalie Muller Mirza** (University of Lausanne, Switzerland), **Michèle Grossen** (University of Lausanne)

*Discussant(s):* **Vassiliki Markaki-Lothe** (Université de Grenoble)

Dans les environnements contemporains des métiers de la santé, des phénomènes tels que l'interdisciplinarité au sein d'équipes de soin, la présence de clients allophones ou l'arrivée de personnels étrangers sur le marché du travail, ont des répercussions importantes sur les pratiques concrètes des différents acteurs. Ces phénomènes ont des effets non seulement sur les pratiques quotidiennes des professionnel-le-s et des bénéficiaires, mais également sur les dispositifs de formation.

En adoptant une perspective socioculturelle et interactionnelle, les trois interventions de ce symposium analysent les pratiques professionnelles et processus discursifs (reformulation, élaborations narratives, etc.) en jeu dans diverses situations : réunions de travail en équipe pluridisciplinaire, entretiens cliniques ou entretiens de recherche, de manière à rendre compte des opportunités de développement qui traversent les trajectoires personnelles, les équipes et les institutions.

Grossen et Ros mobilisent la théorie de l'activité et une perspective dialogique du discours pour analyser une réunion de travail en équipe pluridisciplinaire. Elles montrent comment l'élaboration d'un obstacle relevant de contradictions systémiques constitue une occasion de développement professionnel.

Adoptant une approche conversationnelle, Ticca, Lambert et Piccoli analysent des situations de communication plurilingues entre réfugié.e.s et agents de services de santé et portent l'attention en particulier sur les récits de vie de clients allophones. Elles montrent alors que ces récits résultent non seulement d'un processus d'interaction entre le patient et le professionnel mais aussi du contexte institutionnel dans lequel ils sont produits, et que la façon dont ils sont traités a des effets sur l'activité en cours.

Alber et Muller Mirza analysent, selon une approche interactionnelle et narrative, les récits de parcours contrastés de deux infirmières du Kosovo ayant procédé à une demande de reconnaissance de leur titre et passé par un dispositif de formation,

appelé les "mesures de compensation". Les chercheurs montrent combien ces dispositifs peuvent, dans un parcours personnel, être perçus comme ressources mais aussi comme obstacles à l'insertion professionnelle.

Portant sur différents contextes professionnels, ces exposés mettent en évidence les processus de développement professionnel au cœur des pratiques quotidiennes. Ce faisant, ils interrogent à la fois les méthodes d'analyse des chercheurs impliqués dans l'étude des pratiques professionnelles et les dispositifs de formation mis en place dans des contextes de soin.

#### *Presentations of the Symposium*

### **Obstacles au travail et développement professionnel : analyse discursive d'une réunion d'équipe**

**Michèle Grossen<sup>1</sup>, Jenny Ros<sup>2</sup>**

<sup>1</sup>Université de Lausanne, <sup>2</sup>Haute école de travail social et de la santé

Dans les métiers de la santé et du social, le travail en équipe s'accompagne généralement de réunions régulières, lieu d'échange d'information, d'organisation du travail et de discussion de situations cliniques difficiles. Par l'échange et la confrontation d'idées, ces discussions en équipe sont censées permettre aux professionnels de surmonter les obstacles rencontrés dans l'exercice de leur métier et d'élaborer des solutions. Mais qu'en est-il dans les pratiques réelles des professionnels ? Cette communication se propose de répondre à cette question en prenant comme cadre théorique la théorie historico-culturelle de l'activité, telle que développée par Yrjö Engeström et son équipe.

Les données, qui s'intègrent dans un projet de recherche plus large (Ros, 2015), sont constituées d'un corpus de vingt-deux colloques hebdomadaires d'une équipe pluridisciplinaire chargée de la coordination entre institutions psychiatriques et socio-éducatives pour personnes en situation de handicap mental. Dans une analyse préliminaire, ce corpus a été découpé en cinquante-quatre séquences thématiques portant sur le travail clinique (discussions sur des nouvelles demandes de suivi, hospitalisations ou situations cliniques complexes). La communication porte sur l'analyse d'une de ces séquences, tirée d'une réunion à laquelle participent six professionnels (une psychologue, deux éducateurs, trois psychiatres, dont le chef d'équipe). Au début de cette séquence, la psychologue présente un obstacle survenu dans la prise en charge d'un patient.

Le but de cette analyse est de (1) développer une méthode permettant d'identifier les obstacles discutés dans ces réunions ; (2) mettre en évidence les contradictions systémiques sous-jacentes à ce système d'activité ; (3) recourir à une approche dialogique du langage et de la communication inspirée de Bakhtine pour analyser pas à pas les processus par lesquels les professionnels négocient les significations de l'obstacle rapporté et trouvent une solution.

Les résultats, examinés à la lueur de la théorie historico-culturelle de l'activité et de la clinique de l'activité, permettent d'une part de rendre compte des contradictions systémiques en jeu dans ce système d'activité, d'autre part de montrer par quels processus discursifs la définition initiale de l'obstacle discuté est peu à peu modifiée et élaborée. En suivant la notion d'instance professionnelle proposée par Clot (2007), nous montrons comment cet obstacle initialement présenté comme un problème relevant de l'instance interpersonnelle est réinterprété comme un problème d'ordre impersonnel puis transpersonnel, lié à l'organisation du travail. L'obstacle ainsi redéfini confère un pouvoir d'action aux professionnels et constitue une occasion de développement non seulement pour les professionnels, mais plus généralement pour le métier proprement dit.

### **Le récit dans les consultations entre professionnels de la santé et réfugiés en France. Une démarche interactionniste pour la formation**

**Anna Claudia Ticca, Patricia Lambert, Vanessa Piccoli**

Université de Grenoble

Notre communication se fonde sur une recherche qui vise à étudier les situations de communication plurilingues entre réfugié.e.s et agents de services de santé (avec et sans interprète). L'enquête se déroule, en France, dans les domaines de la médecine généraliste et mentale. Dans le cadre de cette étude, nous nous intéressons notamment à l'émergence de récits de vie au cours de ces consultations. Le récit de vie a été abordé sous plusieurs angles disciplinaires – anthropologie, sociologie, études culturelles, psychologie – qui en étudient la forme narrative et le contenu (voir par exemple Bourdieu 1986, Bertaux 1997). En analyse conversationnelle, le récit est observé dans sa dimension interactionnelle, en montrant dans le détail le positionnement des participants par rapport aux contenus proposés (Sacks, 199, Schegloff 1997, Mandelbaum, 1989, 1991). Ce regard sur la façon dont le récit est reçu nous semble intéressant pour comprendre comment le professionnel de la santé, en médecine somatique ou mentale, sollicite, volontairement ou 'accidentellement', et ensuite reçoit, recadre ou bien s'aligne (Stivers, 2008) au récit. L'analyse située des événements interactionnels où le récit a lieu est informée par les connaissances ethnographiques que nous avons développées au cours de notre recherche de terrain. En effet, le niveau d'expérience des réfugié-es dans le dispositif d'accueil ainsi que le type de rencontre institutionnelle dans laquelle ils se trouvent, sont susceptibles d'avoir un impact sur les pratiques interactionnelles mises en œuvre et sur les contenus mobilisés dans ces interactions. Egalement, la centralité du récit dans la vie du réfugié – il fait l'objet d'évaluation de l'instance conférant le droit d'asile (voir aussi Blommaert 2001) – semble être à la base de sa mobilisation fréquente dans les différents contextes d'interactions que nous avons observés.

C'est dans le cadre de notre réflexion sur la mise en place d'interventions de formation/sensibilisation auprès de professionnels concernés (domaine de la santé, travailleurs sociaux, interprètes) que nous proposons une démarche de transposition de ces observations et analyses préliminaires. A partir de quelques extraits d'interactions vidéo-enregistrées, nous illustrerons les différents moments concernant l'émergence et le traitement de (portions de) récits dans des consultations médicales. Au niveau spatio-temporel, le récit peut évoquer deux moments différents dans le parcours de la personne migrante : l'expérience vécue avant l'arrivée en France et l'expérience actuelle dans ce pays. Notre analyse portera, d'une part, sur le lien entre le type de consultation, l'émergence du récit, l'activité en cours dans laquelle le récit est produit et la manière dont ce récit est reçu et traité par les participants. D'autre part, elle illustrera l'impact que l'émergence de ce récit et son traitement ont sur l'activité spécifique en cours.

Nous présenterons pour finir un retour d'expérience sur l'utilisation de ces supports dans des interventions de formation destinées aux professionnels de la santé et aux interprètes.

### **Analyse de parcours professionnels contrastés d'infirmières étrangères en Suisse : les « Mesures de compensation » comme ressources ou obstacles dans le récit de femmes originaires du Kosovo**

Les infirmières diplômées de l'étranger qui sont établies en Suisse ont l'opportunité d'actionner une procédure visant à faire reconnaître leur titre et, si leur demande d'équivalence aboutit, d'obtenir l'autorisation d'exercer leur métier au rang d'infirmière ES. La reconnaissance des diplômes acquis dans un Etat Tiers (non EU/AELE) est le plus souvent conditionnée. Les candidates doivent ordinairement suivre un cursus de « mesures de compensation » (MC) censé combler des lacunes, théoriques et pratiques, identifiées en vertu des standards suisses. Les MC visent à revisiter l'identité professionnelle des candidates, à « remodeler » une conception du rôle infirmier essentiellement axée sur le modèle biomédical et à renforcer de nouvelles capacités (en matière de communication, de gestion, de relation de soin, d'interprofessionnalité, de soins palliatifs, de spiritualité, de soins sensibles à la culture, au genre, etc.). Le titre d'infirmière est refusé lorsque les modalités d'apprentissage du métier présentent des écarts jugés trop importants pour pouvoir être comblés. Une équivalence est alors accordée au rang inférieur d'assistante en soins et en santé communautaire (ASSC) (Alber & von Aarburg, 2012).

Dans le cadre d'une étude exploratoire menée en Suisse romande portant sur les parcours professionnels d'infirmières diplômées provenant d'un Etat Tiers, nous nous sommes interrogés sur la façon dont ces personnes expérimentent leur insertion ou réinsertion professionnelle dans le système de santé suisse après le passage par les MC : A quelles difficultés sont-elles confrontées ? Quelles sont les ressources qu'elles mobilisent ? Quel sens prend ce temps de transition ou de « reformatage » dans leur trajectoire ? Comment affecte-t-il leur identité personnelle et professionnelle ? (Muller Mirza & Alber, sous presse).

Notre communication ici est centrée sur l'analyse d'un corpus constitué par les récits de deux infirmières diplômées du Kosovo, ex-candidates à la reconnaissance du titre suisse. Ce choix est motivé par le fait qu'il s'agit de parcours contrastés : l'un rend compte d'une insertion conduisant à occuper un poste à responsabilité ; l'autre est marqué par un déclassement au rang d'ASSC.

L'analyse des récits – produits dans le cadre d'entretiens de recherche conduits autour des « moments forts » du parcours professionnel – est menée selon une double perspective : d'une part, le récit est défini comme une voie d'accès à l'expérience subjective, et permet de mieux comprendre la façon dont une personne donne sens aux événements, aux difficultés rencontrées, aux ressources déployées et aux effets qui en résultent en termes identitaires (Dubar, 1998 ; Descombes, 2014). D'autre part, l'adoption d'une perspective interactionnelle et narrative focalisée sur la dynamique discursive, permet d'examiner la façon dont cette expérience est mise en mot dans la situation de communication elle-même (Bruner, 2006 ; Grossen, 2015). Le but étant d'appréhender le travail de construction identitaire en interaction.

Cette analyse vise l'objectif général de mieux cerner le rôle des MC en tant que ressources et qu'obstacles en termes de développement professionnel, et de saisir combien la mise en mots d'une expérience de formation peut être considérée comme une activité de construction de sens et de soi.

## A02 - Round Table: Reflexivity and professional development

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: MR170  
Session Chair: Bev Fluckiger

### A Systematic Review of Reviews about the Role of Reflective Practice in the Development of Competencies for Health Professionals

**Nicolas Fernandez<sup>1</sup>, Marilou Bélisle<sup>2</sup>, Kathleen Lechasseur<sup>3</sup>, Brigitte Vachon<sup>1</sup>, Gabriel Dumouchel<sup>1</sup>**

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Research on development of professional competencies has often linked reflective practice with meaningful educational effects (Buckley et al., 2009). However, empirical evidence of this is scarce (Collin, Karsenti, & Komis, 2013). Reflective practice has been referred to as a conscious and deliberate strategy put in place by professionals to gain understanding and meaning from what they learn in professional practice. In the educational domain, practical issues have been raised consistently as to how to support its development in students and how to assess it (Green, Wyllie, & Jackson, 2014). This growing body of research has left in its wake multiple conceptions of reflection and many questions as to what makes it a "practice" (Mann, Gordon, & MacLeod, 2009). We aimed to glean anchors for future empirical research from recent review articles about enhancing coherence between reflection in the training and subsequent practice of health professionals.

By conducting a systematic review of reviews, we identified 20 review articles published in English from 2008 and 2018. Of these, 5 (25%) reviewed educational strategies associated with reflective practice; 4 (20%) on assessment practices, and 4 (20%) on the use of a narrative instrument such as the portfolio or journal. The types of reviews are mainly literature reviews (n=8, 40%), followed by systematic reviews (n=7, 35%).

Our systematic review of reviews reveals three important gaps : 1) the conceptual definitions of reflective practice and reflection hold few operational cues about how reflective practice is and can be used in clinical practice; 2) scarce empirical studies focus on the relative learning impacts of different instruments and strategies; and 3) there is a great variability in methodological approaches to collect empirical data about reflexive practice.

Our results bring to the forefront the challenges inherent in assessing operational impacts of instruments and strategies put in place to enhance student uptake of reflective practice. We aim to leverage these results in designing empirical studies, in collaboration with instructors in the disciplines of health sciences, to further investigate the role of reflective practice and professional competency development.

Buckley, S., Coleman, J., Davison, I., Khan, K. S., Zamora, J., Malick, S., . . . Sayers, J. (2009). The educational effects of portfolios on undergraduate student learning: A Best Evidence Medical Education (BEME) systematic review. BEME Guide No. 11. *Medical Teacher*, 31(4), 282-298.

Collin, S., Karsenti, T. & Komis, V. (2013). Reflective practice in initial teacher training: critiques and perspectives. *Reflective Practice: International and Multidisciplinary Perspectives*, 14(1), 104-117.

Green, J., Wyllie, A. & Jackson, D. (2014). Electronic portfolios in nursing education: A review of the literature. *Nurse Education in Practice*, 14, 4-8.

Mann, K., Gordon, J. & MacLeod, A. (2009). Reflection and reflective practice in health professions education: a systematic review. *Advances in Health Sciences Education*, 14, 595-621.

### Peer Mentoring as a Professional Development Tool for the Teachers of Bhutan

**Tshewang Rinzin**

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Teacher professional development is necessary to provide ongoing opportunities for teachers to learn from experts and peers to enhance their content, pedagogical knowledge, self-efficacy and teaching learning practices (Day & Gu, 2007; Zimmerman et al., 2017).

School-based mentoring as professional development has played a prominent role in supporting the initial preparation and professional development of beginning teachers in many parts of the world since 1980 (Ashby, Hobson, Malderez, & Tomlinson, 2009; Richter et al., 2013). Additionally, there has been positive impact on the personal and professional development of experienced teachers involved in mentoring programs. Studies claim that effective professional learning takes place within schools where teachers are working in cooperation with other teachers supported by school leaders (Hamilton, 2013; Kensington-Miller, 2012;). Therefore, creating opportunities for professional development activities within the school can be a relatively inexpensive way of fostering learning and collaboration among teachers.

The research aims to investigate the ways in which a peer mentoring program can support the development of a professional community of beginning and experienced teachers of Bhutan by assisting them to collaborate among themselves within school and encouraging them to participate both as mentor and mentee, regardless of their level of work experience.

The peer mentoring involves four groups of three teachers (two beginning and one experienced teacher) working in a professional learning community to observe and provide feedback to each other. Each member in a group takes turn to teach a regular class, observed by other members of the group using an adapted Teaching Tracker Tool (T3) to guide their observations and provide feedback during discussion. The Teaching Tracker Tool (T3) is a digital way of capturing non-judgmental evidenced-based feedback of a teacher teaching a class and to assist teachers with observation and post lesson discussion (Jeana et al., 2018).

The study adopts a critical constructivist perspective (Heikinen, Jokinen & Tynjala, 2012) and uses a qualitative methodology with multiple methods to gather data. An initial survey asks teachers about their previous experiences of observation and mentoring, reflective journals maintained by all participants over the 12 weeks of the program allow teachers to include factual log of events and any significant incidents from participants point of view, researcher's onsite observation give better understanding of the participants' interaction during the post lesson discussion and semi-structured interviews of beginning and experienced teachers provides an authentic qualitative point of view about the current school level monitoring system and their

experiences of peer mentoring. Moreover, it also informs the personal and professional support gained by the teachers from taking part in peer mentoring.

Initial findings will be presented. It is anticipated that observation and discussion will help teachers to analyse and refine the quality of their teaching practice, and over time develop a learning community. The findings will add contextual Bhutanese knowledge and ideas to the international literature on peer mentoring, and how the adapted Teacher Tracker Tool can be used to support teacher observation and discussion.

### **Introducing a preliminary rubric for analyzing student professionalization in professionalizing programs**

**Marilou Bélisle<sup>1</sup>, Patrick Lavoie<sup>2</sup>, Louise Boyer<sup>2</sup>, Lechasseur Kathleen<sup>3</sup>, Goudreau Johanne<sup>2</sup>**

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In universities, professionalizing programs include formal training to prepare students to act competently and to efficiently solve new and increasingly complex situations in the workplace. Although student professionalization is an explicit goal of such programs, the notion of professionalization itself is rarely defined, and program developers and instructors often lack explicit and common understanding of its meaning and implications for teaching and learning. Typically associated with the development of competency and identity, professionalization also involves learning of cognitive and cultural aspects related to the ways of doing and acting of a professional group (Abrandt Dahlgren & al., 2004).

Based on literature and previous work, we define student professionalization as a dynamic process of becoming a professional that entails the development of professional competencies, the appropriation of a professional culture, and the construction of a professional identity (Bélisle, 2011). The conceptual model that we propose also puts forward three types of pedagogical activities that promote professional development: active learning methods, reflective approaches, and supportive strategies. The roles students get to exert, the situations they encounter, and the contexts in which they evolve throughout their professionalizing path also influence the way they develop and see themselves as professionals in becoming.

The goal of this ongoing project is to develop a comprehensive rubric (Wesselink & al., 2010) on student professionalization that takes into account the conceptual and pedagogical dimensions of our conceptual model. The development of this rubric is based on an in-depth qualitative analysis (Miles & Huberman, 1994) of program documents and qualitative data collected through open questionnaires, individual and group interviews with instructors and students in professionalizing programs in French Canadian universities. This rubric, which includes elements of the three dimensions of professionalization as well as characteristics of professionalizing activities, is actually being used to analyze strengths and limitations for student professionalization in professionalizing programs. It also has the potential to provide guidelines and principles for designing professionalizing curricula in both university and workplace settings.

The purpose of this communication is to: 1) introduce the rubric on student professionalization and present the methodology that led to its construction and validation; 2) discuss the implications of using such a rubric for curriculum development and continuous improvement; and 3) explore potential avenues and collaborations for experimenting the rubric in a diversity of professionalizing paths.

Abrandt Dahlgren, M., Richardson, B. et Sjöström, B. (2004). Professions as communities of practice. In J. Higgs, B. Richardson et M. Abrandt Dahlgren (eds), *Developing practice knowledge for health professionals* (p. 71-88). Edinburgh: Butterworth-Heinemann.

Bélisle, M. (2011). *Perceptions de diplômés universitaires quant aux effets d'un programme professionnalisant et innovant sur leur professionnalisation en contexte de formation initiale*. Doctoral dissertation in Education, Université de Sherbrooke, Québec.

Wesselink, R., Dekker-Groen, A. M., Biemans, H. J. A. & Mulder, M. (2010). Using an instrument to analyse competence-based study programmes: experiences of teachers in Dutch vocational education and training. *Journal of Curriculum Studies*, 42(6), 813-829.

## A03 - Data session: Accounting for time and change

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: M1130

Session Chair: Allison Littlejohn

Session Chair: Nick Hopwood

### Older academics' learning: participation in practice and biography

Gosia Iwaniec-Thompson, Chris Kubiak, Allison Littlejohn

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The demographic changes in the population of academic staff are one of the many challenges facing British universities. There is a substantial increase of ageing academic staff in the 50 and over age bracket (Universities, 2017). Thus it is vital to explore how older academics maintain their development and how their workplace plays role in this. In addition, the context for the study is based on perceived literature gap of older academics learning.

RQ: How does the learning biography of older academics impact on their learning experiences in a workplace?

Theories of workplace learning place social dimensions at its core. In fact, this can be observable in two most influential workplace learning theories: activity theory and communities of practice. In activity theory the focus of learning is seen through contradictions and tensions within the activity systems (between participants, artifacts, communities, etc.) which lead to inspiring innovation and eventually leads to change (Engeström, 2001). In communities of practice, the learning arises out of a newcomer's learning trajectories from peripheral to full participation in the community. Lave & Wenger's (1991), situated learning propose that knowledge is created by the participation in a cultural practices of communities, where learning is linked with the identity creation. Despite many adaptations and empirical studies justifying these theories, there has also been much criticism. Billet, (2001) challenges the applicability of these theories by pointing to the lack of focus on the individual's cognition and motivation in learning. In consequence, he argues for a balanced view of both the collective and individual characteristics shaping how people engage with the learning opportunities at an institution. In his notion of co-participation, he conceptualises the process of thinking, acting and learning through working life as a co-constructive and reciprocal process (Billett, 2002, 2004). Likewise, there is a resonance between Billet and Hodgkinson & Hodgkinson (2004) work, as the authors also argue for the need to explore life histories and biographies (prior knowledge, understanding and skills) which shape their construal of and engagement in learning opportunities at workplaces. In consequence, there is a need to further explore the notion of personal biographies and the impact they have on participants' learning experiences in a workplace.

This research sets out to trace how older workers learn through everyday practice. Consequently, an ethnographic approach to understand participants in their natural settings engaged in everyday activities seems the most appropriate. Two methods of data collection are intended - observations and biographical interviews. Both forms of data aim to be collected at two universities on multiple occasions over a one-year time frame.

At the EARLI SIG, an overview of the learning theories that have frequently been used in research in workplace learning to conceptualise both the personal factors (e.g. learning biographies) and social agency (workplace) that interdependently impact older academics learning will be presented. Furthermore, an overview of the relevant literature on the characteristics of older academics' learning will be examined. Finally, an outline of the plan will summarise how the theories will be operationalised during the data collection.

### Implement a Lifelong Learning Approach to Enhance Learner's Autonomy Skills within an Apprenticeship Programme in Higher Education

Sacha Kiffer<sup>1</sup>, Jérôme Eneau<sup>1</sup>, Geneviève Lameul<sup>1</sup>, Hugues Pentecouteau<sup>1</sup>, Emmanuel Desmontils<sup>3</sup>, Serge Garlatti<sup>2</sup>, Jean-Marie Gilliot<sup>2</sup>, Mouhamadou Niang<sup>2</sup>, Patricia Serrano-Alvarado<sup>3</sup>, Hala Skaf-Molli<sup>3</sup>

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The "SElf-Data for Enhancing Lifelong learning Autonomy" (SEDELA) project started in September 2017. It gathers researchers from both IT and education science fields. The project aims to enhance learner's autonomy skills in a lifelong learning perspective as well as develop, experiment and implement an innovative self-data management approach (El Mawas et al., 2017). Autonomy in adult education is defined as "the ability to take charge in one's learning" (Holec, 1981, p.3), meaning specifically "determining the objectives; defining the contents and progressions; selecting methods and techniques to be used; monitoring the procedure of acquisition properly speaking (rhythm, time, place, etc.); evaluating what has been acquired" (Holec, 1981, p.3). Autonomous learners must have the capacity for critical reflection, decision making, and independent action (Little, 1991). But independence does not mean isolation as others often constitute resources for autonomous learners. Autonomy is considered as a central asset for lifelong learning. Therefore, supporting students to develop their autonomy's skills has become a major issue for higher education (Poumay, 2017). Moreover, autonomy is a key skill in the professional development. Professional development can either be defined as a process or as a stage development (Uwamariya & Mukamurera, 2005) and may be measured using specific indicators (Lefevre, Garcia & Namolovan, 2009). The approach of professional development by Eneau, Lameul & Bertrand (2014) is relevant because it offers a holistic vision with three different entries: identity construction; professional socialisation; professional posture development. In this context, how may the implementation of a self-data management approach enhance learner's autonomy skills in their professional development?

Based on previous research (Nguyen & Ikeda, 2015), we suggest that implementing a self-data management approach may have a positive effect on the learner's autonomy skills development in the apprenticeship context. Both objectives set by the SEDELA project are narrowly intertwined: implementation of the approach and autonomy skills evaluation. To address both objectives, a design-based research method is being deployed (Brown, 1992; Class & Schneider, 2013; Štemberger & Cencič, 2016). Design-based research is defined as a method that "combines empirical educational research with a theoretically substantiated shaping of learning environments" (Štemberger & Cencič, 2016, p.183) and aims to "build a stronger connection between educational research and real-world problems" (Amiel & Reeves, 2008, p.34). The process of design-based research is based on four phases (Design-Based Research Collective, 2003; Herrington, McKenney, Reeves & Oliver, 2007; Štemberger & Cencič, 2016). The first phase consists in scrutinizing a few apprenticeship training programmes in order to identify pedagogical needs. Then, the second phase implies developing a functional specification in order to build a prototype of a tool. The third phase consists in testing prototypes iteratively and also entails data collection. The fourth phase concludes the research by bringing solutions to the problem and presenting the final design of the developed approach.

Data are being collected as the project is ongoing. Therefore, the first results drawn from the prototype experimentations will be presented at the conference. We will also discuss the design-based research iterative method and its implications in data gathering.

## **The Development of the Willingness for Reflection and Problem Sensitivity of Future Teachers – A Longitudinal Study**

**Christine Knaub**

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Northrhine-Westfalia changed its teacher education programs to a Bachelor and Master structure and implemented a several months long university guided internship (Praxissemester). The major aim of this internship is to link practical experiences during the internship with theoretical knowledge learnt through university courses (MSW NRW, 2010). Future teachers are expected to autonomously reflect their professional pedagogic actions in order to successfully achieve a theory-practice transfer. Only in doing so, the students can further develop their individual professional pedagogic practice (Fraefel, 2017).

As of today, the works of John Dewey (i.a. 1910, 1938) regarding the concept of reflection in teacher education still pose as main points of reference in scientific discussions (Leonhard & Abels, 2017; Fraefel, 2017). According to Dewey, a problem-situation constitutes the starting point for reflection processes. This problem-situation needs to be identified as such in order for individuals to realize that a need for decisions and actions is given so a solution to the problem can be achieved (Dewey, 1910). There is a dispute if reflection can be taught (i.a. Hickson, 2011; Gelfuso & Dennis, 2014). According to Dewey, "one can think reflectively only when one is willing to endure suspense and to undergo the trouble of searching" (Dewey 1933, p. 16). The theory of planned behavior (Ajzen 1991) postulates that the most important determinant of behavior is behavioral intention, which is influenced by persons' individual attitudes and beliefs (ibid.).

As of today, no empirical data on the conditions of the willingness to reflect are available. Therefore, and in order to fill this empirical gap, this research project wants to evaluate the Praxissemester as an integral part of teacher education and answer the following research questions:

RQ1: How do beliefs and attitudes influence students' willingness to reflect during internships?

RQ2: Do students of varying willingness to reflect differ in their perception of problems that occur during class as well as the regression of theories?

RQ3: How do the students' beliefs and attitudes as well as their willingness to reflect develop during the Praxissemester?

RQ4: Is there a notable change within the students' perception of classroom problems during the Praxissemester?

To answer RQ1 and RQ3 a quantitative questionnaire study will be conducted using a sample of students of Paderborn University before and after they have attended the Praxissemester. This is done, in order to acquire individual attitudes, beliefs and willingness to reflect.

Answering RQ2 and RQ4 will rely on the use of eye tracking measurement and thinking aloud studies, administered both before and after the Praxissemester. Through eye tracking, the students' gaze behavior of their perception of problematic classroom situation, will be investigated. These will be presented via video recordings. The think aloud protocols can offer information about how students use their contextual knowledge of problematic classroom situations.

As of now, the study still is in an early conceptual phase. Therefore, this presentation aims to discuss the theoretical background, the research questions as well as the proposed research design.

## A04 - Paper Session Fr: Transformations identitaires et employabilité

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: M1140  
Session Chair: Sandrine Cortessis

### Discours sur l'écriture comme révélateur de transformation identitaires - Cas de rédaction du mémoire de fin d'études en formation d'ingénieurs au Cnam.

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Cette recherche porte sur les effets de transformation identitaire de techniciens faisant fonction d'ingénieurs et candidats au diplôme d'ingénieur Hors Temps de Travail du Conservatoire national des arts et métiers. Au cours de ce cursus, le sujet est amené à rédiger un écrit dont la forme académique attendue s'associe sur le fond à un projet professionnel. L'analyse des liens pouvant être établis entre cet écrit et la transition professionnelle opérée par le sujet participe à mieux appréhender certains ressorts de la professionnalisation. Cette étude vise à comprendre en quoi le discours tenu, au cours du processus d'écriture, par les rédacteurs du mémoire de fin d'études d'ingénieur, permet de saisir les moments révélateurs de la transition identitaire professionnelle des sujets. La formulation de l'hypothèse a porté sur ces moments révélateurs qui procèdent d'une fertilisation réciproque entre discours tenu sur l'écriture et sur l'écrit lui-même. Le cadre théorique principal mobilisé est celui de la professionnalisation entendue ici comme développement professionnel des sujets à travers l'identité vécue (Wittorski, 2008) et de l'identité énonciative (Guibert, 2007) : un système multidimensionnel de représentations, celles de l'identité rédactionnelle (image de soi comme écrivain), de l'écrit à produire (images du texte prescrit) et de l'autrui à qui s'adresse le mémoire (images d'autrui pour soi sur soi). Les observations sont réalisées par le biais d'entretiens compréhensifs à dimension phénoménologique (Haas & Masson, 2006 ; Levinas, 1984 ; Matthey, 2005) du processus rédactionnel. La méthodologie choisie s'appuie sur une approche qualitative et compréhensive principalement basée sur une analyse thématique de contenu (Bardin, 2007) et une analyse de l'énonciation (Charaudeau, 2010 ; Kerbrat-Orecchioni, 2006). Une méthode quantitative, à l'aide du logiciel Iramuteq, permet de compléter l'approche qualitative. Les résultats obtenus permettent d'identifier des moments de tension portant sur des modalités de résolution et des objets singuliers. La diminution de la tension s'est exprimée pour certains sujets en termes de « sérénité retrouvée », sérénité permettant, voire facilitant le processus d'écriture. Les émotions qui se traduisent par une tension révèlent chez et pour le sujet des éléments qui lui sont propres. Par ailleurs, ce qu'a pu faire le sujet de ses émotions peut aboutir à une diminution de la tension, dans le cadre d'interactions avec d'autres sujets – collègues de travail, par exemple un supérieur hiérarchique - et autrui institutionnels - par exemple, un directeur de mémoire (Pham Quang, 2017).

### La formation : un enjeu de maintien dans l'emploi des seniors dans un centre d'appel

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Le vieillissement de la population active et l'allongement de la vie professionnelle font de la formation continue des seniors un enjeu majeur de maintien en emploi. Nombres d'organisations affichent comme préoccupation la participation de tous à l'amélioration continue de la performance dans des entreprises qui se veulent apprenantes. Ces éléments bousculent les frontières entre formation et travail, considérant qu'il est possible d'apprendre au travail (Billett, 2001), même si une telle affirmation rend nécessaire de mieux comprendre à quelles conditions l'apprentissage en situation de travail est possible, notamment avec l'avancée en âge.

Cette communication abordera ces enjeux à partir d'une demande d'un centre d'appel téléphonique. La direction a fait le constat suivant : alors qu'elle développait jusque-là une politique volontariste d'intégration des seniors, ces derniers semblent avoir des difficultés dans le contexte de changement de stratégies commerciales. Elle a en effet opté ces dernières années pour des opérations plus complexes, des méthodes de vente plus agressives et un mode d'organisation du travail privilégiant la polyvalence. Malgré des dispositifs de formation initiale et continue conséquents, certains seniors ont du mal à répondre aux objectifs de performance attendus et à monter rapidement en compétences sur les nouvelles opérations.

Une recherche a été menée en 2017 par une équipe pluridisciplinaire (économiste, sociologues, ergonomes) ayant pour objectif d'analyser les formations mises en place par l'entreprise et leur adaptation aux seniors. Par le biais d'entretiens avec de nombreux acteurs, d'observations de l'activité de télévendeurs et de formateurs durant des sessions de formation, nous montrerons en quoi les changements mis en œuvre, accompagnés par des dispositifs de formation qui ne prennent pas en compte la spécificité des modes d'apprentissage des seniors, peuvent remettre en cause leurs possibilités de se maintenir dans l'activité. Nous interrogerons la dimension capacitante de cette organisation du travail et des formations proposées (Falzon, 2013).

Les exigences de production et la non prise en compte des coûts de formation par les donneurs d'ordre amènent les formateurs à condenser les temps de formation. Cela laisse peu de temps aux formés pour assimiler les nouvelles opérations. Cet apprentissage sous contrainte de temps pose des difficultés à tous les télévendeurs, plus encore aux seniors qui ont besoin de plus de temps pour apprendre compte tenu des transformations des processus cognitifs impliqués dans les apprentissages (Delgoulet, 2001 ; Cau-Bareille et coll., 2012). Le fait que les processus d'entraides entre collègues soient empêchés limite les processus de régulation collectifs qui auraient pu faciliter l'apprentissage. Les seniors font le constat que les formations ne sont pas assez longues et ne répondent pas à leurs besoins.

Les changements introduits et les modalités de formation aux nouvelles opérations créent les conditions de l'échec de certains seniors à répondre aux nouveaux enjeux de l'entreprise et sont à l'origine de processus de discrimination émergents, tant au niveau du recrutement que dans le maintien en emploi.

De cette expérience, nous tirerons des préconisations pour la conception de formations adaptées à la diversité des salariés et sur la sécurisation des trajectoires d'emploi des seniors (Tuchsirer, 2017).

### Le travail bénévole des jeunes comme opportunité de développement professionnel et personnel

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Notre étude réalisée sur la base d'entretiens semi-directifs avec une quarantaine de bénévoles âgés de 16 à 25 ans vise à mieux comprendre les processus d'engagement et d'apprentissage réalisés lors d'activités bénévoles. Comme le montrent les témoignages, le cadre associatif n'est pas seulement un lieu d'apprentissage de savoirs, mais aussi un lieu d'apprentissage des relations sociales et humaines. Or, ces deux types d'apprentissages semblent non seulement conciliables mais également complémentaires. Le développement de compétences sociales telles que la coopération ou la solidarité semble en effet faciliter l'apprentissage cognitif. Le rôle des interactions sociales dans la construction des savoirs a été étudié dans de nombreux travaux (Bourgeois & Nizet, 2005 ; Perret-Clermont & Nicolet, 2001) qui envisagent la coopération comme une condition nécessaire aux apprentissages.

Certaines associations font suivre les activités réalisées par des moments de régulation. Elles gardent parfois même une trace des échanges et des conclusions produites à l'occasion des débriefings. Ces ressources sont en effet consignées par écrit et mises à la disposition de tous :

On a un livre avec toutes les traditions de patrouilles, toutes les personnes qui y étaient, [...] tout ce qu'on se souvient [...] on écrit là-dedans (Alexandra, Scouts)

Le fait d'être actif dans le monde et dans la société et non plus seulement au sein d'un groupe de proches comme la famille, les amis ou les camarades d'écoles, est cruciale en termes de développement de l'estime de soi. Or, selon un cercle vertueux, la confiance en soi est un terreau propice à la construction de nouvelles compétences. Comme le relève Marzano (2010), le développement de « la confiance en soi dépend notamment de la capacité des individus à créer des liens. Pour cela, il faut pouvoir aussi croire aux autres, leur faire confiance et accepter le risque de la dépendance » (p. 54). Grâce à leur expérience associative, les jeunes bénévoles apprennent à entrer en contact les uns avec les autres. Ils développent petit à petit leur capacité à se faire accepter socialement, à être intégré dans un groupe et à s'ouvrir aux autres.

Petit à petit, je suis beaucoup plus à l'aise avec les gens, [...] Cela m'a donné un peu confiance, cela m'a rendue plus sociable (Céline, bénévole dans l'événementiel)

Des dispositifs favorisant des échanges participatifs, constructifs et coopératifs sont organisés par la plupart des associations. C'est grâce à ces espaces que les bénévoles disent avoir appris à oser s'exprimer et à s'affranchir du regard des autres. Plusieurs jeunes ont ainsi témoigné de la manière dont leur expérience bénévole leur avait donné l'occasion de se découvrir, en portant notamment attention à leur manière d'interagir avec les autres et de fonctionner en groupe. Enfin, les activités associatives donnent aux jeunes l'occasion de rencontrer des personnes susceptibles de leur ouvrir des portes, directement ou indirectement. Au travers des rencontres, ils tissent des relations qui pourront s'avérer utiles, notamment dans le cadre d'une recherche d'emploi ou de stage professionnel.

## A05 - Paper Session: Learning in informal contexts

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: M1150

Session Chair: Béatrice Arend

### CA research on Au-Pairs in homes as work settings. From real data analysis to professional application

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Spending time abroad has been documented in the field of foreign language learning, pointing to significant linguistic and sociolinguistic benefits to the learners (see Howard, 2005; Regan et. al., 2009). Working as an au-pair girl offers a unique learning opportunity of being in a (presumably) sheltered home environment and becoming very close to the native speakers of the target language. Criticism, if any, seems to be mostly pointing to the fact that the au-pair living is not always well organized (Hess & Puckaber, 2004) and presents problems of its own. No other interactional or socio-cultural issues have been discussed in any formidable way.

Although linguistic benefits are highlighted in this type of foreign language learning format, surprisingly few studies have focused on au-pairing as a working setting with semi-professional requirements. Up to now only few scholarly studies have focussed on the period abroad itself and on the au-pairs' daily routines with their host families (e.g., König 2013, 2014; Pochon-Berger et al., 2015; Taguchi 2015). Additionally, with the exception of one study (Pochon-Berger et al., 2015), which has suggested the application value of the data that documents daily conversational exchanges between the host family and au-pairs, there seems to be almost no research that deals with dissemination of such findings in the actual places of practice. This lack of focus on 'au-pairing' as a semi-professional setting that requires many stakeholders to work together is one of the key interests of the present research study.

Using the "Framework for Application" (Grujicic-Alatryste, 2015), which outlines steps that can aid researchers in early efforts to disseminate their study's findings and reach out to stakeholders in the places of practice (here all parties involved in au-pair business), we share a blueprint for bringing awareness to this complex interactional setting and the challenges that au-pair girls and families often face with no immediately available mechanisms to deal with them. This aspect is seen as 'differentiation' or ways of looking at language practices in their social contexts.

The segments we use in this presentation focus on dinner-table conversations between the au pair girl (here code-named Julie) and her host-mother. Julie has recorded interactions for a total of 7 hours. For this presentation, we concentrate on storytelling moments, in which Julie reports to the parents on her daily activities with the children for whom she cares as part of her au-pair agreement. This specific data set is also included in Pochon-Berger et. al. (2015). Using Conversation Analysis, we present extracts found in larger storytelling sequences.

Implications concern the centrality of discursive practices (such as storytelling) for the professional use of everyday interactions (Antaki 2011; Grujicic-Alatryste, 2015). Sharing our insights into aspects of au-pair discourse and seeking collaboration (Candlin & Sarangi, 2010) with stakeholders (future au-pair girls, host-families and recruiting agencies), is seen as a move bridging the perceived gap between scholars/analysts and real-life language users who are stakeholders in both private and professional places where we collect data.

### Professional development at the workplace: lessons from a didactic intervention within a farmers' advisory organization in France

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Since 2012, the French agricultural sector is enjoined to move towards Agroecology. Also what Agroecology means is controversial, most of the farmers' consultancy organizations now recognize that it implies : (i) to deliver a more systemic and strategic advice for farmers; (ii) to become involved in multi-stakeholders settings to foster innovation in agri-food systems or/and to manage natural resources. The Chambres of Agriculture took on board these new challenges: new service packages were proposed to farmers, and consultants were committed to their delivery without a clear-cut definition of the required skills to achieve this. The range of change required to deliver such services being often underestimated, the consultants felt unskilled and lost confidence in their own ability to deliver a relevant advice. In a former study, we proposed a didactic intervention (Cerf et al., 2010) to support consultants in developing new skills at individual and team level. We then proposed to various consultancy organizations to identify some consultants who will, within their own organization, act as a designer and a facilitator of such a didactic intervention within their workplace.

In this paper, we will present the main features of a didactic intervention carried on by two consultants who designed it and facilitating the exchanges among their own peers in the Burgundy Region. This intervention took place over three years during two-day meetings, twice a year. Ten advisors, hired by the local Chambres of Agriculture, joined these meetings. First we will explain how the didactic intervention was organized into sequences which purposes were: (i) to challenge the current routines and to support advisors in developing their ability to become transition facilitators; (ii) to give them an opportunity to collectively design the way to perform this new role and discuss their professional norms. Second, we will analyze the discussions which took place during the meetings to point out how the collective explores the coupling between a given consultancy situation and the consultant's performance in this situation (activity analysis). Third, we will give evidence of the professional development which took place during this didactic intervention, whether at individual or collective level. At individual level, we will show various trajectories of professional development and the place the didactic intervention played in such trajectories. We will show the role played by key resources in supporting the individual and collective professional development : (i) the didactic situations proposed by the facilitators, (ii) the discussions held in the collective to carry on the activity analysis (iii) the support offered by the collective to dare new ways to act. Individual professional development occurs on the long run: it depends upon the room to maneuver given by the organization to the consultant and the ability of the last one to identify them. At collective level, routines are discussed and consultants progressively build together a new job identity. To conclude, we will discuss the relevance of such a didactic intervention at workplace and the new role taken by those who design and facilitate this intervention in their own organization.

## **The valuable use of video based analysis to reflect on teaching practices: A conversation analysis informed view on classroom activities**

**Béatrice Arend, Patrick Sunnen**

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With regard to reflection as an integral part of teacher education, we consider video analysis as a means for supporting the becoming of the reflective practitioner. In our presentation, we seek to demonstrate how a Conversation Analysis informed perspective can shed light on the complexity of teacher-student interactions during classroom activities. Furthermore, we will underline how the video based approach can elicit and support teachers' analytical stance.

We will show how a fine-grained EM/CA based video analysis of a situated 'Sudoku' activity in a preschool classroom can shed light on the dialogic relationship between the teacher's instructional work and the children's understanding of the task to be accomplished.

CA informed video analysis allows to grasp and to visualize teaching practices as accountably actualizing in the participants' multimodally embodied resources (voice, gaze, gesture, body movement) occurring in time and space. Our focus is on how teaching practices are interactively and materially achieved. Thus, in the presented case study, our analysis allows us to point out how the teacher's and the children's positioning in space contributes to configuring the (mis)understanding of the teacher's instructions.

We can visualize that the children's access to shared understanding is of particular relevance for a joint task accomplishment and that the access is strongly related to the spatial reality in which the activity takes place. We show how 'the interchangeability of standpoints' (if you were where I am, you would see what I see and vice versa) becomes relevant when the teacher presents a Sudoku grid in terms of horizontally oriented rows and vertically oriented columns.

Our paper seeks to underline that the use of CA based video analysis is well suited to elicit and to develop reflection on teaching practices with regard to the concept of perspectival reciprocity as a condition for mutually shared understanding.

In this line of thoughts, our presentation will raise awareness for the relationship between teaching practices (as accountable interactions) and conceptualized reflection on them. By means of our expertise on video analysis in teacher education, we can provide suggestions for setting up and orchestrating teacher education sessions.

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## A06 - Paper Session: Career and professional development

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: M1160

Session Chair: Katja Vähäsantanen

### Competency-based identification of in-firm further educational innovators in small and medium-sized enterprises – a contribution to professionalism development in the area of in-company training

**Käthe Prof. Dr. Schneider, Benjamin Möller**

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In contrast to the increasing need for in-company trainings in Germany (BMBF, 2014, 2016) there are difficulties in the endeavor to professionally situate actors of this further-education segment (Müller, 2003; Sorge-Barth, 2000; Gieseke, 2011; Kraft, 2006; Jütte/Nicoll/Olesen, 2011). A focusing of the professionalism perspective (Meyer, 2008) that refers on acquired competencies independently of previously gained educational degrees offers a chance to overcome the limitations of applying classical professionalization criteria to this occupational field (Dewe/Feistel, 2010; Feistel, 2013; Böhm/Görl-Röttstädt/ Wiesner, 2010). Thereby the necessity becomes clear of systematically integrating already existing study results on further educators' relevant competencies (Lattke/Strauch, 2011).

Referring on specific challenges of small and medium-sized enterprises (SME) in the institutionalization of in-company trainings (Kailer/Stockinger, 2008; Kauffeld, 2016; Dobischat/Düsseldorff, 2013; Seyda/Werner, 2014) and introducing topical developments concerning self-guided learning in the context of work (Baethge et al., 2003; Dehnbostel/Gillen, 2005; Dehnbostel, 2007), we present a developed, resource-saving concept of enhancing a work-process oriented in-company training culture using existing personnel. For that, in-firm further educational innovators (IFEI) should initiate, oversee and steer workplace-related further educational processes besides their respective subject expertise. To create a standardized, competency-based instrument in order to determine the most suitable personnel for the fulfillment of IFEI-specific tasks we implement two studies.

In Study 1, already existing (inter-)national study results on relevant "competencies" of "further educational personnel," "(in-firm) further educators", "trainers" (N=12) and "innovation promoters" (N=7; Bierbichler, 2014) are systematically integrated using the principles of content-structuring content analysis (Mayring, 2015; Kuckartz, 2016). The resulting category system corresponds to the combination of relevant areas of expertise (N=37) of innovative further educators. With a Cohens'  $\kappa$  of 0.93 using three independent judges, the intercoder-reliability of the instrument amounts to "(almost) perfect" (Landis/Koch, 1977).

In Study 2, concrete challenges of four SMEs with the institutionalization of work-process-oriented in-company trainings are identified via a simplified version of the learning culture inventory (N=74; Sonntag/Stegmaier, 2009) and semi-standardized interviews with individuals responsible for personnel (N=4; Meuser/Nagl, 2009). Discovered problems and competencies judged necessary are classified in specific areas of competencies obtained in Study 1 by two independent raters resulting in an IFEI-specific set of competencies. The differentiation of four distinct niveaus within each area of IFEI-specific competence on principles of established qualification frames (DQR, Büchter/Dehnbostel/Hanf, 2012; VQTS, Luomi-Messerer/Markowitsch, 2006) allows the determination of individual profiles of competencies that can be set in relation to existing qualifications as well as be compared with a reference profile generated by an expert-survey (N=5). Thereby IFEI-suitable personnel can be identified and, concurrently, further qualification needs of potential IFEIs can be adaptively determined.

The resulting competency matrix represents an instrument validated by experts, on the basis of which in-company training processes can be advanced universally, economically and with a work-process orientation. Therefore, the present study offers a significant contribution to professionalism development in the area of in-company training. Difficulties are discussed of systematic integration on the basis of different abstraction levels of study results, demands on organizational contexts in institutionalization, and adaptive qualification of IFEIs.

### Occupational career patterns and career adaptability: An Optimal Matching Analysis

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As individuals now navigate in a more unpredictable context of work, job transitions are more likely to occur and the ability to cope with these transitions is crucial for individuals. Career adaptability has been identified as a key construct in vocational psychology and denotes the set of self-regulatory resources helping individuals to adapt to career transitions (Savickas, 2005). As a growing body of research has investigated how individual dispositions impact the development of career adaptability resources and how these resources spread to several beneficial outcomes (see, Rudolph, Lavigne, & Zacher, 2017, for a meta-analysis), there still lacks evidence on how previous work experiences are likely to interact with and impact individuals' resources to cope with job transitions. In this regard, previous but still limited evidence on job mobility is enlightening regarding the incremental value of studying sequences of mobility over time using panel or retrospective data (Dlouhy & Biemann, 2015). In this presentation, we propose to discuss the usefulness of analysing sequences of job experiences and transitions, using Optimal Matching Analysis (Abbott & Tsay, 2000), for the study of careers and the investigation of professional development outcomes (Kovalenko & Mortelmans, 2014). The presentation will be illustrated by a data set linking career trajectories and career adaptability. 393 participants completed a measure of career adaptability (Savickas & Porfeli, 2012) and indicated their full job history since their entry in the job market. Building upon the new career theory (Arthur & Rousseau, 1996), we hypothesize that transitional career trajectories characterized by more job transitions and external mobility will be more beneficial to career adaptability levels compared to traditional career trajectories rather characterized by internal mobility and fewer job transitions (statistical analyses in progress). Investigating the process of job transition in the long run is likely to provide a fuller and holistic view of professional development over time.

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### **Leaders' professional learning – Are emotions significant?**

**Katja Vähäsantanen, Susanna Paloniemi, Päivi Hökkä**

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Recent research suggests that emotions are powerfully present in workplace settings (Riforgiate & Komarova, 2017). However, we lack a comprehensive understanding of emotions as they pertain to employees' and leaders' professional learning, including the (trans)formation of professional identities, competencies and practices. Only a few scholars have addressed the role of emotions in workplace learning (e.g. Rausch, Seifried, & Harteis, 2017; Winkler, 2018). To contribute to this discussion, this study aimed to investigate the complex role of leaders' emotions in learning processes during a leadership development programme. In this context, emotions were understood as individuals' situational and dynamic responses and experiences connected to events, other persons and themselves (Gooty et al., 2010).

The leadership development programme was a one-year comprehensive programme (including 12 workshops) intended to support leaders in crafting their professional identity and work practices. The group-based work was led by an experienced coach and involved different methods, such as drama-based and narrative methods. The data for this study comprised self-reports of nine participants (6 females, 3 males) working at the middle management level at a university or hospital. Data included individual interviews conducted after the programme and assessment forms collected after each workshop. Qualitative thematic analysis and statistical methods were carried out to capture emotions and emotional profiles between and within participants.

This research contributes to the understanding of the potential of emotions at the heart of professional learning. The findings from both data sets showed that the emotional profiles varied among participants and over time, including stable, progressive and regressive tendencies. Emotions were strongly present in leaders' learning processes and were connected to both the participants themselves (e.g. one's professional identity, leadership practices and membership in the group) and social settings (the other participants and the programme). During the interviews, more pleasant ( $n = 161$ ) than unpleasant ( $n = 71$ ) emotions were reported. Altogether, the participants mentioned 18 pleasant emotions and 13 unpleasant emotions. The interviews revealed that emotions played significant but varying roles in leaders' learning processes. On one hand, emotions activated (e.g. curiosity) and supported (e.g. confidence, belonging) or constrained (e.g. separateness, confusion) their learning processes. On the other hand, several emotions, such as lenience and inspiration, emerged as consequences of the learning processes. The findings suggest that in order to understand and promote professional learning in work and training settings, it is necessary to recognise the function of emotions in encouraging and inhibiting learning processes.

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## A07 - Paper Session: Learning in higher education

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: M1170

Session Chair: Isabel Raemdonck

### A data-led approach to teacher development: Raising language awareness of university lecturers

**Marion Heron, Doris Dippold**

University of Surrey, United Kingdom; [m.heron@surrey.ac.uk](mailto:m.heron@surrey.ac.uk)

#### Aims

Classroom interaction is crucial in any study of teaching and learning as learning happens when pedagogic goals and classroom talk align (Walsh, 2006). Whilst classroom interaction and classroom talk are at the centre of much research in English language teaching, there are few studies which focus on the role of teacher talk in different disciplines in a higher education context. A data-led approach to reflection and teacher development (Walsh & Mann, 2015) supports the analysis of classroom transcripts to reflect on the use of teacher talk in learning and teaching and raises language awareness. The presenters had previously used classroom transcripts in stimulated recall interviews with staff about their teaching and noted the affordance of evidence-based reflection. The aim of this research was to build on these earlier experiences to design, run and evaluate staff professional development workshops which used transcripts of seminars and lectures.

#### Methodology

The context for the study was a series of continuing professional development (CPD) opportunities offered to staff and PhD students with teaching responsibilities across the university and PhD students as part of an external consultancy. The aims of the CPD sessions were to present tools for reflecting on classroom language and illustrate the power of transcripts for providing a deeper perspective on classroom processes. The tools adopted included the tutor talk framework designed by Hardman (2016) and the SETT framework (Walsh, 2006). The sessions integrated input on data-led approaches to reflection and different frameworks with hands-on practical analysis and follow-up discussion. Staff attending the workshops were encouraged to bring along a 5-minute episode of classroom interaction, or were encouraged post-session to transcribe and attend the following session. After each session the presenters gathered both written workshop evaluation and data from focus-group interviews.

#### Findings

The evaluation comments and interviews revealed that staff found the analysis of classroom talk to be a novel way of reflecting on their own language use and the relationship between talk and classroom interaction. Many tutors commented on the learning potential for professional development based on an examination of classroom interaction. Particular areas of interest identified by tutors included questioning patterns, feedback talk and scaffolding discussions.

#### Significance

The provision and evaluation of practical workshops based around the notion of data-led reflection illustrate the power of transcripts in stimulating reflection and discussion around dimensions of classroom interaction. This study is unique as there are few studies in higher education which draw on principles derived from research in the field of applied linguistics. The positive response from workshop participants highlights the importance of both the need for more evidence-based reflection leading to specific changes in teaching activities / techniques, and the importance of focusing on the central role of classroom talk and interaction in learning and teaching.

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### The PECAL Model: Bringing the Best Together for Dynamic Gains

**Mazeegha Ahmed Al Tale'**

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The ultimate goal of teaching at different institutes, colleges, and universities is to produce competent, skillful and productive employees on graduation, ones who will become good citizens in society as well. During the past four decades, several advances in learning technologies and strategies have been proposed by scholars to achieve these desired outcomes (Bell & Kahrhoff 2006; Kagan 1993; Kolb 1984). Over time, the applications of such theories prove to have a positive effect on the teaching-learning process (Ahmed 2012; Cox, Carr & Hall 2004; King 2002; Tsai 1998). This paper aims to present a paradigm for learning which the researcher terms the PECAL Model. It is an integrated model, consisting of four components: psychological, electronic, cooperative, and active learning. The researcher applied the PECAL model in the teaching of English Applied Linguistics to a group of eighty-three female Saudi level-eight students. In addition to a pre-test and post-test, a questionnaire, interviews and observation were used to collect the data of the study. The results of pre-test and post-test analyses point towards the effectiveness of the PECAL model on the participants' academic success. Questionnaire results indicate the students' positive attitudes towards learning. Interviews, observation of the students' projects, and their performance during the field experience semester indicate an ongoing growth in their cooperative skills, learning activities, and enthusiasm. The researcher concludes that the proposed model is effective not only for short-term learners' academic success but also for long-term workplace efficiency and the cultivation of positive personal attitudes. The proposed model is flexible and could be adapted with different portions of its components according to the nature of the course implemented (whether EFL teaching courses or other disciplines). The PECAL model aims to provide the workplace with graduates equipped with sufficient competencies and skills, who are also proactive, cooperative and productive citizens engaged in life-long learning and its dynamic applications.

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### **Subjective transfer task value and cognitive engagement of adult students during portfolio development as predictors of perceived transfer of learning in the work context**

**Anne Jacot, Isabel Raemdonck, Mariane Frenay**

Université catholique de Louvain, Belgium; [isabel.raemdonck@uclouvain.be](mailto:isabel.raemdonck@uclouvain.be)

In order to respond to research recommendations made in the literature on transfer of training, the present study aimed to apply a more theory-driven approach to assess training effectiveness, to unravel the underlying mechanisms at play in the transfer process and to clarify the relationships between the determinants of transfer of training (Blume, Ford, Baldwin, & Huang, 2010; Colquitt, LePine, & Noe, 2000; Weisweiler, Nikitopoulos, Netzel, & Frey, 2013). Cognitive engagement was integrated into the research model in order to take into account the complexity of the contemporary work context (Bell, Tannenbaum, Ford, Noe, & Kraiger, 2017; Ford & Weissbein, 1997). Based on the expectancy-value theory (Eccles & Wigfield, 2002), this study investigated motivational beliefs, social support and engagement variables to predict transfer of training in a work context. One hundred and six non-traditional adult students enrolled in a program to obtain a certificate in university pedagogy in a Belgian university participated in a survey on a voluntary basis ( $M = 42.18$ ,  $SD = 7.78$ ). The certificate is intended for teachers in higher education. The questionnaire was administrated online at the end of the academic year at two cohorts: students enrolled in 2014-2015 and in 2015-2016. In the training design, participants developed a portfolio in which they were asked to apply the training content by analyzing their own teaching activity. They also formulated suggestions for improvement once they returned back to their classroom. The portfolio was considered as the transfer task and thus used to assess perceived transfer in this study. Hierarchical multiple regression was used to test the indirect and direct relationships postulated for all the variables measured. A four step hierarchical multiple regression was conducted with perceived transfer as the dependent variable. After step four, with all independent variables in the equation ( $R^2 = .39$ ,  $F(11, 94) = 5.49$ ,  $p < .001$ ), the findings put forward three main results. First, our observations indicated that subjective task value during training precedes motivation during the transfer task and therefore indirectly impact perceived transfer. This is consistent with previous studies which demonstrate that motivation to learn has an effect on transfer of training through motivation to transfer (Chiaburu & Lindsay, 2008; Ling-Yu Wen & Yung-chuan Lin, 2014). Next, based on a more rigorous conceptualization and operationalization of transfer motivation, the results highlighted the importance of subjective transfer task value on perceived transfer. Subjective transfer task value was the most powerful predictor of perceived transfer after introducing all variables ( $\beta = .27$ ). When learners perceive the transfer opportunities as interesting, useful and important, they are more likely to apply knowledge and skills acquired in training. Third, of particular interest is the finding that cognitive engagement predicted perceived transfer ( $\beta = .23$ ). In accordance with Cathro, O'Kane and Gilbertson (2017) and Ladyshewsky (2006), this result indicates that portfolio use encourages reflection on real work experiences and actions by applying the learning content so that a cognitive treatment occurs during the transfer task. This finding strongly supports the idea to include cognitive engagement in future transfer research.

## A08 - Paper Session: The development of vocational education and training

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: M2150

Session Chair: Alessia Eletta Coppi

### Teachers' approaches to supporting refugee and migrant students integrate learning in different sites

**Sarojini Choy<sup>1</sup>, Gun-Britt Warvik<sup>2</sup>**

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Efficacies of learning in workplaces and VET institutions is premised on effective integration through learner agency and appropriate facilitation by teachers and experienced practitioners in workplaces. Refugee and migrant students in particular experience challenges as they cross a range of boundaries and thresholds. A case study was conducted with ten teachers in delivering aged care programs in South East Queensland, Australia and in a municipality in Gothenburg, Sweden. Data was collected from in-depth interviews. Analyses of data sought non-normative practices that enabled boundary crossing for students.

Teachers in both countries noted that normative pedagogical approaches to supporting integration of learning were inadequate when supporting refugee and migrant students. Their narratives reflect contestations between practice traditions of aged care and students' understandings about the practice in their new home countries. Integration of learning in the aged care industry is not only across sites, but also across cultures – those of the particular practices in each country and those of the refugee and migrant students' birth countries. Teachers try to open up communicative spaces to bridge the transition in circumstances where students have limited English and frequently misinterpret concepts and messages. In the main, teachers design pedagogies to empower students into agentic learners to seek meanings and appropriate actions to suite particular sites and resident requirements when in the aged care facility. Their main focus is to get students 'stirred' in the workplace, learn the ropes and rules, and take agency for dialogic inquiry to cross thresholds for boundary crossing (Tanggaard, 2007). Furthermore, students are made aware of the similarities and differences between tasks and situations. Teachers provide students with elaborate feedback to encourage deeper levels of reflection (Krause and Stark, 2010). The close relations between the teachers and staff at aged care facilities enables them to design each students' learning plan in an "adaptive and differentiated" way (Schaap, Baartman & Bruijn, 2011).

Teachers operate in a continuous action learning cycle, constantly trying out new approaches to suite unfamiliar needs of refugee and migrant students. They are learners themselves, learning cultural aspects of aged care practice from their students. Questions such as "How would you like me to do this for your aged mother/father or family member?" triggered collaborative learning which then enabled teachers to help students transition from their cultural boundaries to Swedish or Australian practices. The findings call for an appraisal of the curriculum for aged care teachers to bridge contestations between the curriculum enacted and experienced in the two sites.

Tanggaard, L. (2007). Learning at trade vocational school and learning at work: Boundary crossing in apprentices' everyday life. *Journal of Education and Work*, 20(5), 453-466.

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### Vocational didactics in Brazil

**Olivier Allain, Crislaine Gruber, Paulo Roberto Wollinger**

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Brazilian Vocational Education is usually accommodated on a general training basis and ignores the "rich intellectual content of work" (ROSE, 2015, p.57). This fact can be attributed to a distance between the teachers of Vocational Education and the labour world; most of them, especially in public education, have no professional experience in the area of their teaching and their labour contract does not allow them to work outside school, which, on one hand, guarantees their teachers' rights, but, on the other hand, limits their extra-academic professional activities (MORAES, 2016). However, the effective reason is perhaps the country's colonial, slave-owning, and patriarchal heritage (WOLLINGER, 2016) and the "class culture of contempt for manual activities" (MORAES, 2016, p. 79). Such heritage not only results in a series of prejudices against work and technical activity as well as a serious social inequality in Brazil, but it also has a deep influence on Vocational Education, establishing a gap between vocational training and real work activities. General didactics predominates even in teacher training courses for Vocational Education (ALLAIN, WOLLINGER, GRUBER, 2017). In this context, Vocational Didactics (PASTRÉ, 2011; PASTRÉ, MAYEN, VERGNAUD, 2006) can be seen as an appropriate resource to overcome the devaluation of work and the workers, bringing Vocational Education closer to the real work. In this sense, some initiatives have been taken to develop this approach in Brazil: translation and dissemination in specialized journals of reference texts of Vocational Didactics; insertion of Vocational Didactics in the curricula of teacher education programs for Vocational Education; production and diffusion of works related to the subject in scientific events. These are the steps chosen (and currently possible) to promote a specific approach to Vocational Education as a field of study and practices. There are also some other approaches that seek to establish an epistemology for Vocational Education and methodologies based on knowing-how-to-do (BARATO, 2008, 2015). We believe that work-based Vocational Education, considering the intelligence and complexity involved in any work activity, is more authentic, meaningful, and committed to social inclusion and to the development of the country.

### Exploring visual languages across vocational professions : Implications for education and instructional design

**Alessia Eletta Coppi<sup>1</sup>, Alberto Cattaneo<sup>2</sup>, Jean-Luc Gurtner<sup>3</sup>**

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BACKGROUND

Exploring visual languages is a complex task since it entails discovering a communication system that uses both representations (Chang, 1986) and annotations-like signs (Bonaiuti & Calvani, 2011). Representations are depictions of information in image or textual form (Pei, Cambell, & Evans, 2011); annotations are marks left on images or texts to highlight specific aspects of them (Schraw, McCrudden, & Robinson, 2013). Despite extensive investigation of representations and annotations in education, there are only a few studies in professions, mainly high-level ones, such as engineers and designers (Stefanut & Gorgan, 2008). This research intends to explore the different shapes that visual languages assume and the presence of commonalities across vocational professions.

#### METHODS

Data were collected in Switzerland through semi-structured interviews (N=55) performed within eleven professions from the areas of Craftsmanship, Industry, Health and Services. The interviewees were asked questions about their use of representations and annotations and also to bring and comment examples of their most used representations and annotations. All the documents presented were collected and the interviews audio-recorded. A coding scheme informed by the literature (Pei, et al., 2011) served as the main reference for the analysis.

#### RESULTS

In terms of visual representations, the analysis showed that across professions different types of drawings are used, such as technical drawings (Woodmakers), body evaluation forms (Dental Assistants) and illustrations (Winemakers). Participants also indicated of creating sketches depicting objects to produce (Goldsmiths) and photos portraying things to remember or pay attention to (Sanitary Fitters). Participants across professions used annotations such as notes to specify task details or materials to use. They also reported using profession-specific annotations such as mathematical symbols (Woodmakers) or marks (Fashion Designers). Interestingly, while within technical professions (e.g. Polymechanics) participants shared similar representations and annotations, in other professions (e.g., Massage Therapists) very specific visual languages are in use.

#### CONCLUSIONS

This study allowed to identify both communal and profession-specific aspects of the visual language across multiple professions. Newcomers in any of these professions have then to learn and master these visual languages; helping them to learn the appropriate visual language is a shared responsibility between schools and workplace. Our data contribute to a better definition of the specificities electronic didactic tools should provide to better fit each professional culture.

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## A09 - Paper Session: Innovation and technology in higher education

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: M2160

Session Chair: Peggy Lambriex-Schmitz

### Work and everyday life: HE adults' problem-solving skills in technology-rich environments based on PIAAC

**Raija Härmäläinen<sup>1</sup>, Sebastiano Cincinnato<sup>2</sup>, Kari Nissinen<sup>1</sup>, Bram De Wever<sup>3</sup>**

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We are facing a time in which the influence of technological development in people's work, lives and living environments is revolutionary. The central goal of higher education (HE) is to pledge a high level of know-how for students, which is in line with the changing needs of work (Noble & Billett, 2017) and everyday life (e.g., Van Deursen, van Dijk, & Peter, 2015). In response to this, we must first understand the demands of working and living, and second, the kind of know-how that adults with HE backgrounds currently possess. This study focuses the level of problem-solving (PS) skills in technology-rich environments (TRE) of HE adults in Europe. We consider the changing needs of workplaces (Frey, Osborne, & Holmes, 2016) and everyday life (Härmäläinen, De Wever, Nissinen & Cincinnato, 2017), with relation to problem-solving skills. Our research questions are:

RQ1: What is the level and distribution of problem-solving skills in TRE for adults with HE?

RQ2: What factors explain the variation in problem-solving skills in TRE?

OECD PIAAC (Programme for the International Assessment of Adult Competencies) data on 13 European countries that participated in the PS in TRE were used (N=13402 16-65-year-olds HE adults). The data encompassed the tests of TRE problem-solving skills and the background questionnaire. Based on their test performance the individuals were classified into "weak", "moderate" and "strong" performers. We investigated problem-solving skills from the perspective of the socially-situated nature of learning. We identified three clusters of variables for our model: (1) socio-demographic, (2) work-related (e.g., Tynjälä, 2013), and (3) variables related to everyday life (e.g., Tour, 2017). Logistic regression analyses was used in examining the factors behind the performance.

Our findings indicate (RQ1) that, the higher the educational level, the higher the mean problem-solving in TRE skills. However, with 303 points, the cross-national average performance of the most highly educated is 'only' at the moderate level; an observation equally true at the country-level but there is important variation between countries with average scores ranging from 290 (Poland) to 310 (Sweden). Secondly, results show that the higher the educational level, the more the distribution of skill levels is in favour of strong performers. The cross-national average of strong performers among the most highly educated is 15%, but country specific proportions range from 10% (Slovak Republic) to 20% (Sweden). Moderate performers are the largest group, 50% cross-nationally. Since the need for problem-solving in TRE is likely to increase, we identified the explanatory factors for differences (RQ2). In this presentation, a model to identify background factors associated with problem-solving skills will be presented. The results suggest i.e. that the use of numeracy and ICT skills play a significant role. The weak performers use their skills less, both at work and everyday life. Both the strong and moderate performers use their numeracy and ICT skills fairly actively at work, but for the strong performers it is typical that they use their skills actively outside work. In sum, this presentation provides new insights on professional development and how HE could be developed.

### Professionalism of Technical Vocational Education and Training-Teachers for Industry 4.0 based on the Technological Pedagogical Content Knowledge (TPACK) approach

**Nico Link, Walker Felix, Schäfer Pia**

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\*background\*

Different articles about the impact of Industry 4.0 on the technical vocational education and training system show, that it is important to qualify TVET teachers for well-educated apprentices (acatech, 2016, p. 19; Windelband & Spöttl, 2016, p. 15). Unfortunately, there is a lack of training in the field of Industry 4.0 for TVET-teachers for developing their content and pedagogical content knowledge. Walker et al. (2017) showed in the area of science education that the TPACK approach by Mishra and Koehler (2006) could build a strong fundament. In this model, knowledge about content, pedagogy, and technology is important for developing good teaching, also the interplay of these three dimensions (e.g. technological content knowledge or technological pedagogical knowledge).

\*research aims\*

The following research aims are: (1) In what way could the TPACK approach be useful for the systematic development of teacher training courses for Industry 4.0? (2) Are the correlations between the single TPACK dimensions in our study similar to results in other domains?

\* methodology \*

As a first step we will compare different models of the professional teacher development (e.g. Shulman, 1986; Baumert & Kunter, 2006; Mishra & Koehler, 2006; Lindmeier, Heinze, & Reiss, 2013) for answering the first research aim. For the second research aim we use the instrument by Schmidt et al. (2009) for assessing the professional teacher development that was translated by Walker et al. (2017) into German.

\* results \*

We will present aspects of our professional training courses for the technological content knowledge (main focus on automation and information technology, inclusive pictures of our low-budget Industry 4.0 training plant) and the technological pedagogical knowledge (e.g. cognitive apprenticeship approach, learning from examples). Afterwards we present first results of the correlations between the different dimensions of TPACK based on a small sample size.

\*references\*

acatech. (2016). Kompetenzentwicklungsstudie Industrie 4.0 – Erste Ergebnisse und Schlussfolgerungen. München: acatech.

Baumert, J., & Kunter, M. (2006). Stichwort: Professionelle Kompetenz von Lehrkräften. Zeitschrift für Erziehungswissenschaft, 9(4), 469–520.

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Mishra, P., & Koehler, M.J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, 108(6), 1017–1054. doi:10.1111/j.1467-9620.2006.00684.x

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Walker, F., Kuhn, J., Hauck, B., Ulber, R., Hirth, M., Molz, A., . . . van Waveren, L. (2017). Erfassung von technologisch-pädagogischem Inhaltswissen in Lehrerfortbildungen zum naturwissenschaftlich-technischen Experimentieren unter Entwicklung und Verwendung neuer Smartphone-Experimente: Erste Ergebnisse einer Pilotierung. *Lehrerbildung auf dem Prüfstand*, 10(1), 1–18.

Windelband, L., & Spöttl, G. (2016). *Industrie 4.0.: Auswirkungen auf Aus- und Weiterbildung in der M+E Industrie*. Bayme vbm.

### **When innovation in education works: Selecting and stimulating teachers in different stages of change**

**Peggy Lambriex-Schmitz<sup>1</sup>, Mien Segers<sup>2</sup>, Marcel Van der Klink<sup>1</sup>, Simon Beausaert<sup>2</sup>**

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#### **Aim:**

A variety of challenges are driving the need for innovation in education. As they have a key role to play in the innovation efforts, staff is expected to show innovative work behaviour (IWB), exploring, generating, promoting and realizing new ideas, products or procedures and embedding the innovation as a routine part of the organization. Studies on innovations have shown that the majority of innovations fail because sooner or later, employees abandon the new innovative behaviour and return to comfortable old routines (Roberto & Levesque, 2005; Verloop, Van Driel & Meijer, 2001). To ensure successful sustainable innovations, educational institutes need to know what factors influence the extent to which their employee's show IWB and the extent to which these influencing factors vary across the different phases of IWB. This study addresses individual (gender, age, level of education, organizational tenure, working hours, and type of education) and environmental factors (task variety, leader support, and exposure to innovation).

#### **Methodology:**

The study was conducted among teachers (N=458) from four Dutch schools for vocational education. Ratio higher/ secondary education 40/60%; Female (58.2%). mean age = 48.4 years (SD= 11.6) mean years of educational experience = 15.5 (SD= 11.8).

IWB was measured with the 44-item IWB Instrument (Lambriex-Schmitz, et al., 2016).

Individual characteristics and Task variety were measured through single questions.

Leader support was measured with two items. Items were scored on a five-point Likert-scale.

Exposure to innovation was measured with a three-item scale. Items were measured on a 4-point Likert-scale.

#### **Findings:**

The hierarchical regression showed that, teachers with supportive managers and high degree of exposure to innovations showed higher scores on IWB across all phases. Moreover, woman showed higher scores.

With respect to phase-specific predictors, teachers who are older were more active in exploring, generating and promoting ideas (creativity phases). The number of working hours was a significant predictor for all implementation phases (from idea promotion to idea sustainability). Tenure was an indicator for idea realization and idea.

The findings indicate the importance of a climate in which employees are exposed to and supported to play a role in innovations. In addition, they suggest involving different staff in the different phases of an innovation. Future research is needed to cross validate the results in other contexts as well as to explore how managers can support staff to engage in IWB.

#### **Significance:**

The world education is changing in a fast pace. Therefore, to an increasing extent, educational institutions will need teachers playing an active role in innovations. For researchers as well as school managers, the question is who to involve in which phases of the innovations and which conditions to stimulate and facilitate teachers to engage in IWB. The study indicates some answers to this question.

#### **References:**

Lambriex-Schmitz, P.; Klink, van der M. and Segers, M. (2016). Measuring Innovative Work Behavior in Vocational Education: Scale Development and Validation. Presentation at the EARLI SIG 14, 24-26 August, Regensburg, Germany.

Other references are not displayed due to space limits.

## B01 - Symposium: Shadow Organizing: Interaction, Learning and Professional Development

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:00pm · Location: MR160  
Session Chair: Silvia Gherardi

Invited symposium

### Shadow Organizing: Interaction, Learning and Professional Development

Chair(s): **Silvia Gherardi** (University of Trento, Italy)

Discussant(s): **Asa Makitalo** (University of Gothenburg)

Organizations are the outcomes of organizing, rather than vice versa, and organizing is linked to the so called 'practice turn' in organizational studies that considers practices as the sites of working, learning, and organizing. In a radical process approach, organizational phenomena are involved in processes of 'becoming' through which their identities are materially negotiated and (re)confirmed, and where discursive practices are actively implied in the process. The focus on 'becoming' is where 'organizational phenomena are not treated as entities, as accomplished events, but as enactments—unfolding processes involving actors making choices interactively, in inescapably local conditions, by drawing on broader rules and resources' (Tsoukas and Chia, 2002: 577). For example, professional practices are enacted in the situated encounter among practitioners and an equipped environment.

Whilst the term 'organizing' has proven to have had a tremendous effect, today we contend that it has operated an incomplete revolution, since its potentiality of being re-interpreted within the so called post-epistemologies has not yet been fully explored. The expression 'post-epistemologies' embraces the debate on the blurring of the distinction between ontology and epistemology, nature and culture, and materiality and discursivity, because relations pre-exist elements. This transition from elements in interaction to intra-acting relations that form elements is a challenge both for theory and methodology. To face this challenge, metaphorical thinking proves useful since it enhances scholars' imaginations and emotional participation, which are essential to creative processes in doing research.

To explore organizing as the effect of entangled intra-relating elements, we may resort to metaphorical thinking and writing through the metaphor of "shadow organizing." The main reason for qualifying organizing in the light of "shadow" is to refresh the concept and look at it with new eyes. Moreover, shadow is a powerful symbol, and its polysemy is a helpful vehicle for thinking in terms of intra-actions using the images of the intertwining of light and dark, of grey tone as the entanglement of white and black, or in social imaginary the entanglement of transparency and secrecy. Shadow organizing focuses on how situated elements (e.g. people, technologies, knowledge, infrastructures, and society) intra-relate and acquire agency. Whilst 'organizing' as the effect of intentional coordination, planning, and strategizing represents a well-established theorization, 'shadow organizing' sheds light on what happens in the interstices of intentional and structured processes. The dimensions of shadow organizing are performativity, liminality, and secrecy.

The shadow is the symbol of what is "betwixt and between" (i.e. in intra-actions) and, therefore, learning in practice and situated professional development may be explored as processes going on in the interstices of the visible/invisible and the sayable/unsayable. With a processual approach to shadow organizing we can explore how professional practices, including change to these practices, are variously sociomaterial and discursive.

The present collection of papers proposes to explore 'shadow organizing' as an indeterminate process taking place in the interstices of intra-acting elements and in the intra-activity of multiple elements (human and more-than-human) that are understood not to have clear or distinct boundaries.

#### *Presentations of the Symposium*

### When does the owl of Minerva spread its wings? Shadow organizing and modes of inquiry

**Anders Buch**

Aalborg University Copenhagen

Scholars of so called 'post-epistemologies' argue that ontological, epistemological and methodological issues are interwoven in complex ways. Furthermore, scholars within Science and Technology Studies and Organization Studies have construed this interwovenness in different ways. How we understand these relationships has implications for extant notions of organizing, materiality, technology, society, agency, morality, ethics, and our ability to come to know (and act in) the world in which we live.

This paper discusses the character of the socio-material relationship from a post-epistemological perspective. The discussion is guided by Dewey's and Bentley's reflections on Knowing and the Known (1989/1948), as they distinguish between different levels of describing inquiry into the world we inhabit. At some levels of inquiry, we tend to construe the relationship between subject and object, ego and alter, mind and matter, the social and the material, in substantialist terms that render the relationship as one derived from preexisting separate entities, whereas on another more profound level of inquiry, the relationship itself is seen as the producer of difference, individuation, and substantiation.

Whereas some scholars have seen the approaches of substantialism and relationalism as contrasting on (post-epistemological) ontological grounds, this paper will argue with Dewey and Bentley that substantialism and relationism are modes of inquiry that aims for description and "...representation of the world itself as men report it." (Dewey & Bentley 1989/1948, p. 101, my emphasis). Following Dewey's pragmatist lead, it is important that we avoid dichotomies – also when we discuss modes of inquiry. Ontologizing the discussion about methods of inquiry might, in fact, prove to be unproductive as a traditional move towards 'first things' – a move towards essences. Instead, the discussion should look towards 'last things', i.e. the experiential consequences of the activities involved in the process of inquiry. The paper will argue that substantialism and relationalism are modes of inquiry that serve different purposes at different stages of the process of inquiry, and prioritizing one mode of inquiry over another can only be justified relative to the problem of the inquiry. Understanding the relationship between the social and the material thus presuppose a specification of the problem that trigger the process of inquiry.

In the preface to the *Philosophy of Rights* Hegel famously claimed that the owl of Minerva, i.e. wisdom, takes its flight only when the shades of night are gathering by the end of the day. Coming to know is thus a process of maturity that presuppose, subsume, and transcend previous stages of knowing. In the same vein, the metaphor of shadow organizing is used to support

advanced modes of organizational inquiry that presuppose, subsume, and transcend more traditional substantialist approaches in order to bring forward the transactional character of situated elements. But the productivity of the metaphor must, by the end of the day, be evaluated in relation to 'last things.'

### **Shadow organising in work for families with young children at risk**

**Nick Hopwood<sup>1</sup>, Karen Jensen<sup>2</sup>**

<sup>1</sup>University of Technology Sydney, <sup>2</sup>Oslo Universitet

New forms of work practices and associated professional learning are constantly emerging in many work contexts. One of these involves innovative and fluid approaches respond to complex, multi-causal, unstable and belligerent issues – so-called wicked problems (Rittel and Webber 1973). Wicked problems do not sit conveniently within the responsibility of single organisations. They defy traditional organizational boundaries and ways of organizing work. Solutions involve changing behavior, although what this means and how it is achieved is characteristically murky.

Tackling wicked problems is an evolving art. They require thinking that is capable of grasping the big picture, including the interrelationships among the full range of causal factors underlying them. They often require broader, more collaborative and innovative approaches. (Australian Public Service Commission, 2007).

Tasmania's Child and Family Centres (CFCs) seek to mitigate the effects of disadvantage on children's health, wellbeing and learning: a classic wicked problem. Their attempts at mitigation are based on collaborative approaches involving health, education and welfare sectors, through co-location and connection between multiple agencies and stakeholders. As such, they constitute a fascinating site at which to explore practices of organizing in relation to wicked problems.

If tackling wicked problems is indeed an 'evolving art', then researchers need agile ways of working with data to understand ways of organizing practices that are emerging in response to them. Metaphors make use of existing meanings as a useful tool for understanding unfamiliar phenomena, and in doing so can help researchers 'sit' with indeterminacy in data and the analysis of it. The metaphor of shadow organising has proved helpful in elucidating otherwise overlooked or hard-to-see aspects of work (Gherardi, Jensen & Nerland 2017). This paper inflects the shadow with new metaphorical meaning to specify crucial aspects of practices in the CFCs. It analyses data from interviews with 48 professionals, volunteers and parents who were involved in three CFCs.

The analysis explores the practices in these three CFCs using the metaphor of the shadow helps to make sense of practices in the CFCs without boxing them in in a deterministic fashion. These are: (a) the foreshadow – something that lies ahead; (b) light changing to shadow in acts of turning away; (c) permanence and conviction as in relationships between bodies, light and the shadows cast. We explain how CFCs not only anticipate but shape (foreshadow) futures, the significance of acts of staying with, facing up, or turning away from confronting issues, and the importance of stability in relationships with families in conditions previously characterised by turbulence.

These metaphors offer multiple rather than singular resolutions, advancing the analysis while also tolerating ambiguity and resisting ultimate precision. Working with such indeterminacy through metaphor helps to reveal ways in which practices at the CFCs unfold at a frontier. Frontier work includes encountering difference, improvising, being ahead of policy and procedure, and 'going where you need to go'. For example, definitions and boundaries drawn around clients of particular services were enacted flexibly in order to meet needs where such categorisations with otherwise preclude provision of support.

### **The becoming of an object: Analyzing the development of a local curriculum in a teacher team**

**Eli Tronsmo, Monika Nerland**

University of Oslo

This paper analyses teachers' local curriculum development as a process of object construction. Such work is framed by national standards and guidelines; however these are of a general character and leave extensive space for teaching professionals as to how a common curriculum for their school is developed and how this work is organized. While some structures and intentions exist, what the local teaching plan becomes and how it emerges depend on how various elements are brought together in the situated practice. Hence, curriculum development takes place in-between the visible and the invisible; between established standards in the profession and imaginaries of the yet-to become, and between the determinate and the indeterminate.

The paper relates to the wider theme of shadow organizing by seeing organizing as evolving around an unfolding knowledge object (Knorr Cetina 2001), in this case the curriculum-in-the-making, which open new indeterminate spaces for action and exploration as it is developed. Vinck's (2012) perspective on intermediary objects and their ways of shaping the further construction process is used to examine how the object becomes an object through a series of openings and temporary closings as teachers relate to parts of it and different knowledges, standards, ideas and concerns come together to materialize the object. Questions we raise are: 1) how does the object become instantiated and achieve temporary closing in the interaction between the teachers and their material resources? 2) What consequences do intermediate objects have for the further construction process; for what becomes a part of the overall knowledge object and what does not?

Methodologically, a team of lower secondary school teachers was followed closely over a year through an ethnographic approach. Interaction data from six team meetings were analyzed in depth to trace how the curriculum was developed through a series of object instantiations. Transcripts were first subjected to a thematic coding. Next, episodes in which intermediary objects were constructed were identified and subjected to a process analysis of how the object progressed. Drawing on Czarniawska-Joerges (2007), we looked for the connections between words and non-words, between objects and their representations by following not only 'the knowns' but also 'the unknowns' of the teachers work.

Findings reveal how local curriculum development is situated in local and extended knowledge networks which provide, but do not determine, a range of potential resources and directions for the construction work. The local curriculum emerges through the construction of a series of intermediate objects. Moreover, these intermediary objects act back on the construction process by framing the actions, structuring the time frames, and mediating a common ground for the work. We discuss how professional learning and development is related to object construction in everyday work, but also to processes of exploring the indeterminate and to keeping objects unfolding. We end by discussing what this entails for the researcher, especially how it may be possible to 'see' and account for not only what is constructed but also for the role of not-yet(/ ever)-articulated and not-yet (/ever)materialized elements in the construction process.

## **Working within the shadow: what do we do with indeterminate data? And what they do to us?**

**Angelo Benozzo<sup>1</sup>, Silvia Gherardi<sup>2</sup>**

<sup>1</sup>Università Della Val D'Aosta, <sup>2</sup>Università di Trento

The 'shadow organizing' metaphor opens up a number of challenges from a theoretical and methodological point of view. The image of a space where the light and the dark intra-act and form an ever-changing zone of indeterminacy may help us to think to what takes place in our relationship with data in the zone of indeterminacy before 'data' get formed. In doing fieldwork, for example, we as qualitative researchers make observations, talk to people, collect documents, resonate with other people's feelings, have impressions and fears, and all the messiness that we gather at a certain moment become 'our data' and enter a transformation process. Until that moment, 'the messy' is the reign of indeterminacy where the shadow represents the dynamics of what is undetermined.

Indeterminacy challenges our certainties on what counts as 'data' and enables us to access a world of vagueness that precedes the ordering activities of the research process. In our opinion, these challenges have a promising role to play in combination with the post-qualitative movement which has disrupted the certainties of the 'qualitative world'. For example, the notion of 'data' as something that represents what is out there as fixed and static reality, has been the focus of a strong critique for some years by now, and more recently has come under radical attack from post-structural feminist thinking, Foucauldian genealogies, Baradian entanglement and post-qualitative inquiry movements in general. Within these approaches, data are 'encountered' as having no boundaries, or else their boundaries are continually being shaped and (re)shaped. Data are never fixed and live in an indeterminate world and/or produce an indeterminate reality that bites us back. This paper addresses the following provocations: 1) Can we maintain indeterminacy in our data and for how long? 2) How can we work with these kinds of data and what does indeterminacy do to us and to our research practices? This paper explores the potential offered by post-qualitative methodologies for producing knowledge from what lies in the interstices of indeterminate data. We explore three possible responses to those questions: 1) we try to find out some 'trick of the trade' to give an answer in positive to how to slow down the process of constructing 'data' as data (a given). We keep in mind that a positive answer is also an im-positive answer; 2) we respond through narratives and narrative knowledge, telling a story about indeterminate data and its effect in research practices; 3) the third answer is that there is no definitive answer to our provocations, but concur with Spivack that we must work indefatigably to unmask the workings of essentialism and its effects. Answer number 3 means that we keep on using the same labels/concepts (such as 'data'), but try at the same time to problematize them: to criticize continuously stable structures in order not to inhabit them without critical reflection and modified discursive practices.

## B02 - Symposium: Hybrid training spaces

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:00pm · Location: MR170  
Session Chair: Laurent Veillard

### Hybrid training spaces

Chair(s): **Laurent Veillard** (ICAR, University of Lyon, France)

Discussant(s): **Ingrid De Saint-Georges** (University of Luxembourg)

Historically, initial VET courses have always been created in connection with the world of work, but in different ways depending on national cultures (Greiner, 2004; Pospel & Troger, 1993; Veillard, 2017). Some countries, like France, have chosen to build a school-based system (Prost, 1981), meaning that most of the training situations take place inside vocational schools. In addition to traditional classrooms, this has led to design specific learning venues, so-called school workshops, in order to transmit the practical part of the training programs. These learning spaces take many elements from work situations, but others are more specific to school situations. Other countries, such as Germany or Switzerland, have preferred to develop a dual system, based on a division of training work between schools, in charge of the theoretical dimension, and companies, integrating apprentices or interns to transmit them skills and practical knowledge on the job, under the responsibility of a professional trainer. This choice of a dual system logically led to find what could be adapted in the workplace in order to improve learning of young novices.

During this symposium, particular attention will be paid to learning in both school workshops and work situations. Empirical studies on these 2 type of learning venues will be presented and discussed. They were conducted in various training fields (agri-food industry, car repairing, midwifery, early childhood professions), at two training levels (secondary and tertiary) and in two countries with very different vocational training cultures (France and Switzerland). School workshops and internships (or apprenticeship) in work situations can, each in their own way, be both considered as hybrid learning spaces, insofar as they result from a more or less organized combination of heterogeneous components (purposes, artifacts, architectural arrangements, temporalities, forms of organization, roles, social practices, type of knowledge and skills and way of transmitting them, types of discourse, etc.), coming from 2 types of institutions: some are very specific to professional organizations, while others are more typical to school institutions (Fillietaz, 2009; Kunegel, 2011; Lipp & Ria, 2012; Olry, 2002; Perret & Perret-Clermont, 2001; Vadcard, 2013).

Hybridity will be questioned from two perspectives.

- What are the (spatial, technical, social, cognitive, didactical, etc.) features of these hybrid learning venues? What are the advantages and disadvantages of hybridity concerning learning? Does it promote some specific kinds of learning? Are some other more complex?
- What is the more specific role of language in these two types of learning situations? Are existing oral and written language practices in each the result of a certain hybridity? At the opposite, how language can contribute to hybridity? Do these language practices, because of their complexity, generate certain difficulties for learners? Are they perceived by the trainers?

### *Presentations of the Symposium*

### **Students' use of writings in a vocational school workshop: an indicator of autonomy and hybrid learning processes**

**Laurent Veillard, Patricia Lambert**  
ICAR, University of Lyon, France

Despite increasing frequency and duration of internships in work situations over the last decades, hands-on learning sessions at school remain an important part of a lot of secondary vocational training courses in France, especially in the craft and industrial sectors. CAP courses (2-year programs) are in this case: school workshop hands-on sessions still have a weekly duration of 2 full days. The aim for students is to learn the basic vocational skills, that they can mobilize and enrich further during the internships.

But despite this persistent role, there are still few research works on what is happening in terms of pedagogical practices in these particular learning venues. However, existing works show its educational richness and creativity, as soon as some potential learning difficulties for students facing complex didactical situations (de Saint-Georges, 2008; Masson, Veillard, & Olry, 2017; Veillard & Lambert, 2015; Perret & Perret-Clermont, 2001). Some researchers (Pospel, 2000; Pospel & Troger, 1993) have proposed to call them "real fake professional places". Although they often borrow many elements from work situations (technical objects and writings, spaces, tasks, etc.), they are also different by several other dimensions which are specific to school institutions (curricular progress, respect for school time, working in pairs, etc.).

Following this, we consider them as "intermediate places" (Rochex, 2013), between the worlds of work and school. Our hypothesis is that this "in-between" position generates particular learning and socialization processes, particularly in terms of language practices (oral and written). We have studied these specific language practices from ethnographic observations (observation notes, video-recordings, interviews, documents, etc.) carried out in a school workshop, in a two-year CAP course preparing students for the automotive repair trades. Our first analyses were focused on the use of written documents (TP sheet; technical documentation) by students working in pairs during this type of hands-on sessions (Lambert, 2014; Lambert & Veillard, 2017; Lambert et al. 2017). Our first results uncover an invisible pedagogy concerning the way writing documents must be used during sessions. They also allow to understand some specificities of how students built an "hybrid" relationship (both scholar and professional) to knowledge and skills.

In this paper, we start from these initial results to focus on the role of these written documents in empowering 2 pairs of students learning to carry out maintenance operations (e. g. changing shock absorbers, a timing belt, etc.) during a workshop session. Analyses are conducted from video-recordings and other types of data and based on concepts both from the sociology of curriculum (Bernstein, 1996) and comparative French-language didactics (Sensevy, 2007). Our results show different students' behaviors in using and/or avoiding written documents. They also highlight the complexity of some multimodal writings, particularly those from the professional world, which a priori require very strong literacy skills and pose many difficulties for students. Thus, the latter often ask for the teacher and remain very dependent in carrying out the prescribed tasks.

## Analyzing hybrid learning situations through the notion of "interactional schisming"

**Isabelle Durand, Marianne Zogmal**  
Interaction & Training, Geneva University

This contribution focuses on a particular type of training situation: multi-participant interactions occurring on the workplace during collective activities and in which one or more learners participate. These situations can be described as hybrid inasmuch as the participants, especially the learners and their tutors, orient their attention towards both the realization of the work and the learner's training (Rémerly & Markaki, 2016). Studies conducted in the field of interaction analysis show that the participation format of such situations is highly dynamic and fluctuates between splitting and merging of its various interactional focuses. This phenomenon has been referred to as "interactional schisming" (Egbert, 1997, Markaki & Filliettaz, 2017). For the participants in the tutorial interactions, interactional schisming offers resources to engage simultaneously and alternately in a plurality of activities. What are the results and practical implications of this participation format for training processes? In particular, how does such a fluctuating context promote or hinder the learner's access to learning opportunities?

To shed light on these questions, we rely on a current research project which explores interactional schisming and other complex participation phenomena in training interactions. In a theoretical approach that lies at the crossroads of language sciences (Mondada 2004, Sacks 1992) and work and training sciences (Leplat 1997, Pastré 2011), we examine the participants' real practices, in two professional contexts which have similar features in terms of participation formats and trainees' positions: those of Early childhood educator, and Medical imaging technician (Filliettaz & Durand, 2016; Filliettaz & Zogmal, 2017). First, they are both prepared by a VET program, combining school periods and professional internships where students are supervised by experienced professionals. Second, interpersonal relationship with users is central in both occupations. In the field of childhood education, the presence of beneficiaries in the interactional unfolding entails frequent transformations of the participation format. In the Medical imaging technician's activity, issues related to radiation dosing impact the patient's physical positioning as well as the image centering, and lead to repeated micro-transformations of the participation format. Moreover, in both professions, interactions involve the mobilization of multimodal resources, such as language, gaze, gesture, use of artifacts, and movements in space. In such contexts, the participation format is complex, fluctuating, and unpredictable to some extent, thus challenging the learners' participation features.

Within corpus collected in these two training contexts, we constitute "collections" (Mondada, 2008) of clips illustrating the induction, maintenance and closure of interactional schisms and related phenomena; we then realize a multimodal interaction analysis (Traverso, 2012) of the selected sequences. We will present the analysis of two video clips collected in both professional contexts, which show how participants treat interactional schisming as opportunities for learners' training.

## Twofold analytic framework of tutorials hybridity. An interdisciplinary study of midwife training.

**Lucile Vadcard, Christian Depret, Vassiliki Markaki-Lothe**  
LaRAC, Grenoble-Alpes University

Behind the scenes of an evident diversity of specialisations as well as of training programs lengths, medical and paramedical education faces the common and difficult question of setting up students' work experiences through curricula. On the one hand, it is clear that internships serve students to make connections between theory and professional practice; on the other hand, the growing number of students, in addition to the standardization of care as well as to the increasingly complex sanitary requirements, tend to both limit and question this training modality. This important issue has become particularly salient in France since 2012 when the French National Authority for Health (HAS) has enounced the following recommendation: "jamais la première fois sur le patient" (Granry & Moll, 2012). To struggle this recurrent dilemma different configurations have always been set up in medical education, which rely both on pedagogical arrangements (problem-based learning, tutorials, dissections for medical specialities, simulation sessions...) and materials (anatomical models, mock-ups, simulators, animals, cadavers...). Beyond being more or less "authentic" regarding the professional context, these pedagogical choices ask some crucial research questions about transposition of some particular professional features and consequent effects on students' conceptualisations (Chevallard & Bosch, 2014, Tourmen & al., 2017, Vadcard, 2017).

In France learning to be a midwife requires a 5-year certification cycle, and incorporates various pedagogical approaches such as theoretical modules, tutorials and internships. We propose to focus here on tutorial sessions which embed woman pelvis and baby mock-ups, and which role is to contribute to bridge the gap between school and work (for internship preparation issues) and between work and school (for some internship debriefing issues). We examine how connections are made during tutorials with professional situations. More precisely, we study the hybrid - we could also say intermediate - nature of tutorial sessions and its effects on learning processes, according to the following complementary perspectives:

- From a didactic point of view, we study the learning opportunities that tutorials delimitate in terms of nature of problems that can be defined (e.g. identification of foetal position), actions that are allowed (e.g. tactile information collecting), feedback that are provided (e.g. mock-up delimitation of fontanels); and we examine the nature of connections these elements provide with both work and school contexts.
- From a semiotic point of view, we analyse the complex semiotic processes of multimodal learning mobilized by participants to construct meaning and knowledge (Maitre & al., 2011). We focus more specifically: a) on the nature and the different types of elements that are used and/or evoked within these sessions (e.g. instruments, professional schemas and codes, theories...) and b) on participation framework changes within interaction (Markaki & Filliettaz, 2017).

Based on data consisting in interviews of students and video recording of tutorial sessions, this multiple perspective on tutorial training is intended to allow a deepened understanding of teaching and learning processes that occur during midwives education. More precisely our work improves understanding of tutorials effects on development of specific professional features (uncertainty, ambiguous nature of signs, vernacular communication modes...).

## Learning conditions during a hybrid learning sequence in a French agricultural high school

**Dominique Guidoni-Stoltz, Claire Masson**  
UP DPF, Agrosup Dijon

In France, vocational high schools are integrating more and more in curricula what is known as personalized tutoring times (APE). According to the official texts, they may have several objectives depending on the local needs of the schools: improving students' skills in a particular discipline; offering a general methodological assistance (e. g. learning to take notes); preparing

pupils before going on an internship; helping them to prepare exams; accompanying them in the construction of their professional project; etc.

In this communication, we are interested in a tutoring sequence of this type, set up during the first year of a vocational baccalaureate training program (3 years-course), within an agricultural high school that trains students in the agrifood trades. This vocational school is located in a region specialized in the production of local cheeses (particularly the county) and has a manufacturing workshop (and a control lab) to train students in their production. Moreover, it is not only a place of training but also a real production unit (food products are sold in a local store or in some supermarkets in the area).

To study this pedagogical sequence, we have conducted an ethnographical survey over several weeks in the school, using different data production methods: documents collection, observations, video recordings (more than a hundred hours), interviews with students, teachers and trainers, etc. Based on this corpus, we first study the didactical characteristics this teaching sequence designed to achieve several objectives: preparing students for their first internship in a dairy (learning some basic skills and attitudes); helping them in their training pathways; but above all, training them for their oral exam at the end of the year (Masson, Veillard, Olry, 2017). This teaching sequence combines different activities (preparatory phase, cheese production tasks, reflective work on these tasks through oral and written activities), actors (teachers of a discipline, professional trainers, educational assistants) and learning places (classroom, manufacturing workshop, control lab, boarding school, etc.). In this sense, it can be described as a hybrid learning sequence, insofar as it does not concern a single teaching discipline, a single learning venue, or a single school (or professional) logic, but seeks to articulate all these elements in a single learning sequence, which aims to achieve several pedagogical objectives.

Thereafter, by studying the students' activity, we try to point out both affordances (Billett 2001; 2002) and learning obstacles, generated by a complex pedagogical sequence of this type. In particular, we show that written work required of students at different steps, allow them to engage in reflexive activities about professional tasks they previously performed in the manufacturing workshop. These reflexive phases, partly supervised by some teachers or other types or actors, can theoretically be considered as a process of "secondarisation" of these experienced tasks (Bautier and Goigoux, 2004). They put students in a reflexive posture on their professional activity, by using oral and written linguistic tools (Vygotsky, 1933), but in another place and another temporality, which can help them to develop new conceptualizations (Vergnaud, 1996; Pastré, 2011).

## **B03 - Paper session Fr: Formation et développement professionnel des enseignants**

*Time:* Wednesday, 12/Sep/2018: 2:00pm - 4:00pm · *Location:* M1130

*Session Chair:* Sylvain Doussot

### **Le rôle des interactions dans la trajectoire de développement professionnel de l'enseignant**

**Joëlle Morrisette, Annie Malo**

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L'expérience comme source de connaissances est prise en compte dans certains courants qui se sont intéressés depuis le début des années 1980 à la pratique des experts par rapport à celle des novices (Calderhead 1983; Carter, 1990) ou, plus récemment, dans les travaux réalisés en didactique professionnelle (Pastré 2011; Vinatier 2009). Cependant, comme le souligne Malo (2008), ces courants laissent souvent dans l'ombre la dynamique constructive de l'expérience, c'est-à-dire les interactions sociales qui la façonnent au cœur des situations concrètes de travail. Pour éclairer la dynamique constructive de l'expérience, nous convoquons une théorie de l'acteur et de la mobilisation de son savoir pratique au croisement d'un certain constructivisme (Pépin, 1994) et d'une perspective interactionniste (Becker, 2004; Morrisette, Guignon et Demazière, 2011). Selon cet éclairage, la viabilité des savoirs pratiques de l'acteur est testée dans ses interactions avec autrui, les réponses réciproques façonnant l'expérience des uns et des autres dans un système d'influences. En d'autres mots, leurs interactions s'insèrent dans une négociation continue qui permet de mettre à l'épreuve son expérience et de l'adapter en fonction de la coordination de son action avec celle des autres en contexte. Adossées à cette perspective, nous avons proposé un dispositif de recherche-formation à des enseignants du secondaire sous la forme d'un Groupe de codéveloppement professionnel (GCP), afin de répondre ce questionnement : comment les interactions affectent-elles l'expérience ? Comment participent-elles de l'adaptation et de l'ajustement des acteurs aux situations professionnelles rencontrées ? Comment sont-elles constitutives de l'apprentissage de savoirs pratiques viables en contexte ? Ce groupe était composé de personnes ayant des expertises variées (des enseignants, un conseiller pédagogique et l'équipe de recherche), mobilisées au service de la résolution d'une situation problématique à laquelle les enseignants étaient confrontés, selon un cycle de réflexion / expérimentation s'apparentant au modèle de soutien au développement professionnel de Stringer (1996). Nous relatons la démarche de l'un de ces enseignants, Paule, afin d'illustrer l'influence des interactions en GCP et lors des phases d'expérimentation en classe. L'analyse des rencontres en GCP a procédé d'une démarche inductive (Thomas, 2006), employant l'étude des procédés discursifs qui ont émergé GCP entre les participants (confrontation, validation, cadrage, etc.) (Billig, 1996). Cette démarche nous a conduites à identifier trois processus par lesquels les interactions participent de la trajectoire de développement professionnel de Paule : une redéfinition de la situation problématique rencontrée par une plongée dans la complexité; une expérimentation dans l'action nourrie par les pistes suggérées ; et la mise en question de la viabilité de ses savoirs pratiques. Ainsi, les interactions ont contribué à élargir les perspectives sur les situations problématiques rencontrées, à valider et à questionner son savoir pratique, au profit de la construction de l'expérience. Les retombées de notre analyse s'expriment principalement en termes de contribution conceptuelle, par la mise en relief du rôle joué par la négociation du sens sur et dans une pratique professionnelle pour la construction de l'expérience. Elles s'expriment également en termes de pistes de réflexion pour la formation continue des enseignants que nous présenterons également.

### **Les différentes formations et développement professionnel des enseignants novices selon les pays**

**Eugénie Demoussa**

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Un dispositif d'observation de collectifs d'enseignants débutants et de leurs formateurs lors des stages pratiques dans le premier degré, est mis en œuvre dans une étude comparative au Gabon et au Sénégal. L'analyse des caractéristiques des situations d'enseignement des novices et des situations de formation révèle des différences de conception et de mise en œuvre des milieux didactiques et ergonomiques, selon les pays.

Notre étude s'insère dans le programme de recherche de l'équipe ERGAPE qui s'intéresse au développement des ressources favorables à la mobilisation psychologique des professionnels par l'observation et analyse de leurs situations réelles de travail. Notre analyse se situe dans les fondements théoriques et épistémologiques d'une approche historico culturelle, selon les théories de Vygotski, pour qui la prise de conscience est d'abord sociale, du fait qu'elle est d'abord connaissance des autres avant d'être connaissance de soi (1896/1934).

Le cadre méthodologique en clinique de l'activité repose sur la mise en œuvre d'autoconfrontations, puis de confrontations collectives (Clot et Faïta, 2000 ; Faïta et Saujat, 2010), afin de permettre aux acteurs de la situation d'établir de nouvelles liaisons entre les différents registres de leur métier. Ici, nous focaliserons notre attention sur la conscientisation, la verbalisation, et la conceptualisation concernant les milieux didactiques mis en œuvre par les enseignants débutants et les conseils prodigués par leurs formateurs en vue de leur professionnalisation.

L'étude se déroule en plusieurs phases : a) : l'observation et les enregistrements vidéo des situations réelles d'enseignement et des entretiens de conseil pédagogique ; b) : les entretiens en autoconfrontations simple, et alloconfrontations des débutants sur l'analyse de leur activité ; c) : des confrontations collectives sur l'activité des débutants et des encadrants réunis. Ici, nous nous arrêtons sur les cas de deux novices observés chacun dans leur pays, en leçon de géométrie en classe de CM1 sur les notions de construction du cercle et d'angle, pour interroger, à propos d'un même objet de savoir, les différentes conceptions didactiques des deux débutants et de leurs formateurs (modalités de transposition des savoirs, des interactions en classe...) (Sensevy, Mercier, Schubauer-Léoni, 2000). Les premiers résultats semblent révéler des formations ou apprentissages et développement professionnel différents selon les pays.

L'opportunité de débattre sur la qualité du travail à faire (les manières de faire, de dire, de sentir « les choses » en situation) met au jour des contradictions et des discordances susceptibles dans d'autres contextes d'initier et d'alimenter une transformation, au niveau : de l'objet de l'activité, du point de vue des intéressés, et des situations de formation.

### **La professionnalisation des enseignants en Master of Art in pedagogy. Analyses didactiques de gestes professionnels en développement**

**Isabelle Mili, Catherine Grivet Bonzon**

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Depuis une dizaine d'années les Hem de Suisse institutionnalisent les cours de didactique instrumentale et vocale sans avoir eu l'occasion de dresser un bilan critique. Cette intervention à deux voix, issue de la recherche menée pendant deux années par le laboratoire de Didactique des Arts et du Mouvement de l'Université de Genève, propose une partie de l'analyse des processus de professionnalisation à l'œuvre dans ces dispositifs et ce, à la lumière des enjeux didactiques et des indices de professionnalisation dynamiques inhérents aux situations d'enseignement dans leur double niveau d'observation (leçons de l'étudiant à l'élève- feedbacks du professeur de didactique). C'est à partir d'un corpus de 104 séances d'observations filmées et codées (dans les Hem de Genève, Bâle, Lausanne et Lugano) et sous la focale de la définition comme geste enseignant que nous investiguerons les leçons des étudiants en Master de didactique instrumentale et vocale et leur articulation avec les feedbacks de leurs professeurs. Les résultats issus de l'analyse qualitative (Leutenegger, 2000) d'une part et quantitative d'autre part (Pinheiro et Bates, 2009), nous amènent à penser que les outils employés dans la construction du processus de professionnalisation ont trait à la fois au rapport fort et souvent inégal, entre ce que l'on pourrait nommer la technique et l'interprétation dans la didactisation du rapport à l'œuvre comme milieu didactique (Brousseau, 1990) autant que dans une autre mesure, au recours à la métaphore et à la corporéité comme éléments dominants de l'interaction didactique (Mili, I., Grivet Bonzon, C., Jacquin, M., Knodt, P., Haefely, I. 2016) avec, comme but ultime et enjeu de formation, la mise en place de l'autonomie de l'étudiant comme celle de l'élève. L'étude nous permet de décrire les processus sous-jacents d'éventuels transferts d'expertise d'enseignement vers la configuration d'expertise de formation, en termes de savoirs à enseigner et de savoirs pour enseigner.

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**Interactions entre enseignants, avec leurs élèves et avec le savoir : quelles conditions à une formation didactique (en histoire et géographie) des enseignants par un séminaire de recherche ?**

**Sylvain Doussot**

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Un dispositif de formation à la didactique de l'histoire pour des enseignants débutants est construit sur les résultats d'une précédente recherche (Doussot & Vézier, 2016) selon laquelle les interactions entre enseignants pour l'analyse et la production de séquences, cadrées par un chercheur et la production d'un mémoire de recherche, peuvent favoriser le développement des compétences d'innovation pédagogique contrôlée didactiquement.

Cette étude a mis au jour des limites qu'explore la présente recherche-action (l'auteur anime les séminaires). La principale difficulté que rencontrent ces enseignants résiderait dans la séparation radicale entre interactions de classe (professeur/élèves) et interactions du séminaire (entre pairs et le chercheur). Cette séparation qui structure l'activité enseignante (préparation/mise en œuvre) repose, sur le plan cognitif, sur une dichotomie fondamentale de leur représentation du métier : les interactions maître/élèves peuvent être déterminées préalablement parce qu'elles seraient indépendantes des interactions entre savoir des élèves et savoir visé, comme si celles-ci se réduisaient à une substitution du faux par le vrai. Cette dichotomie constitue un obstacle épistémologique auquel les interactions en séminaire donnent accès.

L'enquête s'appuie sur les transcriptions des échanges en séminaires, lors de visites de stage, et sur les écrits des enseignants. Ces derniers doivent produire des données sur les interactions de classe qui constituent le cœur des interactions des séminaires. Le corpus concerne trois groupes d'apprentis enseignants (groupes de 4 à 7, du primaire et secondaire pour comparer les profils épistémologiques).

Il ressort que l'étude des interactions n'est possible qu'à condition d'une mise en relation des différentes échelles en jeu : entre le chercheur et les enseignants, à propos des interactions entre élèves et enseignant, concernant les interactions entre concepts (généraux) et situations étudiées (singulières). C'est lorsque le chercheur se fait porte-parole des élèves en mettant en discussion les moments d'émergence des interactions entre leur savoir déjà-là (factuel et conceptuel) et le savoir visé que la représentation dichotomique des enseignants est mise en jeu. A un second niveau, la conceptualisation des interactions en formation didactique n'est possible que dans un cadre théorique disciplinaire. Il faut qualifier le paradigme dominant (l'histoire comme mémorisation et réminiscence pour lire des documents) et l'alternatif (l'histoire comme enquête heuristique qui met en tension savoirs déjà-là et documents du passé) pour guider l'action du chercheur dans le séminaire et identifier, a posteriori, les traces de la déstabilisation des croyances pédagogiques (Chevallard, 2010), considérée comme le résultat d'interactions de contextes (discipline scolaire, discipline de référence).

La dimension disciplinaire d'un telle approche didactique de la formation permet de discuter des approches comme celle de la didactique professionnelle qui équilibre l'épistémique avec le relationnel et le pragmatique de l'activité enseignante (Vinatier, 2013).

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## B04 - Paper session: Learning at work

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:00pm · Location: M1140

Session Chair: Christof Nägele

### The co-occurrence of learning through work and innovations at work: Prospect for personal, workplace and cultural change

**Stephen Richard Billett**

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Two key imperatives for contemporary work life can potentially be best realised through their co-occurrence. These are workers' learning for, through and across working life, and realising workplace and occupational innovations. There are growing requirements for new learning to be realised by all kinds of workers to sustain their employability across lengthening working lives and also the need to secure the continuing viability of their workplaces (Hoyrup, et al, 2012). Regardless of whether referring to public or private sector enterprises, without workers' ongoing development of their occupational capacities (i.e. worklife learning), their workplace will unlikely be able to respond to the changing requirements of technologies, service demands and evolving clients/customers'/patients' needs. Indeed, workplace viability at the enterprise level and, collectively, across public and private sector enterprises and workforces is premised on innovations and innovative practices (Markauskaite & Goodyear, 2015; Wegener, 2017). However, learning and innovation are often seen as being distinct and separate, when they are inherently interdependent.

Innovations arise through advancing what is known (i.e. learning) and their effective implementation in work settings is premised on workers adopting and enacting them as innovative practices, which also requires new learning (Billett 2012). In this way, there is a necessary co-occurrence between innovations and learning. Innovations here, are cast widely to include the processes frequently adopted in work settings as workers respond to challenges brought about changing occupational requirements and the need to respond to new work problems and situational requirements. Drawing on findings from empirical work and observations of workers engaging in their occupational practice, these interdependencies are illustrated and elaborated as is the co-occurrence of innovation and learning through work. Whether it is healthcare workers responding to the increase in patients with delirium or dementia, engineers engaging with new technologies and robotics, or adult educators addressing the needs of diverse adult learners, they are needing to identify and enact innovative work practices and transform their occupational practices. Of course, there are other kinds of innovations, some of which displace work and workers, these lead to waves of learning, by those engaged with and displaced by them.

This paper will elaborate these premises about the co-occurrence between innovation and learning as processes of interdependencies. Then, it will discuss ways in which this co-occurrence can be generated, supported and shared to assist in their broad adoption across the island nation through practice-based initiatives.

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### The contribution has been withdrawn.

#### A Typological Look into Learning Culture in Workplaces

**Saeid Safaei Movahhed**

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#### Learning in uncertainty: Nature of uncertainties perceived by finance professionals

**Vasudha Chaudhari<sup>1</sup>, Leonie Jacob<sup>2</sup>, Regina Mulder<sup>2</sup>, Allison Littlejohn<sup>1</sup>**

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Finance is a typically knowledge-intensive sector characterised by the constant pressure to keep up with the transformation of skills and competencies. In current era of geo-political uncertainty, particularly in UK, Europe, and US, understanding how finance professionals learn to work in uncertain circumstances is of importance. This research also coincides with rapid technological advances in the Finance Technology (Fintech) sector, which requires professionals to continually adapt to changing workplace practices. The overarching aim of this research is to explore how finance professionals learn to work in uncertain circumstances. In this research, the term 'uncertainty' refers to the finance professionals' inability to understand how the components of their environment might change, to predict the consequences of those changes, and to formulate response choices to face the changes. Due to the complex nature of uncertainties within the finance sector, this research will be carried out in multiple phases. This paper reports on the first exploratory study of this research, which aims to explore the nature of uncertainties perceived by finance professionals, and the strategies adopted by them to navigate through the ambiguous times. These have never been examined together in this way in investigation of finance professionals' behaviour. Nine semi-structured interviews were conducted with finance professionals to collect data on the uncertainties faced by professionals in their workplace. Phenomenographic data analysis technique was employed to analyse the interview data that resulted in categorisation of the nature of uncertainties perceived by finance professionals. Five predominant kinds of uncertainty were revealed from the analysis: financial crisis, structural changes, environmental influences, political strategies, and technological advances. Deeper analysis of the interview data showed that these five categories of uncertainty impact on two broader levels: Two types of uncertainty impact at a 'macro' level such as organisations or across the sector: Uncertainty arising from environmental influences (9/11 attacks, Chernobyl tragedy) or political strategies (Brexit). In these circumstances finance professionals are unsure about how their workplace environment will evolve over a short timeframe, or are ambiguous about

the probability of a specific condition being instantiated. Three types of uncertainty are at the 'micro' level that have a direct impact on the professionals. These include structural changes (restructuring or relocation of a bank), financial crisis (market crash, IMF crisis), or technological advances (robo-advice). In these circumstances finance professionals are unsure about the options they possess for responding to a particular uncertain situation and the outcomes of the actions they take. Early indications suggest that the boundaries between these classifications can be blurry as they are dynamic, context dependent, and related to individual perceptions. Further research is underway in order to study the nuances of these perceptions, and the impact they have on the way professionals learn to work in uncertain times. The findings from this study will offer greater insight to finance organisations and professional bodies to align their professional development activities as per the nature of uncertainty prevalent within the organisation.

### **How do perturbation training contribute to safety? The unexpected and the unthought as means to design perturbations in safety training**

**Simon Flandin, Germain Poizat**

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Perturbation is a training design principle that consists in disrupting standard workflow with the introduction of a significant event. Mostly used in safety-concerned organizations, it is quite widespread in practices like crisis exercises, but weakly theorized in an educational perspective. Extending Weick's descriptive theory (1995), perturbation should be aimed at developing the trained actors' ability to make sense under uncertain conditions, and at encouraging them to invent and perform novel actions and coordination to achieve their objective (Flandin, Poizat, & Durand, in press). Most of empirical research on perturbation training focus on its influence on team coordination (e.g., Gorman, Cooke, & Amazeen, 2010) and we don't know much about its influence on individual and collective sensemaking, though this seems to be a crucial ability for safety ensuring and recovering (Maitlis & Christianson, 2014). We conducted an exploratory study of a watch officer's sensemaking (concerns, expectations, perceptions, emotions, meanings, decisions, and actions) during a perturbation training simulating a "beyond behind basis" accident in a gas plant. We used ergonomics methods (direct observations, field notes, and retrospective interviews) to collect data, and the enactive framework of the course of experience (Poizat, Flandin, Sève, Durand, & Theureau, submitted) to process it. We found that the perturbation led successively the watch officer (i) to an initial state of bewilderment and collapse of sensemaking as the situation got unexpected, (ii) to accept his state of uncertainty and to look for ways to achieve his objective, even though it involved moving away from the procedure, (iii) to make several wrong hypotheses before finally understanding what happened. We analyse the most plausible training outcomes regarding the officer's abilities of anticipation, understanding, reactivity, and invention. Our analysis suggests that the unexpected (events whose realization is predictable, but whose moment of occurrence is not) and the unthought (events that are unprecedented and highly unlikely) may be two promising perturbation areas for safety training. We make propositions for innovative design and future research, especially regarding the fact that evidence is lacking concerning the impact of perturbation training in terms of occupational activity transformation and development.

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### **Effects of quality of workplace learning, social integration and work satisfaction on career paths to higher professional or higher academic education**

**Christof Nägele, Patsawee Rodcharoen, Markus P Neuenschwander**

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Further education is essential for individuals, companies and society. In Switzerland, individuals have the option to engage in higher professional or higher academic education on the tertiary level. In this paper, we focus on holders of a Federal VET diploma after having finished initial VET: What factors predict the engagement of these individuals in either form of higher education? Higher professional education aims to provide the labour market with highly skilled workers in advanced positions, whereas higher academic education is (applied) science-oriented. Holders of a VET diploma get access to higher academic education on condition of having a baccalaureate, and they get access to higher professional education. As many individuals get employed after having finished iVET, they approach higher education concurrent to being employed. Hence, the work design plays a role in educational decisions, as it opens or restricts opportunities by influencing an individual's job evaluation, motivation and planning (Gagné & Panaccio, 2014) and learning opportunities (Janssens et al., 2017). Hence, we expect that quality of workplace learning, social integration and job satisfaction to explain attending one or the other type of higher education, independent of achievement motivation, social background, nationality and gender. These latter factors were often shown to predict engagement in higher academic education, which we expect to be the case in engaging in higher academic education.

Data stems from a multi-cohort longitudinal study on educational pathways of young people (BEN) (Neuenschwander, 2013). 611 individuals were selected based on the availability of a VET diploma and the absence of a tertiary degree. In line with hypotheses, logistic regression analyses show the explanatory power of including these workplace factors. Engagement in higher professional education was more probable with a high quality of learning in the company. Social support and work satisfaction were not predictive for higher professional and higher academic education. Educational aspiration was negatively associated with engaging in higher professional education, educational values positively with both types of higher education. SES and nationality impact the engagement in higher academic education but not in higher professional education. No gender effect was found. These findings undermine differences in factors that lead individuals to engage in higher professional or

higher academic education. A high quality of learning at the workplace triggers attending higher professional education, which points out the individuals and organisations possibility to foster higher professional education. Consequences for theory and practice will be discussed.

#### Literature

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Janssens, L., Smet, K., Onghena, P., & Kyndt, E. (2017). The relationship between learning conditions in the workplace and informal learning outcomes: a study among police inspectors: A study among police inspectors. *International Journal of Training and Development*, 21(2), 92-112.

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## B05 - Paper session: Learning in teams

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:00pm · Location: M1150  
Session Chair: Andreas Widmann

### The cognitive turn in team leadership: an elicitation study on team leaders' mental models

Mieke Koeslag-Kreunen<sup>1</sup>, Piet Van den Bossche<sup>2,3</sup>, Marcel Van der Klink<sup>1</sup>, Wim Gijssels<sup>3</sup>

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#### Aim.

In many professions, teamwork has become the corner stone to deal with complex tasks (e.g., integrating diverse expertise to create new knowledge for product innovations). As a team leader, deciding about the team situation, judging whether it is necessary to make a change, and understanding the consequences are crucial elements of teamwork quality (Day, Harrison, & Halpin, 2009). As a consequence, research on team leadership and its effects has increased enormously (e.g., Burke et al., 2006). However, most of the research on team leaders has focused on leadership behavior and not on how the leaders' underlying mental models influence their behavior (Day et al., 2009). Mental models are leaders' cognitions on how they perceive leadership and how they interpret situations (Avolio, Walumbwa, & Weber, 2009), which are argued to guide leaders' actions (DeRue & Ashford, 2010). Yet, empirical research on the constituencies of team leader mental models is lacking (Day et al., 2009). Therefore, this study provides in-depth insights into team leaders' mental models (i.e., which team leadership perspectives and concepts they use), offering directions towards team leaders' professional development.

#### Methodology.

Fifteen leaders of university teacher teams that developed novel programs, methods or strategies, were interviewed using four techniques: general perception of team leadership; metaphor description of their own team leadership; evoking retrospective thoughts upon their team situation; and reflecting on two new team situations (i.e., cases adopted from Benjamin, 2000). Transcripts were coded, of which 47% double blind (Kappa .68). Coding involved which leadership perspectives of Drath (2001) and team concepts (i.e., team learning behaviors, interpersonal learning factors, task features, team leadership behaviors) were mentioned.

#### Findings.

Analyses show that the team leaders held very distinctive mental models that can be summarized by three groups: (A) no collective, (B) some collective, (C) a collective perspective on team leadership. A collective perspective involved viewing leadership as a process with non-hierarchical social interactions. Team leaders in 'group C' used diverse team learning behaviors and applied different team leadership behaviors in new situations. In contrast, team leaders in 'group A' barely used team learning behaviors and applied just one style of team leadership behavior in new situations.

#### Significance.

This study brings a cognitive turn on the dominant behavioral team leadership perspective by providing new empirical insights into the variety of team leaders' mental models (Day et al., 2009). Our findings indicate that team leaders with a collective view on team leadership rely on a more complex mental model compared to team leaders with no collective view. A more complex mental model might enable team leaders' ability in adapting their behavior to specific situations (DeRue & Ashford, 2010). These results suggest that it is potential worthwhile to start professional development of team leaders by connecting to their present individual mental models instead of an immediate focus on effective team leadership behaviors regardless their mental models and teams' situations. In doing so, this study showed that using experiences, metaphors and cases are relevant cues to evoke team leaders' mental models.

### Engaged employee, engaged "team"? The influence of employees' collaborative context and individual resources

Katrien Vangrieken, Filip Dochy, Eva Kyndt

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This study relates to the interaction part of the conference theme and focuses on the relationship between the individual employee and his/her collaborative context. Collaborative and team-based work is omnipresent in current organisations and employees' professional development is thus also not a sole individual adventure but interaction with colleagues has become a core resource for learning. In this study, we investigated how these dynamics of individual and collaborative work (autonomy and collaborative professional development [CPD] activities) influence employees' wellbeing. This was investigated in a quantitative longitudinal design where teachers were asked to fill out a questionnaire twice a year during two consecutive school years (N = 1571).

Given that employees' collaborative contexts strongly vary and a variety of groups and teams can be found in practice, this variety is taken into account by mapping team entitativity. This refers to the degree to which a collective functions as a real team (having shared goals and interdependence among team members) or rather as loosely coupled individuals. As this influences the interactions and learning processes taking place, we distinguished between two groups of employees: those perceiving their immediate collaborative context as highly entitative and those perceiving a lower degree of entitativity. This distinction was made based upon Item Response Theory (IRT) analyses and the resulting IRT scores of the respondents. The midpoint of the IRT scale was used to distinguish between the two groups.

These groups were the starting point for further analyses investigating employees' wellbeing, more specifically work engagement. Given that the focus of this study includes the interaction between the individual and the collective, we assessed both individual and team engagement and the relationship between both using parallel process latent growth curve models (LGCm; using multiple group Curve-of-Factors models). Although research on team engagement has increased, the relationship between individual and team engagement tends to be neglected. The findings suggest that employees who feel more engaged, also tend to experience their team as more engaged and vice versa. Furthermore, high levels of team entitativity are especially beneficial for team engagement and CPD activities but also foster individual engagement and employees' autonomy.

Next, the growth parameters derived from the LGCm were included in multiple group path analyses to investigate whether the starting values (intercepts) and growth (slopes) of CPD activities and individual employees' autonomy predict those of work

engagement and whether this differs in the two entitativity groups. The results demonstrated that sharing and exchanging with team members fosters both team and individual engagement. Moreover, employees experiencing more autonomy also tend to be more engaged. When comparing the low and high entitativity groups, it was found that when employees are part of a cohesive team with a clear shared goal, feeling autonomous will also positively influence team engagement. Hence, when employees are part of a highly entitative team, interact and learn from each other and at the same time feel autonomous, this fosters their wellbeing.

### **Team Learning Behaviours as Predictors of Innovative Work Behaviour**

**Andreas Widmann<sup>1</sup>, Regina H. Mulder<sup>1</sup>, Christoph König<sup>2</sup>**

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#### **Relevance**

In vocational education, innovations are required to address emerging challenges in meeting the demands of the students, the labour market and society. In order to meet these demands, teacher teams need to work and learn together to develop innovative solutions. This requires innovative work behaviour (IWB) (Messmann, 2012). Research indicates that IWB can be fostered by individual learning behaviours. However, insight in the relation between team learning behaviours (TLBs) and IWB is lacking. Especially, longitudinal studies are needed to take the dynamic characteristic of TLBs and IWB into account. Therefore the aim of the study is to examine the role of TLBs as predictors of IWB and to identify reciprocal relationships between TLBs and IWB. We address this shortcoming by trying to answer the following overarching research questions: How do TLBs predict IWB over time?

#### **Theoretical framework**

IWB includes any employee work activities that are described by four dimensions (opportunity exploration, idea generation, idea promotion and idea realisation). These are required for innovation development (Messmann & Mulder, 2012), which is a complex process that cannot be accomplished by individual employees alone. It follows that IWB involves social activities based on interaction with others. We consider IWB as a behavioural team learning outcome. Team learning is defined as a compilation of TLBs that circularly generate changes for teams, team members or organizations. In this study we focus on the TLBs knowledge sharing (Staples & Webster, 2008), team reflexivity (Schippers, et al., 2007), and boundary spanning (Hirst & Mann, 2004).

#### **Methodology**

We conducted a longitudinal survey study with three waves. 275 vocational educators of 66 teams participated (52.4% male, 41.1% female). They deal with complex and knowledge-intensive tasks. To measure TLBs we used validated scales measuring knowledge sharing ( $\alpha=.88$ ; Staples & Webster, 2008), team reflexivity ( $\alpha=.94$ ; Schippers et al., 2007), and boundary spanning ( $\alpha=.74$ ; Hirst & Mann, 2004). IWB ( $\alpha=.96$ ) was measured with a validated scale (Messmann & Mulder 2012). Each dimension was assessed by seven items. Learning conditions as controls were measured by team structure ( $\alpha=.79$ ; Bresman & Zellmer-Bruhn, 2013) and task interdependence ( $\alpha=.85$ ; Rupprecht, et al., 2011).

First, we analysed descriptive statistics and correlations analysis. Second, to capture the dynamic relationship between TLBs and IWB, a cross-lagged panel model was estimated.

#### **Results**

The model shows an adequate fit to the data ( $\chi^2 = 51.02$ ,  $p = .218$ ;  $df = 44$ ;  $SRMR = .05$ ;  $CFI = .99$ ;  $TLI = .99$ ;  $RMSEA = .02$ ). The autoregressive paths indicate stability of the dimensions of IWB between T1 and T2 ( $\beta$  ranging from .32 to .43,  $p < .01$ ) but not between T2 and T3. The TLBs are stable over the year ( $\beta$  ranging from .14 to .55,  $p < .01$ ). We found statistically significant longitudinal predictions both between the different TLBs and between the dimensions of IWB that change over time. In summary, at the beginning of the year knowledge sharing and team reflexivity is essential for IWB. Boundary spanning becomes more important during the year.

## B06 - Paper session: Teachers learning and professional development

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:00pm · Location: M1160

Session Chair: Merel M. van der Wal

### The intersection between knowledge and experience of classroom events: A theoretical model for teachers' situational awareness and classroom management scripts

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Achieving meaningful learning amidst the diversity and complexity of classroom events is a persistent professional challenge inherent to teaching. Understanding events, how they unfold across typical situations, and how they influence student learning is vital professional knowledge. Through experience, teachers blend formal, professional knowledge with personal, practical knowledge that reinforces the skills necessary for effective classroom management. As such, teachers' ability to manage the classroom is closely bound to the practical knowledge they accrue over time spent in classrooms.

Essentially, effective classroom management relies on an ongoing awareness of events: continually monitoring situations, recognizing who and what needs attention, and knowing how to act and react (Wolff, Jarodzka, van den Bogert, & Boshuizen, 2016). The challenges of classroom management can be especially difficult and daunting for new teachers, as they are still building and deepening the experiential knowledge situated in the context of the classroom. The context of where learning to teach happens – in classrooms – is an additional complication because teachers are confronted with the cognitive challenges of crowded, demanding environments within which they must acquire and develop professional knowledge and skills (Doyle, 2006). The ambiguity of classroom events – with their indistinct beginnings, endings, and meanings – makes it that much harder for teachers to manage and maintain situational awareness.

Ongoing awareness in classrooms requires continual monitoring and assessment of events, deciding whether or not action needs to be taken, pursuing particular actions, and linking this information to evolving situations. While much classroom management research describes how to overcome common classroom concerns, it does not provide a theoretical description of cognition for classroom events and situations. Nor does it describe how knowledge and experience influence teachers' awareness for deciding when and how to manage the classroom. Our theoretical construct aims to expose the hidden, internal knowledge structuring linked to classroom management by presenting a model for classroom management scripts. The model contrasts expert and novice teachers' knowledge for classroom management, drawing attention to differences in their recognition and representation of events. It considers how expertise influences visual perception and coordinates with teachers' deeper cognitive processing by synthesizing theories related to teachers' professional vision, workplace learning, and situational awareness (Endsley, 2006; Eraut, 2007; Goodwin, 1994; Van Es & Sherin, 2002).

This research offers a general theoretical framework portraying how teachers activate knowledge scripts, monitor events, update ongoing awareness of situations, and how this impacts decisions about when and how to act within classroom situations. Our theory is intended to help teacher educators and teachers themselves analyze and make sense of puzzling classroom events by highlighting key how knowledge and experience influences teachers' awareness. While there is no substitute for the practical knowledge teachers develop through their own experience, we believe this theory can support the professional learning and development of teachers, both in training and in classrooms, by drawing attention to elements easily overlooked when engaging in or reflecting on classroom management.

### Understanding how educators at the workplace reach judgements when assessing students' professional performance

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#### Aims

Although professional performance at the workplace is essential in VET, little is known about what educators do when assessing students' performance. This study aims to explore how workplace educators inform their judgements of students' performance by looking at strategies and potentially influencing factors.

Learning at the workplace can be described as a process of becoming, where students grow into their vocation by participating at the workplace during an internship alongside their training at an educational institute (Colley, James, Diment, & Tedder, 2003). Learning at the workplace is at odds with traditional views of assessment (Trede & Smith, 2014). From a traditional view assessment requires measurable standards of competence, whereas the complex reality of workplace learning and its assessment by workplace educators is poorly reflected by such standards. Since participation is at the core of workplace learning, the assessment of workplace learning is seen as a situated practice (Romer, 2002). We conceptualized assessment as a process of decision-making by the workplace educator aimed at reaching judgement about the vocational competence of the student. The decision-making process is continuous as educators form their judgements throughout the internship and formalize them at the end of it.

#### Methodology

Nine experienced workplace educators across three different occupations (engineering, education and art) participated in semi-structured interviews (currently seven interviews have been conducted and partly analyzed). The interviews were analyzed using iterative template analysis (King & Brooks, 2012). Themes such as process and influencing factors were identified before analysis and using open coding a template was developed.

#### Findings

Preliminary findings show that educators at the workplace engage in a constant decision-making process starting at the first encounter. The process seems to consist of momentary judgements. Feedback and guidance strategies are based on these momentary judgements of performance. During the process educators use different strategies (conscious and unconscious) to inform their judgements, such as: observing behavior, talking to students, checking judgements with peers, comparing students, and looking at student products. Fitting with the situated nature of the decision-making process, the findings also show factors that potentially influence the process: e.g. supervisor beliefs and expectations, overlap between the educational context and the workplace, and the decision effect.

## Significance of the research

Exploratory research into how workplace educators reach judgements about students can further understanding of assessment of workplace learning.

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## Emotions and arousal of higher education teachers in various teaching-related events

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The research on emotions of teachers has not been as wide as on their cognition (Sutton & Wheatley, 2003), and among higher education teachers, it has focused mostly on the management of emotions during teaching (Trigwell, 2012). Teachers' emotions are very central in everyday teaching settings. They are influenced by teachers' own individual realities, social interactions with students and other teachers, and by larger socio-political contexts (Trigwell, 2012). They also have impacts on other teachers' and students' cognition, motivation and behaviour (Sutton & Wheatley, 2003).

Research on emotion has primarily been based on self-report methods (Pekrun, 2013). These methods are valid in capturing subjective experiences but usually lack of real-time estimates of emotions and suitability in assessing unconscious emotional processes (Pekrun, Elliot, & Maier, 2006). Thus, neuroscientific evidence of emotional processes can provide complementing indicators to study emotions (Pekrun, 2013). One such measurement is electrodermal activity (EDA). It has been associated with arousal (Dawson, Schell, & Filion, 2007), and with reticular, limbic and cortical areas related to major mind components such as emotion, preparation to action and vigilance processes (Sequiera, Hot, Silvert, & Delplanque, 2009). Recent technological innovations enable measuring EDA in every-day contexts with ambulatory devices, in this case a "smart ring". It is a biosensor that measures EDA from the palmar site of a hand (Suoja et al., 2017), where the density of sweat glands is the highest (Setz, Arnrich, Schumm, La Marca, Tröster, & Ehlert, 2010).

This study examines, if and how higher education teachers' levels of arousal and self-reported emotions are related to teaching-related events. The participants were university teachers (n=14) in a Finnish university. They wore the smart ring for nine days. They also used the LearningTracker (LT) application to indicate their teaching-related sequences (teaching, preparing of teaching, etc.), as well as their anticipatory and retrospective emotions related to them.

The initial analyses indicates that teachers level of arousal was higher in tutoring and teaching (interaction with students) than in other professional events that were conducted alone (e.g., designing and planning of teaching; commenting and assessing diploma and dissertation works) or in a group (professional development events, e.g., pedagogical training for teaching staff). Participants self-reported mostly positive and activating emotions to teaching related events (corresponding also to higher level of arousal), but also negative activating and deactivating emotions were reported (latter corresponding to lower level of arousal).

The results give new insights into the phenomenon of emotions and arousal in teaching in higher education. The results are important because employees' emotions are related to work satisfaction and well-being, as well as to work engagement. Also, teachers' emotions are central in everyday teaching and learning settings, therefore also affecting higher education students' learning processes. The EDA smart ring and the Learning Tracker application offer new possibilities for data collection during authentic teaching events, thus, providing more real-time objective and subjective estimates of emotional processes.

## Measuring professional agency in Finnish and Dutch contexts: a need for applying a double standard?

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One of the characteristics of professional agency is that the context and the teacher are interrelated (Lasky, 2005). Seen this way, professional agency is mediated by the interaction between the individual (attributes and inclinations), and the tools and structures of a social setting. Following this understanding, teachers' agency is mostly investigated via qualitative methods, in specific contexts. Recently, some quantitative instruments have been designed to measure professional agency in working life (e.g., Goller, 2017). One of these instruments includes a notion that the structure of professional agency includes three dimensions: 'Influencing at work', 'Developing work practices' and 'Negotiating professional identity' (Vähäsantanen et al., 2017). This instrument is validated in professional domains including education, but only in a Finnish context.

This study aims to investigate the structure of professional agency in a Dutch university context. Furthermore, the study will provide a quantitative assessment of how Dutch university teachers experience their professional agency.

To this end, this study utilized the instrument on professional agency, covering three dimensions of professional agency via 17 items. Based on a two-way translation, the Finnish and Dutch instruments contain items having the same emic and etic (Banville et al., 2000). Translation from English to Dutch was done by three researchers; differences were discussed thoroughly and merged to one final Dutch translation. Finally, the original Finnish instrument was translated to Dutch by a bilingual native speaker of Dutch and Finnish. A comparison resulted in a pilot version of the Dutch instrument. A think-aloud pilot with three university teachers was conducted to test this instrument. After fine-tuning, the instrument is administered to a sample of 50 university teachers at a university in the Netherlands.

According to our assumption, results demonstrate that the same dimensions as found in the Finnish context also appear in the Dutch context. Therefore, professional agency can be assessed by applying the instrument for professional agency. Furthermore, results present how Dutch university teachers score on each dimension of professional agency. Seemingly similar

(Hofstede, 2011), the way Dutch and Finnish university teachers experience agency is subtly different. Our results indicate a need for more detailed studies on professional agency of university teachers in Finland and the Netherlands when introducing teaching practices in another country.

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## B07 - Paper session: The development of expertise and competences

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:00pm · Location: M1170

Session Chair: Alex Sandro Gomes

### Developing Digital Competences of Vocational School Teachers in Commerce

**Sabine Seufert, Josef Guggemos, Eric Tarantini**

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This research study addresses the challenge to develop new and necessary digital competences of vocational school teachers in the commercial domain. At first, it must be clarified what the resulting requirements of digitization for vocational teachers are and how to operationalize “digital competences” with a focus on the specific needs in the commercial domain.

Digital competences have become interdisciplinary, cross-generational and cross-functional skills (Weiss, 2012), which employers usually already require of trainees and employees during and at the latest after their training. For this reason, there is a growing number of calls to ensure sufficient media literacy for young people in the education sector. The aim of digital media education is (1) to enable learning in schools with and through media and (2) to contribute to constructivist-oriented learning – in particular through their integration in the curriculum and the development of technical and interdisciplinary skills, (Mayrberger, 2007, 2012). In addition, digital media provide ways to strengthen hands-on learning approaches in the classroom (e.g., simulations) and to integrate informal modes of learning into formal learning (e.g. discussions in online study groups). In this sense, digital media perform a bridging function through their direct relevance to the students' lifestyles and serve “as a cultural resource enabling them to participate and become involved in social processes [...] and develop personal world views and their identity” (Herzig & Grafe, 2009, p. 193, quoting Mayrberger, 2012, p. 401). The aim of digital media education, therefore, is to help individuals, in general and in a professional context, to use media knowledgeably, responsibly (both towards self and others) as well as critically (Seufert & Scheffler, 2014).

Digital media have established themselves far more quickly and deeply in work and everyday life compared to education (Weiss, 2012, p. 3). A widely shared expectation is that more intensive use of digital media in education will improve learning efficiency, facilitate greater orientation to the future professional needs of learners and facilitate accompanied personality development in a digital society. However, due to the growing importance in companies and thus the commercial part of the training, vocational schools are coming under increasing pressure to also address the implications of digital transformation for education and training.

The result of the project is an empirically validated competence model for Teachers in vocational schools who are teaching in the commercial domain. The empirical validation of the competence model will be based on a systematic pilot study with a sample of 212 teachers from five different pilot Schools. Empirical validation will be pursued on the basis of factor analytics methods. Based on the results of the first study the proposed dimensions of the competence model will be validated and checked for their consistency. In addition to the comparison of single and multi-dimensional structural models the relationships between the dimensions will be investigated. The results of the pilot study will provide the baseline evaluation as a comparison and planning base for monitoring and evaluating planned interventions.

### The Creation Processes of Professional Artists and Beginners

**Linda Puppe<sup>1</sup>, Helen Jossberger<sup>1</sup>, Christiane Settele<sup>2</sup>, Birgit Eiglsperger<sup>2</sup>, Hans Gruber<sup>1,3</sup>**

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The professional development of artists takes years and often happens at academies. Students work in studios and they can gain experience through artistic work. They acquire domain-specific skills and knowledge through professional training in different fields (e.g., painting, sculpting). Hetland, Winner, Veenema, and Sheridan (2013) revealed that students in the domain of painting have to develop techniques through studio practice. Studio practice allows them to work in space, to experiment with materials, to use tools and to learn distinguish different elements of an artwork (e.g. the surface). We still know little about how they use their knowledge and skills during the creation process in the domain of art. The aim of our study was to examine differences in creation processes between experts, semi-experts and novices in sculpting, a particular field in the domain of art. The following dependent variables were investigated: way of working, relevant elements of the stimulus, use of tools, difficulties during the creation process. Ten experts (one female), ten semi-experts (eight females) and ten novices (seven females) participated. The experts were professional sculptors, who had graduated at an academy or college. Their mean age was 49.80 (SD = 12.81) and they had 25.60 years of experience (SD = 13.01). The semi-experts were advanced university students in art study programmes with a mean age of 24.20 (SD = 1.69). They had successfully completed an introductory and several advanced courses for sculpting. The novices were also students in art study programmes, but they had only participated in the introductory course for sculpting. Their mean age was 23.10 (SD = 2.13). All participants received a photograph as visual stimulus, clay and tools. Their task was to create a three-dimensional sculpture within 25 minutes. The individual creation process was filmed. Afterwards, three qualitative questions were posed: (1) Which elements of the stimulus did you perceive to be relevant for the creation of a sculpture? (2) How did you approach the creation process? (3) Did you experience any problems? Their responses were recorded and then verbatim transcribed. A picture of the finished artworks was taken. We used content analysis to analyse the videos and the verbal protocols. The results show differences between the expertise groups. During the creation process, novices worked predominantly flat. They tried to build and copy elements with semantic associations (e.g. branches) displayed in the photograph using their fingers instead of tools. Several novices also experienced static problems with their sculptures. Their way of working indicates that they lacked knowledge about material properties of clay and technical skills. On the contrary, semi-experts and experts worked in space and modelled voluminous elements. They used the available tools. Semi-experts and experts faced no difficulties with the provided material. To our knowledge, this study is the first to investigate learning and professional development in sculpting; in particular, the creation processes using the expert-novice paradigm.

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## How to compare professional competencies internationally : a methodological proposition.

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Researchers and psychologists have often defined competence through success and capabilities. This connection is somehow problematic, and even more so in an intercultural comparison between professionals from two countries. And this is especially true in a sector such as educational work, where defining performance is very complicated. Is speaking of competence only possible in the case where a social judgment can intervene to validate, whether the subject deserves to be considered competent in confronting the task?

Our research tries to build an international comparison of competences of specialized educators, in France and Québec. Those are: evaluation of the encountered children and elaboration of an educational relationship. To analyze and compare those competencies, we propose a model which admits competence as a process which includes cognitive and social data. Our methodology allows us to work with the concept of culture and to include competence in the context in which it expresses itself.

As cognitive processes studied in a broad context, our approach of competence allows culture to step-in, thanks to Berry's eco-cultural model adapted from Segall & al. (1999). Berry explains that culture is an adaptive response to ecological and sociopolitical contexts (population level) and influences individual behavior (individual level) through genetic and cultural transmission (enculturation and socialization) and acculturation. Would it be possible to study those competencies and their connections to their respective contexts?

To describe competences, we use the Dynamic Analysis Model for Describing and Assessing Competences (DAMDAC), developed by Coulet (2011). The elements composing the competence (inferences, operative invariants, rules of action, artifacts and modes of regulation) can be identified through explanatory interviews and live observations. It is easy to make the DAMDAC and culture meet. Let's take, for instance, the concept of operative invariants. These are constituent elements of schematas and their presence and implementation are not necessarily conscious. They influence the action and can be influenced themselves by the regulation of the action. So, invariants can be brought closer to psychological characteristics, sociopolitical context and culture.

We think that DAMDAC in an intercultural comparison can create some very interesting data about cognitive processes and influences of contexts and prescriptions on behaviors. It is possible to link these data with elements of ecological and sociopolitical contexts like prescriptions, History, laws and regulations, and to compare data from a country to another...

Data on how competencies are created and how they operate could be interesting for any corporation, organization or association. Studying the complexity of competencies and influences of and on culture can most certainly lead to explanations and ideas about work processes, psychosocial risks, professional development, training...

This research tries to go beyond the idea that competence is only an ability to solve a given task, in a fixed and decontextualized situation. We believe that competencies should be thought and studied in a scientific, dynamic and non-performance-oriented way, which strongly includes contexts, processes, inferred characteristics, and observable behaviors altogether. We propose to present a methodology that strongly highlights these complex aspects.

## The repetition of orchestra as double mediation

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"...all the practical impact of the art comes down after all to its educational action"

(Vygotski, 1925, p. 352).

In the works dealing with collective activity, coordinated activity of an orchestra is often mentioned as archetype; it suggests a work of impressive coordination, with audible effect. But to arrive at such effect, where "art is in a way a"social feeling"extended, or a technique of the feelings" (Vygotski, 1925/2005, p. 338), it turns out to be necessary to proceed in many repetitions. This construction of cooperation necessities the double character of mediation inspired from contributions of Vygotski (1930/1985; 1934/1997). We emit the hypothesis which the activity of the conductor is of a double objective affecting the research for harmony. A first harmony concerns that of the work that tries to interpret the orchestra. The conductor builds a conceptualization (Vergnaud, 1996, 2007), whose updating he looks for with the aim of the concert to come. This conceptualization drives its activity, which in his turn guides the collective of instrumentalists. It is this second harmony of synchronized activity that would allow the first one connected to the artwork. Transposed in paradigm of the ergonomic psychology of Leplat (1997), the partition becomes a prescription of the task to be realized, the conceptualization constituted by the conductor, the redefined task, and the updating in concert, the effective activity.

From the video case study of a session of repetition relative to an artwork on the opening of Egmont from Beethoven, we explore this activity with the lighting of Vygotski. In its perspective, the historical-cultural mediation of the musical artwork seems to be able to express itself through the instrumental mediation of the orchestra in general, as operational collective tool, for which the mediation/tutelage of the conductor seems necessary with the aim of the coordination of the actions. From then on, the work of the conductor gives rhythm to the work of the instrumentalists. The latter give themselves to perceive from the point of view of the one who listens, the work of the artwork, as preceded to putting in tension between form and content to reach in one catharsis. Artwork among which the double mediation, that of the conductor, by tutelage on one hand, but also that of the partition, as psychological tool, by repetition, on the other hand, would allow the access to the superior psychic functions (Vygotski, 1934/1997) eminently cultural; because "between the man and the world, there is still a social background, which has its way refract and directs" (Vygotski, 1925, p. 351); because "art is social in us..." (p. 346).

Having exposed our problem, we approach our theoretical frame, as well as our methodological frame based on a case study, analyzed with the psychology of Vygotski (1925) and the analysis of the activity based on the frames of the professional didactics (Pastré, 2011). We present then an analysis which ends in a questioning around the role of the mediation in the development (Vygotski, 2014, Bruner, 1983, 1991, 1996, 2000).

## **B08 - Paper session: Integrating education and work in vocational training**

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:00pm · Location: M2150

Session Chair: Alessia Evi-Colombo

### **Connecting learning at school and vocational workplaces by using digital boundary objects: teachers' experiences in Swedish upper secondary education**

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This study concerns how teachers in upper secondary school experience that they can work with connecting school with workplace learning in vocational education using digital technologies as learning tools. In vocational education, a gap between different learning arenas such as school and workplaces is often emphasized. Different ways to bridge this gap in order to create wholeness in students' learning are discussed in research (cf. Illeris, 2009; Tuomi-Gröhn, & Engeström, 2003). One way is to discuss different kinds of boundary objects, which has been done in research on boundary crossing, where the value of learning in different arenas is highlighted and different learning mechanisms are identified (Akkerman & Bakker, 2011). Digital technology can work as boundary objects to connect learning in different arenas (Kilbrink et al., submitted; Schwendimann et al., 2015). However, there is a lack of research on teaching and learning in this area. Therefore, in this study we focus on which learning mechanisms at the boundary are involved in teachers' work with digital technology, such as apps, blogs and video, as boundary objects in upper secondary vocational education.

In order to learn more about which learning mechanisms are involved when teachers chose to work with digital technology to connect learning at school with workplace learning, we have conducted in-depth interviews with teachers who already work with digital technology in vocational education. The interviews have thereafter been analysed with focus on the different learning mechanisms (cf. Akkerman & Bakker, 2011) which appear in the teachers narratives.

When analyzing the interviews, we can see that there is a progression between the different learning mechanisms and that how the digital technology is used as boundary object also relates to how the teacher is talking about teaching and his/her pedagogical view. Therefore, the result show that there is no homogenous picture of how digital technology is used as boundary object, but depending on the individual teacher. The results contributes to a research area where there is a need for more research. It also contributes to an understanding of how to improve teaching with digital technology as boundary objects in vocational education. Furthermore, the results can be used both in teacher education and by teachers teaching in vocational education.

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### **Integrating theory and practice – A reconstruction of interactions in professional learning situations**

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Learning as social endeavor, embracing both individual learning and learning with and from others, requires a relation between the involved agents. Hence, the study explores interactions between students and teachers, students and students and students and colleagues at work in professional learning situations with a focus on integrating theory and practice.

Germany has a long tradition of segmentation between vocational education and training (VET) and higher education (HE). The last fifteen years have shown some opening between both sectors. In HE, the number of programs open to professionals has increased (Baethge and Wolter 2015). Hence, the study focuses on professional studies i.e. practice based study programs at HEIs in Germany with regard to the integration of theory and practice, i.e. between theoretical knowledge and work experience as practical knowledge.

Recent research on roles of teachers in professional studies (Cendon, Mörth, and Schiller 2016) shows that teachers' interactional strategies and actions are the essence to integrating theory and practice within learning situations. This corresponds to findings from networked learning, among others, where communication is emphasized over content as teachers act as moderators and navigators of learning processes (Beatty and Howard 2010).

The aim of the study is to reconstruct learning interactions between the mentioned agents at the cross point of theory and practice in order to generate guidance for designing learning situations in professional studies.

The study provides a secondary analysis of expert interviews with 31 students and eleven teachers in professional studies from three research projects: the above mentioned study on roles of teachers (Cendon, Mörth, and Schiller 2016), a study on reflection of students (Cendon 2016) and an ongoing study by the authors on models for the integration of theory and practice. Using this amplified sampling for the supra analysis allows findings on a broad basis and cross validation. The method chosen for analyzing the interviews is qualitative content analysis.

The findings reconstruct social interactions structured by three interactional groupings: students and teachers, students and students and students and colleagues from work, bringing together the perspectives of students and teachers.

The research contributes to a better understanding of professional learning situations within HE by showing how social interactions are constructed and performed.

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### **Learning for dental practice in a pre-clinical laboratory: An exploration of simulation-based learning**

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Within dental education, there is currently an expansion of the use of technologies to help dental students develop their dexterity skills by creating more realistic and scaffolded professional learning environments. Manufacturers have been developing computer-assisted systems that can help students learn and practice their skills in virtual. Patient-based, computer-based simulation systems with a haptic focus are the most popular in dental education. As these new devices have come into dental education, many researchers and dental educators are asking questions about how to integrate these technological devices in the curriculum (Kikuchi et al., 2013; LeBlanc et al., 2004; Quinn et al., 2003). Dental educators mainly use them for preclinical laboratory practice. Key areas for developing students' competence include tooth preparation and hand posture. There is also a great interest in the potential of these learning technologies to help dental educators evaluate their students' learning accurately and effectively.

The main problems at dental schools are to do with lack of integration between current instructional designs and the new(ish) technological resources. There are numerous approaches to designing for complex learning, but very few of these approaches integrate both the analysis of complex learning environments and the process of redesign. Many approaches to design for learning assume that designers are creating a new system, not analyzing and improving an existing one (Goodyear & Dimitriadis, 2013), which is not the case in simulation-based laboratory where much of the technologies and professional practices are set.

The approach to analysis and redesign that I use in this study is called 'Activity Centered Analysis and Design' or ACAD (Goodyear & Carvalho, 2014). The aims of this study are: (1) to explain the relationship between student's activities (e.g. social communication, practice of manual skills), dental simulators and other learning resources (e.g. practice tasks, guidebooks) and (2) to generate "knowledge for design" in a holistic way—connecting physical setting, social setting and epistemic setting (Carvalho et al., 2016; Goodyear & Carvalho, 2013, 2014). This application of the ACAD framework for the analysis of students' learning allows us to create knowledge for "design for dental education" that is useful for making improvements within the site where the study is conducted and more broadly.

This study uses participant observation and interviewing to map the network of activities, tasks, tools and other artefacts, social interactions, etc. in the laboratory learning spaces. Video cameras are used for both wide-angle and close-up recording of students' work in detail. The representations of current situation emerging from this analysis are used as resources for team redesign discussions such as using photos to present design features that enable productive students' learning.

The results show that knowledge and skills' development of dental students during preclinical laboratory course is influenced by the complex network of social, physical, and task features. The practical significance of this study is that it generates a powerful resource for planning and redesign of the preclinical laboratory courses. Furthermore, results (and methods) are also useful for other dental educators who are interested in designing simulation-based learning.

### **Video-Annotation: Affordances for Education and Professional Development. A Systematic Review**

**Alessia Evi-Colombo<sup>1</sup>, Alberto Cattaneo<sup>1</sup>, Mireille Bétrancourt<sup>2</sup>**

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Videos have been long used in professional education. This trend has increased with the development of video sharing website and new functionalities to edit, organize or annotate them.

The activity of watching authentic or simulated real-life video-recorded experiences, and to comment and share written notes on them directly in the video interface in order to analyze and reflect on the content of the video itself, is known as Video-Annotation.

Video-Annotation has been employed in the past few years in a variety of formative scenarios, from teachers' education (McFadden, Ellis, Anwar & Roehrig, 2014; Fadde & Sullivan, 2013; Rich & Hannafin, 2009), to healthcare professionals' training (Colasante, Kimpton, & Hallam, 2014) and vocational programs development (Colasante & Douglas, 2016). However, in spite of the abundance of studies on this topic, a clear definition of what Video-Annotation is, as well as an overview of the effects it can engender on learning and professional development, were missing.

Therefore, to shed light on these issues, we conducted a Systematic Literature Review. We searched the databases PsychInfo, Psycindex, Eric, MedLine, Education Research Complete and SocIndex with the goal of summarizing all published materials in the area of Video-Annotation. This quest produced 205 publications, which decreased to 26 studies upon the application of some inclusion criteria, like some reference to learning, training, or professional development, language (English), time span (after 2000) and type of publication (academic).

We also analyzed the Video-Annotation software presented in the selected empirical studies looking for specific technical and educational features to derive a comprehensive definition of Video-Annotation, as well as the features responsible for causing learning and professional competencies. Overall, findings indicate that the use of Video-Annotation in instructional contexts had a positive impact on learning, and that this impact is moderated by the Video-Annotation software characteristics and by the pedagogical design behind the choice of said tools.

We believe that an exhaustive definition of Video-Annotation, together with the array of selected indications on how to effectively use Video-Annotation has the potential to guide educators in making an informed choice when using Video-Annotation software and in fully exploiting its promising effectiveness on sustaining learning and professional development.

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## C01 - Poster session: Addressing the challenges of work-based learning

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: Uni Mail Hall - Poster Section A

Session Chair: Sarojni Choy

### Difficulties in Diagnostic Performance: Does Systematic Viewing Help?

Helen Jossberger<sup>1</sup>, Lisa Hahn<sup>1</sup>, Anja Gulden<sup>1</sup>, Hans Gruber<sup>1</sup>, Christian Stroszczynski<sup>2</sup>, René Müller-Wille<sup>3</sup>

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Medical students have to develop knowledge and skills during their studies for their future professional practice. In radiology, complex visual material needs to be analysed and interpreted. Systematic viewing is widely taught as it is supposed to lead to complete coverage of the image resulting in better detection of abnormalities. The aim of the present study was to examine the effects of a formal systematic viewing training (two hours) to medical students on systematicity of viewing behaviour, coverage of the image, and diagnostic performance. The study used a quasi-experimental between and within-subject design. An experimental training group and a control group (no training) were compared in a pre-post design. In total, 49 medical students in the clinical phase participated (experimental group: N = 24; control group: N = 25). All subjects studied 20 x-ray images in random order during the pre- and post-test. Ten radiographs were with an abnormality and ten without. Students' task was to analyse the images and state the correct diagnosis when they thought an abnormality was present. No time limit was set. A remote eye tracker (SMI, 250 Hz) was used to analyse subjects' visual information processes. After participants had seen the x-ray images, they were interviewed to gather qualitative data on their way of approach and the difficulties they experienced. The qualitative data was collected at both measurement points. Data collection is completed, but analyses are ongoing. To find out whether students took a systematic approach, we define areas of interest (inner and outer part of the image) and examine their dwell times at the beginning and at the end of the image viewing. Students' systematicity is further analysed with Levenshtein distances. Moreover, we will calculate the overall coverage (the percentage of image viewed) to gain insight into areas students tend to neglect. Preliminary results indicate that students' diagnostic performance improved after training. However, some images seem to be particularly difficult. In a poster presentation, we like to discuss how systematicity, coverage and diagnostic performance were influenced through training and what kind of problems students faced during this task. Analysing x-ray images does not receive much attention in the medical curriculum. Our results shed light on how well prepared medical students are for professional practice in this respect.

### Informal faculty mentoring practices in higher education in Kazakhstan

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Mentoring as a means for professional socialization enhances sense of community and cooperation and engagement among faculty members. Moreover, mentoring is regarded as one of the essential parts in faculty development and retention, and academic environment, specifically mentors can help their mentees in conducting research, writing publications, to pass the transition period easily and without less stress (Zeind et al., 2005).

The purpose of this particular proposal is to investigate how informal faculty mentoring works in young academics' professional development, what effects it has for teacher's career development in Kazakhstani higher education system and how mentoring affects on teacher attrition problems in Kazakhstan.

Faculty members are subject to high workload in Kazakhstan since they are required to carry out an excessive amount of administrative tasks and undertake a large number of classroom teaching hours. These demands risk displacing the effort that they need to put into the course planning and student assessment. Gaps in professional development opportunities is another factor that hinders faculty in advancing their teaching practice and adopting more student- focused approaches that support the acquisition of higher order competencies (OECD, 2017). In this regard we try to analyze mentoring as a means for teacher's professional growth in higher education .

#### Methodology

Semi-structured interviews will be used as means of data collection, with a pre-set semi- structured procedure since it's "flexible, accessible and intelligible, capable of disclosing important and often hidden facets of human and organizational behavior" (Qu and Dumay, 2011). It's planned to involve experts and senior professors (sample units) in the field of adult education and young academics working in higher education institutions in Kazakhstan.

#### Theoretical and practical significance of the research

The literature emphasizes the importance of mentoring in faculty by stating that it increases job satisfaction, expands newly recruited faculty member's constellation of developmental relationships, providing him/her not only with career guidance but also psychosocial and emotional support, less work conflicts (Janasz and Sullivan, 2001). The present proposal will explore how informal mentoring works in Kazakhstan, what the current problem issues and trends are – in the light of the latest literature.

According to the Committee of Statistics of the Republic of Kazakhstan for the last 4 years the number of teachers working in higher education decreased in the Southern part of Kazakhstan. This particular study seeks to investigate the application of the elements of informal mentoring effect on the process of teacher attrition and develop recommendations for faculty mentoring programme as part of the induction programme.

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## Emotional agency in organisational change

**Päivi Kristiina Hökkä, Heini Ikävalko, Susanna Paloniemi, Katja Vähäsantanen, Jarkko Rantanen**

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Emotions have recently been demonstrated to be an extremely powerful force in the workplace setting, and in influencing organisational behaviour and change (Ashkanasy, 2015). Although research into emotions in this context is increasing, there is still no clear elucidation of through which kinds of mechanisms and processes emotions affect in organisations nor of how constructive emotions can be supported in the workplace. Challenged by this, the objective of the current research project was to develop and evaluate an emotion intervention that would simultaneously enhance organisational productivity and individual well-being (employees and leaders) in the workplace. The intention was that the intervention would support emotional agency, i.e. the kind of actions that takes advantage of perceiving and understanding the meaning of emotions at work (Hökkä et al., 2018). Furthermore, an attempt was made to elucidate how emotional agency can be used to support organisations undergoing strategic change (Maitlis, Vogus, & Lawrence, 2013). The research questions were: 1) What kind of emotional agency results from an emotion intervention? 2) What kind of emotional agency-supporting practices and processes are enhanced via an emotion intervention?

The aim of the emotion intervention was to assist both leaders and employees in recognising, encountering and utilising emotions during organisational change. The intervention was implemented in two middle-sized healthcare-affiliated (117 participants) and real estate service (210 participants) organisations. It consisted of six workshops held over a six-month period in which the following topics were covered: How to i) strengthen an awareness of emotions, ii) understand the power of emotions, iii) deal with negative emotions and support positive ones, iv) develop emotional skills, and v) collaboratively develop the emotional climate of the organisation.

The research was conducted using a mixed-method framework, involving various data collection methods (i.e., questionnaires, observations, field notes, video recordings, interviews and documents). A longitudinal ethnographic strategy was employed to evaluate the processes and mechanisms of change. A questionnaire instrument was used to measure emotional agency using the following scales: i) professional agency, ii) work engagement, iii) psychological safety, iv) emotional competence and skills, and v) positive and negative affects. An ambidexterity scale and affective commitment to change scale were used to measure organisational change. A multi-method approach involving statistical, narrative and discourse analysis, was utilised to analyse the datasets.

It is expected that the research project will lead to innovative theorising on emotional agency at work during organisational change, while providing empirical evidence of the mechanisms and processes needed to enhance emotional agency in various organisational settings affected by organisational transformation.

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## Work-based learning of HR professionals

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As a result of social, economic and technological changes occurring in the 21st century, the concept of learning can be seen as a multipurpose, continuous change. (Szabó, 2008; Tózsér, 2009) This is also due to the fact that the responsibility and commitment of the workplace is becoming increasingly important to provide continuous opportunities for learning, because one third of a person's average day is spent at workplace, which means at least 30 years (CEDEFOP, 2011). This fact draws our attention to the importance of the time spent at work and the fact that the workplace is a potential, multifaceted learning landscape in the world of workplace learning. (Kopp and Skrabski, 2000) Researches highlight the necessity of improving the learning opportunities and wellbeing of employees (Szombathelyi, 2012), but less attention is paid to the continuous learning processes of those professionals who are responsible of supporting the development of employees, although they play a key role in organizing developmental and learning activities affecting employees (and also organizations).

Therefore, this presentation focuses on how the HR professionals learn, how they conceptualize their own conscious processes, and how they manage their continuous mostly informal learning tasks. It also seeks to analyse how they think about supporting learning processes also in case of their own learning, as well as supporting the individuals in the organization. The research is based on 10 semi-structured interviews that is conducted among HR professionals, focusing primarily on the current position of HR professionals' workplace learning, the existence and shortcomings of the resources and development opportunities available to them. Following the analysis of the interviews, we provide further relevant research options and areas for their workplace learning. Exploring and analysing these findings can provide an important basis for facilitating the learning processes of HR professionals who are supporting employees' learning processes at the workplace.

## C02 - Poster session: Learning in apprenticeship across contexts

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: Uni Mail Hall - Poster Section B

Session Chair: Stephen Richard Billett

### Which competencies do apprentices need for Industry 4.0?

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#### Introduction

Studies focusing on Industry 4.0 indicate changes of occupational structures and work activities as well as requirements of new employee digital competencies. Decentralized control in production processes is increasing and the new workers responsibilities require such digital competencies (DC) as procurement of information and the ability of holistic thinking. (Spöttl, Gorldt, Windelband, Grantz, & Richter, 2016)

The present studies focus on the development of digital competencies in German companies, using an explanatory research approach to examine which DC are currently demonstrated by apprentices and which are necessary to develop in the age of Industry 4.0.

#### Methods

##### Design and participants

The quantitative study was designed as an online survey and conducted in October 2017. The sample included Ns = 138 participants (41.3% female, 58.7% male) with an average age of 31.35 years (SDs = 10.04; Min = 18; Max = 62). A follow-up qualitative interview study was conducted via phone and included Ni = 11 interviewees (9% female, 91 % male) with an age range of 24 to 62 years (Mi = 42.36 ; SDi = 10.79).

##### Instruments

The participants of the online questionnaire answered 16 items which measured their current Digital competence (Cronbach's  $\alpha$  = .90) and four items referring to the companies plans of applying Industry 4.0 (AI; Cronbach's  $\alpha$  = .89).

The interviewees were recruited through professional networks and also conducted in autumn 2017. The Interviews were transcribed for in-depth content analysis. First, the responses of the interviewees were used to create a set of criteria to evaluate the frequency of specific statements. Afterwards, categories were created and further refined due a valence analysis.

The interviews included the following sections: (1) demographic and job-related items, (2) current digital skills and (3) future needed digital skills.

#### Results

DC was positively related with the plans of companies to implement Industry 4.0 ( $r = .39$ ,  $p < .01$ ). Eleven training managers were asked which digital competencies are needed currently and which should be developed.

The resulting set of categories show that structuring and evaluating online information should be trained. There is currently a lack of reflection and the ability to place the consequences of actions into the whole value chain. However, a promotion of the understanding of safety, as well as the fact that schools increasingly involve communication and information-handling skills are necessary for preparing apprentices for Industry 4.0.

#### Discussion

Findings reveal an absence of a theoretical model IT competencies, which could help schools and companies to prepare future apprentices for Industry 4.0. The interviewees confirmed the chance of adequate implementation of learning factories could develop some of the needed digital competencies (Scheid, 2018).

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### Education at the boundary of school and work: a multiple case study of learning environments in Dutch secondary and higher vocational education

Erica Bouw<sup>1,2</sup>, Ilya Zitter<sup>1</sup>, Elly de Bruijn<sup>1,2</sup>

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#### Aims

Vocational educators seek to create learning environments that afford students to learn across the contexts of school and work (Bronkhorst & Akkerman, 2016; Zitter, Hoeve, & de Bruijn, 2016). Although in practice a wide variety of such environments exists, their distinctive characteristics are yet to be identified. A review study (Bouw, Zitter, & De Bruijn, 2016) has shown that a theoretical categorization of learning environment designs can be made on the basis of their design rationale and considerations about designable elements. Three categories of learning environment designs emerged from the reviewed studies: designs based on connection, designs based on incorporation and designs based on hybridization. However, empirical evidence is needed to substantiate these insights. A multiple case study in Dutch vocational education was conducted to find such empirical evidence.

#### Methodology

A qualitative case study was conducted (Yin, 2014). Six cases were selected to collect substantial empirical evidence for designs based on incorporation and for designs based on hybridisation. The cases differed in location, professional domain and

type of educational unit. The data of each case were coded, categorized, analysed through a series of alternating inductive and deductive steps, reported and member-checked, before cross-case synthesis took place (Miles & Huberman, 1994; Yin, 2014).

#### Findings

The studied learning environments have characteristics in common regarding design rationale, physical setting, roles that are enacted and some temporal aspects. A shared characteristic of some cases is, for instance, that tools and methods from professional practice are used within the learning environment to mirror professional practice. Distinct characteristics are for instance that the pace at which students work is similar to the pace at the workplace in one of the cases, but purposely slowed down to allow more time for reflection in another case.

#### Theoretical and practical significance

With this study the theoretical, descriptive design categories derived from a systematic literature review are empirically validated, resulting in an enriched conceptualization and categorization of learning environment designs. This conceptualization facilitates further empirical research and supports educators who intend to design learning environments at the school-work boundary.

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### **Pedagogic practices in vocational communities to support novices' workplace learning**

**L. {Lieke} Ceelen MSc<sup>1,2</sup>, Dr. A. {Anne} Khaled<sup>2</sup>, Prof. dr. A.F.M. {Loek} Nieuwenhuis<sup>1</sup>, Prof. dr. E. {Elly} de Bruijn<sup>1,2</sup>**

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**Aims.** Although literature shows the important supportive role of experienced colleagues to stimulate novices' workplace learning, the question of how this support is provided is usually answered in general terms (e.g. Mikkonen et al. 2017; Tynjälä 2008). Therefore, this study aims to explore how members of vocational communities, both individually and as a collective, enact specific pedagogic practices to contribute to novices' learning. The systematic literature review that will be presented in the interactive poster session is the first study of a PhD project and provides an overview of situational pedagogic practices which attempt to support novices' learning at the workplace.

**Methodology.** Three sets of relevant search terms were defined, including synonyms and related definitions of: (1) supervisors, (2) pedagogic practices, and (3) workplace learning. Four databases were selected: Eric, PsycInfo, Cinahl and PubMed. The search string combined each term in set 1, with each term in set 2 and with each term in set 3 and was modified for each database using database-specific key terms. Results were limited by only selecting peer reviewed journal articles written in English. The search process resulted in 4519 hits across four databases, of which 3317 references were unique. Initially, titles and abstracts were screened using inclusion and exclusion criteria. At the time of writing this proposal, the full-texts of the remaining 375 articles are being retrieved and screened. Next, relevant themes will be determined to analyze and summarize included articles.

**Findings.** The poster will give insight into preliminary results. By September 2018, most of the included articles will be analyzed using five pedagogic strategies (de Bruijn, 2012) as sensitizing concepts. Findings will represent a first overview of pedagogic practices found in the literature, including both cognitions and actual behavior of (members of) vocational communities attempting to contribute to the development of novices. Cognitions represent knowledge and beliefs related to pedagogic practice (de Bruijn, 2012). Pedagogic behavior includes activities that are enacted in interaction with the novice, thereby offering a means for how novices are supported to access practice (Billett, 2001).

**Significance of the research.** This study explores how (members of) vocational communities pedagogically support novices to participate in occupational practice. The focus of this research does justice to both an educational perspective and a situational perspective, by providing an overview of specific pedagogical practices which are situationally embedded in a variety of vocational communities.

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### **Educating agency for life long learning**

**Loek Nieuwenhuis<sup>1,2</sup>, Aimée Hoeve<sup>1</sup>, Chris Kroeze<sup>1</sup>, Leon Noij<sup>1</sup>, Mirelle Voskes<sup>1</sup>**

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Higher vocational education should be seen as the kick off for life long learning and development. At the one hand, individual expertise development requires continuous deliberate practice (Ericsson c.s., 2006) to realise proficient and expert performance; at the other hand professions and vocations are changing continuously due to economic, technological and political drivers.

So institutes for higher educations (HEI's) have to prepare their students for a career in which learning, innovation and change are common assets. The bachelor (and master) qualification should not be seen as a license to operate but as a license to develop towards professional expertise.

Within the innovation project "HAN-workbased learning" 11 educational teams, in comakership with their professional domains, were involved in design-based improvement and innovation endeavours around themes as assessment of WBL, comakership, learning processes and the development of tools for boundary crossing (Akkermans & Bakker, 2011; Zitter & Hoeve, 2012).

A central issue in workbased learning is the agency of the student, dealing with the affordances of the workplace (cf. Billett, 2001; Nijhof & Nieuwenhuis, 2008). We developed an evaluation project within "HAN-wbl", asking graduates on the quality of their preparation for life long learning through their bachelor courses they followed at HAN.

70 graduates (about two years after their graduation) have been interviewed on their investments in learning during the first years of their professional career. The interviews have been performed by 70 second-year HRD-students as part of their course 'research skills'. This has resulted in 40 useful interview transcripts, from graduates of a diversity of HE-courses and professions.

The poster will present the results of the analyses of these transcripts, as a first explorative dataset on learning investments of freshmen-professionals. These results will be used in the near future, to scale up from an exploratory study towards a firm research program on the challenge of lifelong learning and development for initial vocational and professional education.

First results show three approaches for investments in learning we can discern for these graduates:

1. Learning as handling with urgent problems of daily freshmen practice (100%)
2. Learning as career investment (70%)
3. Learning as deliberate practice (15%)

These preliminary results challenge the idealistic model of deliberate practice as advocated by Ericsson c.s.. Our graduates learn firstly to survive their newcomers positions and secondly to follow the formalised pathways for career improvement. Explicit learning for expertise improvement is not seen very often. This rises all kinds of interesting follow-up questions, e.g. whether the deliberate practice model is suitable for the freshmen stage; whether the HE-courses were focused on development of learning skills; ...

The poster will be used to present the results of this first data collection in detail and to elicit discussions with the audience on plausible explanations and promising lines for further research.

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Zitter, I. & Hoeve, A. (2011)

## C03 - Poster session: Learning and development in organisations

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: Uni Mail Hall - Poster Section C

Session Chair: Nathalie Delobbe

### **A Serious Game as a means of professional development - The development and design of a management game which addresses occupational health and safety issues in workplace teams**

**Felix Kapp, Julia Rose, Susanne Narciss**

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Digital games are considered to have potentials as tools for instruction and learning (Ritterfeld, Cody & Vorderer, 2009). Simulation and management games provide the opportunity to experience complex relationships between interdependent processes and variables. If realized as a multiplayer game and played by work teams the game experience can be used to start an exchange about issues addressed in the game. Based on that background our research project develops a serious game on the topic of occupational health and safety. The goal of the game is to reflect the own status of safety and health – so to say the own "culture of prevention". The multiplayer game is addressing work teams with five up to twenty members which are playing together with their manager/supervisor. The quest in the serious game is to successfully manage your own firm. Within the game the players can compete and cooperate with their real live colleagues who are managing their own virtual firm as well. Over the course of the game the players face decisions and critical incidents which affect safety and health issues of their virtual employees and their avatar as well as the economic success of their cooperation. The learning objectives stem from six areas affecting health and safety in the workplace: 1) leadership, 2) communication, 3) participation of employees, 4) how to deal with errors/mistakes, 5) work climate and 6) safety and health management strategies. The game design process contains various challenges: in order to reach the target group the serious game must meet the preferences of employees and managers with regard to game play and enjoyment. It furthermore must be designed in order to fit into the daily work routines. The content addressed in the quests on the other hand must fit prior knowledge and should have personal relevance. To derive and define the game characteristics with regard to the players, the game setting and play time per week we conducted a workshop with forty persons from the field of occupational health and safety and discussed how a game can be implemented in workplace learning settings. We furthermore conducted semi-standardized interviews with managers (n=17) and employees (n=14) and assessed under what circumstances they would play a simulation game with their colleagues and supervisors. The same interviews (n=31) contained a section in which prior knowledge with regard to the six aforementioned learning domains was assessed and authentic critical incidents were documented. Based on the findings of the interviews and the workshop learning goals for the six learning domains were defined and game scenes were developed based on authentic events. These scenes and a first prototype are going to be evaluated with the target group with regard to learning effects and gameplay (such as enjoyment). The interactive poster presents the empirical findings from the interviews and the workshop, design drafts of game elements and a prototype of the game. Based on these results challenges and the potential of serious games as a means of professional development are discussed.

### **Leader airtime management and team learning within command & control teams**

**Michael Hoven<sup>1</sup>, Piet van den Bossche<sup>1,2</sup>, Mien Segers<sup>1</sup>**

<sup>1</sup>Maastricht University, Netherlands, The; <sup>2</sup>University of Antwerp, Belgium; [piet.vandenbossche@uantwerpen.be](mailto:piet.vandenbossche@uantwerpen.be)

#### Aims

Command and Control (C&C) teams, such as military units and emergency medical teams, have to solve complex problems under high time pressure and with high stakes in the case of failure (Salas, Burke, & Samman, 2001). Effectiveness of these teams depends on decisions based on an accurate model of the situation, which is supported by team learning in the form of sharing, co-construction and constructive conflict (van der Haar et al., 2015). As information is distributed within team members and these tend to hold back information due to the described time pressure (Jones & Roelofsma, 2000), in these hierarchical teams the team leader plays an important role in managing team learning and other team processes. While literature describes several leadership styles and their influence on team learning (e.g. Koeslag et al., 2017), managing airtime seems particularly relevant to manage team learning in C&C teams. Managing airtime is a form of process control and means to manage who talks and who does not talk during a team meeting (Edmondson, Roberto, & Watkins, 2003). This study questions how leaders' airtime management influences team learning behaviors.

#### Method

This research question is investigated in 24 realistic C&C exercises. Video-recordings of these meetings are analyzed with regard to leadership behavior, specifically airtime management (behaviors such as asking questions, granting the word to someone, or asking the group versus shutting down a team member) and team learning behaviors (sharing, co-construction, and constructive conflict; coded by the coding scheme of Raes et al., 2015). Amongst others, a lag sequential analysis is conducted to study the relations between the different behaviors.

#### Findings

Analyses are ongoing. Full results will be available at the conference.

#### Theoretical and Practical Significance

This study advances theoretical insights into airtime management of team leaders in extreme circumstances and its effect on team learning. For practitioners results can serve as input for trainings as well as for incidents.

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### **Organizational Learning: Individual Dispositions and Collective Practices**

**Raphaël Grasset**

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In the past thirty years, two different but intertwined processes occurred in companies: first, the responsibility of updating one's knowledge has increasingly rested on individuals (Carré, 2000); second, the value is increasingly created by team work which needs an optimization of knowledge sharing (Michinov, 2013). This leads us to question the relation between inter-individual differences in relation to knowledge and learning processes within a work group.

We use the sociocognitive theoretical framework of Triadic Reciprocal Causation proposed by Bandura (1986) in order to investigate this question. It explains human agency, the power to act on the world through the relation between dispositions, practices and environment. We propose to study learnance as a stable set of affective, cognitive and conative dispositions, favorable to the act of learning, in all formal or informal situations, experientially or didactically, self-directed or not, intentional or fortuitous (Carré, 2005). Collective practices in turn can be studied through the concept of transactive memory as a shared system that "selectively encodes, stores, and retrieves the information needed to perform a common job" (Wegner, Raymond & Erber, 1991). Different MTs, specific to different individuals, can be gathered in a transactive memory system through interactions between the members of a collective.

The structural method (Lazega, 2014) evaluating the interdependence between social actors is used to overcome the inconsistency found in the literature between theoretical constructs and measurement procedures to analyze the collective (Bell & Kozlowski, 2012; Kozlowski & Bell, 2013). Learnance is measured by a Likert scale that characterizes actors in the organizational network while relations emerge here through the transactive memory system that is analyzed both quantitatively and qualitatively by a sociometric questionnaire.

The main finding of this research is that the dispositions to learn influence the quality of informal learning interactions but not their quantity. Furthermore, structural equation modeling shows that the higher the level of learnance of a person, the more members of her organization feel they have similar skills and fluid exchanges in their work tasks with her; and higher is the confidence she has in the information that members of her organization bring to her in their area of expertise.

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### **The contribution has been withdrawn.**

#### **Ethical Human Recourse Management and Leadership enabling Creative Practices in Start-Up Organizations (HeRMo)**

**Kaija Collin**

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#### **Student-run hospital wards: Institutionalised workplace-learning opportunities for nursing students**

**Michael Goller, Bianca Steffen**

University of Paderborn, Germany; [Michael.Goller@upb.de](mailto:Michael.Goller@upb.de)

Student-run hospital wards (SHW) are institutionalised learning arrangements in which nursing students are fully responsible for the planning, organisation, and implementation of patient care within a real-existing hospital ward for a limited time frame of usually two to four weeks during their initial nursing training (Hauck & Schuster, 2014). The students take over all ward duties and are only shadowed by a few already qualified nurses that may intervene in life-threatening situations or are available for pressing questions concerning patient care. Since SHWs are institutionalised arrangements they are accompanied by both preparation and follow-up phases including weekly debriefings conducted by the training hospital and/or the nursing school aiming to maximise learning outcomes. Although nurses have been trained in SHWs for almost 20 years the literature lacks empirical studies investigating such arrangements (Hauck & Schuster, 2014) that go beyond simple evaluations focussing on participants' satisfaction and experienced work load (e.g., Pfennig & Klewer, 2014). Moreover, the existing literature tends only to give short descriptions about the characteristics of particular SHW (e.g., Grube, Morgenstern & Koch, 2017) and lacks theoretical frameworks that are suited to describe and explain the learning potentials of such institutionalised workplace-learning opportunities.

In a first step, this project will use theories of practice-based learning at work (Billett, 2011; Pool, Poell, Berings, & ten Cate, 2016), action regulation theory (Frieling, Bernard, Bigalk, & Müller, 2006), and ideas about nurses' competence development (Meretoja, Isoaho, & Leino-Kilpi, 2004) to describe why and how SHW should unfold learning potentials for students. In a

second step, this theoretical framework is used to empirically investigate learning processes that occur during SHWs. To be more concrete, the following research questions will be answered:

1. How do SHWs differ from other workplace learning settings that are part of the student nurses' curriculum?
2. What competences can be developed during SHWs?

To answer these research questions a three week SHW in a German hospital is investigated. All 24 participants were asked to fill in a questionnaire just before the start of the SHW and one just after it ( $n_{T1} = 24$ ;  $n_{T2} = 18$ ). The questionnaire contained items on their current competence level in T1 and additionally on the experienced workplace characteristics in T2. During the SHW each student nurse was also asked to fill in a daily diary asking about the shifts' workplace learning potentials ( $n = 259$ ). Finally, interviews with 12 students were conducted to obtain additional qualitative information about their experiences during the SHW. The data is currently analysed using a mixed method approach (Bazeley, 2018).

First insights are as follows: Student nurses are usually not allowed to engage in higher level activities during their normal workplace experiences. Instead they engage mostly in basic care of patients or do errands for qualified nurses. However, during SHWs they were allowed to engage in the full range of care and management activities of a qualified nurse. The SHW seems to particularly foster the development of competences in regard to managing situations and diagnostic functions.

## C04 - Poster session: Learning and professional development of teachers

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: Uni Mail Hall - Poster Section D

Session Chair: Päivi Tynjälä

### The development of teachers' expertise through a professional school culture and learning activities at the workplace in primary education.

Maud Rietjens, Els Boshuizen

Open University The Netherlands, Netherlands, The; [els.boshuizen@ou.nl](mailto:els.boshuizen@ou.nl)

Teacher expertise is seen as a very important factor for the quality of education. Yet, the required level and content of teacher expertise does not remain stable. Continuous social, technological and legal changes require educational adaptations and innovations, and hence learning by teachers who must improve or reinvent their skills. Improvement of teachers does not happen automatically. Various studies emphasize that learning at the workplace and in a professional school culture are essential preconditions to improve teachers' expertise. However, these studies are not aimed at primary education where teachers are more pedagogically oriented and domain-generalists than in higher educational levels.

This study investigates the relation between a professional school culture, professional learning activities and teachers' expertise in primary education. We expect that a professional school culture and execution of professional learning activities at the workplace have a positive effect on teachers' expertise.

Method: A cross-sectional survey study (N= 144 primary school teachers; age 20 – 61 years; working in an urban area in the western part of the Netherlands)

Four questionnaires were developed based on literature study and existing questionnaires. The resulting questionnaires were validated with factor analysis and resulted in multiple subscales per main variable (average Cronbach Alpha = .80). The hypotheses were tested by means of multiple regression analyses.

We found no direct or indirect relation between school culture and expertise level of primary school teachers. Yet, the schools' professional orientation (a subscale of school culture) had a significant positive effect on the execution and the effectiveness of learning activities 'consulting with colleagues' ( $\beta = .48, p < .01$ ) and 'learning with colleagues' ( $\beta = .60, p < .01$ ). However, those learning activities had barely any effect on teacher expertise ( $\beta < .17, p > .05$ ). Furthermore, this study suggests that primary school teachers' expertise development is based on individual learning activities rather than collaborative. We found that the execution and the effectiveness of learning activity 'analyzing problems' was a positive predictor of expertise factors 'teachers' adaptivity to students' ( $\beta = .52, p < .01$ ), 'creating a safe learning climate' ( $\beta = .40, p < .05$ ) and 'effective teaching methodology' ( $\beta = .67, p < .001$ ); similarly 'using resources for the benefit of students' was a positive predictor of 'teachers' adaptivity to students' ( $\beta = .33, p < .05$ ), 'creating a safe learning climate' ( $\beta = .49, p < .001$ ), 'teachers' effectiveness in the classroom' ( $\beta = .35, p < .05$ ) and 'creating an optimal learning climate' ( $\beta = .45, p < .01$ ). These individual learning activities at the workplace, can be considered deliberate practice and deliberate learning activities. Those learning activities make a major contribution to the development of teachers' expertise. They should get this status as learning activities in the school policy to stimulate teachers to become more involved with these work activities.

### Changes in vocational teachers' instructional practices through the lens of mind mapping

Florinda Sauli<sup>1</sup>, Jean-Louis Berger<sup>1</sup>, Chantale Beaucher<sup>2</sup>

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Background and aim of the study. Changing teaching practices is one of teacher education primary objectives. It is however a challenging task as research revealed that teachers tend to resist such change (Fullan, 2016). In this study, we analyzed changes in the teaching planning and classroom management practices of professional teachers during their teacher education. Its originality is in the use of mind mapping, a "technique of representing knowledge by organizing it as a network or other non-linear diagram incorporating verbal and symbolic elements" (Dhindsa, Makarimi-Kasim, & Anderson, 2011, p.187) to analyze teachers' perceptions of their change.

Method. The sample consisted of 21 Swiss students vocational teachers (14 men, Mage=39.05). This program alternates between work in schools and theoretical courses. The participants drew two mind maps at the end of their teacher education program, each based on a major shift in their instructional planning and/or classroom management practices that occurred during teacher education. They had to indicate the following aspects of change: 1) triggering event(s), 2) facilitators, 3) obstacles, and 4) impacts. Data were coded using an inductive procedure based on themes; several major categories (e.g., the school context) were extracted for each aspect of change (Saldaña, 2013) and subsequently divided into more specific codes. On the basis of these categories, comparisons between aspects of change and the object of change (i.e., planning or classroom management) were performed.

Findings. Overall, more changes related to instructional planning than to classroom management were noted. Changes were also at a personal level (e.g., increase of self-confidence, questioning of its own role). Three main sources seemed to influence, either positively or negatively, the process of change: 1) the teacher education program (e.g., feedbacks from teacher educators); 2) the school context (e.g., time constraints, support from colleagues/directors); 3) the personal attitude (e.g., anxiety).

The school context was the most frequently cited triggering event, as a facilitator for some and an obstacle for others. Teacher education program was the second most frequent facilitator. Impacts of changes were on the teachers themselves (e.g., increased satisfaction) and on their students (e.g., increased motivation). On the influence of others, colleagues tend to be frequently cited as both facilitators and obstacles, whereas students were mentioned as triggering events and impacts. Additional qualitative data analysis results will be presented on the poster.

Significance of the research. This study revealed how student vocational teachers perceive and interpret changes in their practices. Notably, fellow teachers can either support change in practices or represent an obstacle to change. The results highlight the crucial role of the school context in changing teacher's practices to reflect what they learn in the teacher education program.

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### **Plurality in teacher education PhD programs: Opportunities and challenges**

**Anne Milatz, Juliane Suchy, Dana Strauss**

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There have been several calls for improved research training and supervision for doctorate candidates and post-graduate teachers (Lin, Wang, Spalding, Klecka & Odell, 2011; McCallin & Nayar, 2011). A crucial challenge arises with the question as to which position a teacher-educational PhD program should take in light of the particularization of the landscape of educational and didactic research and the diversity of methodical approaches (e.g. quantitative, qualitative, theoretical or hermeneutic approaches). The cultivation of diversity in terms of discipline, theory, and method has proved fundamental – plurality is thus considered an opportunity rather than an obstacle in education research (Baumert & Tillmann, 2016; Helsper, 2016; Kauhaus & Krause, 2017).

Since little is known as to how plurality in a PhD program in teacher education research is perceived by PhD students, the present study aims to explore opportunities and challenges arising from plurality.

A total of N = 16 doctoral candidates (58.3% females) from the structured PhD program Education. Research. Dialogue. at Friedrich-Schiller University Jena (Germany) reported twice on the meaning of plurality in an online-survey (T2 one year after T1). A within mixed method design (QUANT) was used (Burzan, 2016) by including open-ended (k = 5) and closed questions (k = 10; 4-level Likert scale: "1 = strongly disagree" to "4 = strongly agree"). Due to the small sample, results are reported in descriptive fashion on the individual item level. Results of open-ended questions will be analyzed by qualitative content analysis (Kuckartz, 2016).

When asked about the gains resulting from plurality, the PhD students reported at T1 that plurality and diversity provide an impetus to go beyond the limits of one's own field or methodology (M = 3.27, SD = 0.59). Plurality is also helpful in determining one's own position (M = 3.07, SD = 0.70). Those surveyed perceived the plurality of the program as beneficial to their own research (M = 3.07, SD = 0.80) and responsible for innovation and new ideas (M = 3.07, SD = 0.59).

Furthermore, the doctoral candidates report gains in the following aspects (open-ended question): "Questioning one's own presumptions; learning of discussions which are not yet being had in one's own field, but should be; change in perspective and different perspectives; establishing distance from one's own project; familiarization with the wealth of research possibilities in terms of content and method, familiarization with theory-based interdisciplinary approaches; help when 'stuck in a rut' of one's own discipline, making the difficulties of one's own discipline comprehensible."

In terms of criticism, it was noted that the potential of "interdisciplinary cooperative work" and the exchange of "theory-based interdisciplinary approaches" have not yet been fully exploited. There is interest in a more deepened "joint project/joint publication" to "consolidate various approaches to content and research methods and strengthen the program as a group."

Overall, first results indicate that a plural concept has potential for PhD training in teacher education; results for T2 will be reported at the conference. Results are discussed in line with current literature. Further research is needed to strengthen the quantitative data as well as the qualitative approach.

### **The contribution has been withdrawn.**

#### **Exploring the development of teacher self-efficacy during a teaching practicum**

**Daniel Moreau, Jonathan Smith**

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## C05 - Round Table Fr: Analyse du travail et développement des compétences

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: MR160  
Session Chair: Germain Poizat

### The contribution has been withdrawn.

#### La part du langage en contexte de formation hybride

**Jean-Luc Chauvin**

Université de Montpellier- Université Paul Valéry Montpellier- LIRDEF, France; [jazzruanchauvin@free.fr](mailto:jazzruanchauvin@free.fr)

#### Travailler la compétence du savoir-agir en français langue professionnelle : de l'analyse du discours à la proposition didactique

**Sabrina Royer**

Université d'Artois, France; [royer.sabrina@gmail.com](mailto:royer.sabrina@gmail.com)

Dans son ouvrage L'identité au travail, Sainsaulieu qualifie la parole au travail de « moyen de multiples phénomènes d'influence et de rapprochement affectifs » (2014 : 81). Un travailleur allophone devra compter sur la maîtrise de la langue au travail pour s'intégrer culturellement, ce qui lui permettra également de comprendre d'autres codes sociaux à l'extérieur de la sphère professionnelle. Ces codes culturels passent systématiquement par la langue : compréhension des consignes de travail, de mises en garde de sécurité, explications et justifications des tâches de travail, lectures de protocoles de travail, conversations entre employés. Les études en analyse du discours professionnels comme celles de Jean-Paul Bronckart et Laurent Fillietaz répertorient un certain nombre de discours imbriqués dans l'action (prescription de l'action, correction de l'action, retour sur l'action, déclenchement ou arrêt de l'action). Si la langue a un impact et une influence sur l'action (par exemple la langue déclenche l'action au travail, arrête le processus de travail, le remet en route), l'action a elle-même un impact sur la langue et crée avec elle de nouvelles normes et de nouveaux besoins langagiers. Cependant, il est tout à fait possible de comprendre une consigne de travail, de l'appliquer à la lettre et pour autant ne pas réussir correctement une tâche professionnelle. Ces erreurs dépendent de la compétence du savoir-agir au travail telle que la définit Guy Le Boterf comme la capacité d'« aller au-delà du prescrit » (2000 : 44). Or, un travailleur, allophone ou francophone ne peut aller au-delà du prescrit que s'il a pris connaissance des codes et des règles, bien souvent implicites qui s'apprennent au fur et à mesure de la pratique professionnelle et peu évidentes lorsque l'on maîtrise la langue de travail. De quelle manière est-il possible pour l'enseignant de travailler la compétence du savoir-agir en classe de français langue professionnelle en imbriquant la composante linguistique et professionnelle ?

Suivant les principes de la méthodologie d'analyse des besoins en FOS (Mangiante et Parpette), cette recherche est constituée d'un corpus de 75 vidéos filmées dans un contexte d'apprentissage du métier d'agent en hygiène et propreté. Ce métier, par sa pratique professionnelle solitaire nécessite une bonne maîtrise de cette compétence que nous décrivons et est nécessaire d'être incluse dans les programmes de formation pour les travailleurs allophones. Nous avons analysé les correspondances entre la tâche langagière (Le Normand) et la tâche professionnelle (Leplat & Cuny) au sein du discours de l'enseignant-formateur afin de mieux pouvoir situer les enjeux de cette compétence. Nous proposons de présenter nos résultats et des propositions didactiques appliquées à cette recherche.

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Le Boterf, G., 2001, Ingénierie et évaluation des compétences, Eyrolles.

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#### Un dispositif hybride de formation-validation collectif pour soutenir le développement professionnel et organisationnel dans une PME italienne du secteur des chaussures

**Mariachiara Pacquola<sup>1,2,3</sup>**

<sup>1</sup>Università di Macerata, Italy; <sup>2</sup>Eduter Recherche (UP DPF), Dijon, France; <sup>3</sup>Consultant Développement Ressources Humaines Politecnico Calzaturiero, Riviera del Brenta, Italy; [cpacquola@hotmail.com](mailto:cpacquola@hotmail.com)

Le document décrit l'expérience de la conception et expérimentation, dans le cadre du projet Erasmus + Eure.k 2015-2018 (Validation des Compétences Clés Européennes), d'un dispositif hybride de formation-validation collectif des compétences transversales dans une PME du secteur des chaussures.

La PME vive depuis cinq ans un processus de développement organisationnel et professionnel, centré sur les principes de la Lean production et d'une culture de l'amélioration continue et ciblé sur un groupe de travail inter-fonctionnel où les acteurs clés sont 4 patronniers de chaussures de luxe.

La nature incorporée des connaissances mobilisées au travail, une culture organisationnelle faiblement collaborative, la pénurie de une culture de la formation et d'évaluation, implique accompagner la transformation organisationnelle avec un soutien à l'apprentissage de nouveaux comportements organisationnels et une relecture des savoirs pour l'action (Magnoler, Pacquola, 2016; Pacquola, 2017).

L'analyse de travail pour la formation du patronnier (Pastré, 2011) a révélé un écart entre le « redéfini » du management et des opérateurs, leur activité réelle, et le prescrit à niveau régional: les acteurs agissent une dimension interactive avec d'autres acteurs impliqués dans le processus de travail presque ignoré dans l'entreprise.

Regarder l'activité du patronnier comme technicien de service (Pastré, Mayen, Vergnaud, 2006) a impliqué, donc, un enjeu de professionnalisation des personnes, des activités et de l'organisation (Fernagu Oudet, 2004; Wittorsky, 2007) et l'activation de une collaboration entre chercheur et praticiens (patron, management, patronniers, formateurs) pour la conception d'un dispositif hybride, visant à combiner des activités réflexives (reconnaissance et valorisation des acquis d'expériences) avec une démarche de transmission des savoirs liés au parcours de validation (concepts d'accompagnement, évaluation, référentiels,

processus d'apprentissage, développement de compétences), et à l'activité professionnelle même (communication organisationnelle, amélioration continue, projet management...).

Le développement professionnel du patronnier a été activé par un double processus d'apprentissage: d'une part, la pragmatization des concepts et la contextualisation du prescrit régional ont favorisé la génération d'une nouvelle théorie de l'action qui soutient la transformation des pratiques; d'autre part, la co-explicitation de l'expérience de travail, relue par rapport aux nouveaux référentiels, a favorisé la prise de conscience collective du réel de l'activité (Clot, 2008), des compétences acquises et à construire, enfin un pouvoir agir au niveau organisationnel.

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## C06 - Round Table: Responding to the challenges of uncertain work conditions

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: MR170

Session Chair: Christian Harteis

### Proactive work behavior in uncertain contexts: strengths and challenges of interventions for fostering proactivity in the finance sector

**Vasudha Chaudhari<sup>1</sup>, Leonie Jacob<sup>2</sup>, Allison Littlejohn<sup>1</sup>, Regina Mulder<sup>2</sup>**

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As a dynamic, knowledge-intensive domain, the finance sector is continuously exposed to a variety of factors that cause uncertainty. One example is the process related to Brexit that is creating all kinds of environmental uncertainties for finance professionals. That poses the question of how do finance professionals who perceive environmental uncertainty (PEU; Milliken, 1987) shape their work. This question is explored through joint research by group of international researchers.

The research design is based on a mixed-methods approach. A key output is a conceptual framework for scaffolding finance professionals' proactivity at work. The research project comprises of three phases: The aim of phase I was the development and validation of vignettes as a measurement instrument for PWB. A qualitative approach (with the critical incident technique, Finch, 1987) was used, where data were gathered through nine semi-structured interviews with finance experts and professionals who described uncertainty in their work situations. Five categories of PEU were identified: crisis (e.g. the financial crisis of 2008), structural changes (e.g. relocation of departments), environmental influences (e.g. terror attacks), political decisions (e.g. the vote for Brexit) and technological development (e.g. robo advice platforms that automates investment advice). This phase resulted in vignettes with the three most valid situations causing PEU in the finance sector that are now used in the questionnaire in Phase II (according The Vignette Technique, e.g. Mulder, 2015). Phase II is currently running (as of February 2018) testing hypotheses regarding mediating relationships between perceived uncertainty and aspects of proactive work behaviour (i.e. innovative work behaviour, self-regulated learning, and job crafting). In this phase a quantitative approach using a cross-sectional survey is being employed (N= ±500). The vignettes are part of the survey to enable the exploration of actions in the context of specific uncertain work situations in the finance sector (e.g. Brexit). In phase III, the aim is to develop and evaluate an intervention that fosters proactive work behaviour of professionals who work in the finance sector. Interventions that are being considered include face to face professional training, use of mobile apps to scaffold self-regulation strategies (e.g. goal setting, time management etc.), and gamification of training.

In this roundtable session potential interventions will be discussed that could be implemented in phase III by examining the findings from phase II and debating the strengths and challenges associated. The theoretical significance of this research lies in its potential to affirm proactive work behaviour as a crucial factor that can explain the alignment between employees and their workplace who perceive environmental uncertainty at work. This research provides practical guidelines for finance organisations, and chartered bodies responsible for training and professional development of finance professionals to maintain a proactive workforce and to keep up competitiveness and efficiency in a continually transforming, globalized world. The practical implications of this research are in alignment with the theoretical significance. Especially the mixed-methods approach using the Vignette Technique as well as the theorisation of this research will be of interest to the EARLI SIG14 participants.

### The reification as a learning opportunity and its role in reducing the cognitive load

**Florina Nicoleta Ivan**

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The aim of this paper is to explore the learning opportunities provided by the reification within the community of practice (Wenger, 2005; Lave and Wenger, 1991) in situated learning workplace (Billet, 1995). The research objective is to examine the role of the reification within the community of practice and how the learning opportunities generated by the reification could reduce the cognitive load for the adults at work, through a sequenced design. Several fields of the work environment are examined, based on the studies related to the link between the community of practice, the reification (Holley et al., 2016; Arzumanyan and Mayrhofer, 2016; Pignata et al., 2015; Soucek and Moser, 2010) and the cognitive load (Sweller, 1976, 1994). This is a theoretical paper and the methodology is qualitative, with a descriptive design (Springer, 2010). The research method is based on the content analysis of several categories of reification reflected in the communities of practice in various fields of work.

The practical and theoretical interest of investigating the learning opportunities within the community of practice through reification, is related to designing effective on-the job training programs, from a socio-constructivist perspective (Vygotsky 1934/1997), in view to aid the adults at work to cope with an increased cognitive load.

### Differing perspectives of learning from incidents

**Victoria Louise Murphy, Allison Littlejohn, Bart Rienties**

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#### Aims

Learning from incidents (LFI) is a process by which companies learn following accidents and near-misses, with the specific aim of preventing future incidents. This process usually involves reporting an incident, investigating it, the creation and distribution of documentation about the incident, and finally, the implementation of contextualised actions across an organisation. An important question for both researchers and practitioners is what indicators demonstrate that this process is resulting in effective learning.

Prior research has used several indicators to assess LFI, each capturing a single aspect of the learning process. This paper aims to produce a more in-depth conceptualisation of the indicators of successful LFI. Additionally the paper will explore if indicators of effective LFI are perceived consistently across different hierarchical levels within a company.

#### Methodology

Thematic analysis was used to explore the perspectives of three different managerial levels within a multinational energy company. 18 interviews were originally conducted with employees from the same site. Ten of these interviews were conducted

with front-line operators or maintenance staff, and the participants of eight of the interviews held positions of site-level management. In addition ten vice-presidents from a variety of sites within the same company will be interviewed. The indicators of effective LFI discussed by each hierarchical level were contrasted to highlight similarities and differences.

#### Findings to date

The findings showed that at a surface level all participants perceived the purpose of LFI to be the same: to prevent incidents and make employees' work safer. However, when discussing the indicators that demonstrated this objective was being achieved, the answers overlapped but differed by hierarchical level. Front-line workers predominantly focused on the individual traits of employees involved in day-to-day operations, such as being aware of risks and personal conduct. Front-line workers also mentioned changes to procedure and documentation as objectives of LFI. Site level management, on the other hand, additionally included various indicators related to learner context, such as use of aggregated incident data to identify leadership priorities or ensuring good communication pathways for information exchange. How these views compare with those of upper leadership remains to be explored.

#### Significance

The research described here contributes two items of significance to research on LFI. Firstly, the interviews highlight that there are several indicators of effective LFI. This is in contrast to how previous empirical research has operationalised LFI using a single indicator, such as the number of incidents or the number of recommended actions that are implemented. LFI is a multi-layered process of learning, and this study presents the first attempt to create a detailed taxonomy of the indicators that could be used to evaluate its effectiveness.

Secondly, the work highlights that employees' perspectives have overlapping but tangibly different opinions of what LFI should achieve. This has implications for how LFI is implemented and evaluated in the work place, as different learning indicators would be considered as important depending on the hierarchical level of the group conducting the evaluation.

## **Professionals' growth and personalized learning in the digital era**

**Kirsi Hanhisalo**

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Professionals are said to become learning nomads, knowledge and innovation workers who are crafting their jobs and career according rapidly changing situations. It is crucial for professionals to lead and direct themselves and take care of their human capital. Social networks, strategic partners and swarm wise are increasingly important. Professional growth is a personal process and therefore comparable to the concept of personal growth (Nokelainen 2008, 22). Self arises through social experience and forms personal basis in relation to work and learning (Billett 2010). In Beckett's and Hager's (2002) theory informal learning is meaning that learning is overall process, where the whole person is present so that understanding, feelings, values and practical activities are blending. The first aim of this research is to examine professionals' perceptions on personal career growth and personalized learning in the digital era. The second aim is to analyze the implications of the professionals' perceptions for the design of learning environments.

#### Methodology

This qualitative research draws on design-based research (DBR). According to Collins, Joseph, and Bielaczyc (2004) a goal of design research is to improve the way a design operates in practice. DBR is a collection of approaches and methods, which are designed systematically into the research context. Empirical data will be collected by using the method of empathy-based stories (MEBS), interviews and mobile diary via WhatsApp. Results of this research will be based on phases of design cycles.

#### Approach

The target group is self-directing professionals who work in expert or managerial positions in companies or are self-employed, and who utilize actively networks, peer learning and social media as a means of informal learning. The research questions are: 1. What factors and what kind of conditions characterize professional growth and personalized learning of professionals in the digital era? 2. Which triggers will foster and which will prevent professionals' growth and personal learning? 3. What kind of personalized learning model can we constitute for professionals?

The practical significance of this research is to find out how professionals perceive professional growth and what motivates, directs and sustains professional learning. Final target is in the design of learning environments for professionals' growth and self-directed learning. Findings will give us new elements to support professionals' careers, guarantee their market value and support continuous learning at work. Results will help HR-professionals and supervisors to develop HR practices which will support individuals to grow professionally, foster modern workplace learning and guarantee sustainable competitive advantage. Social media and online social networks can also be employed by businesses as a learning resource for growth and added value.

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## **C07 - Paper session Fr: Simulation, formation et santé**

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: M1150  
Session Chair: Lucien Tisserand

### **Engagement dans l'activité et développement professionnel chez les formateurs en soins infirmiers utilisant la simulation clinique pleine échelle**

**Florence Policard**

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La simulation clinique pleine échelle (SCPE) est une modalité pédagogique en pleine expansion dans la formation des futurs infirmiers. Basée sur l'apprentissage expérientiel et la conceptualisation de l'action, elle est considérée par les formateurs comme un format complexe à utiliser, en particulier dans la conduite du débriefing qui suit la situation simulée. Celui-ci les confrontant à des difficultés, la SCPE peut constituer pour eux une opportunité de développement professionnel.

Notre contribution s'inscrit dans le cadre d'une recherche doctorale. Elle se situe dans le courant du Workplace Learning (Billet, 2001) et des modèles de l'engagement professionnel (De Ketele, 2013 ; Meyer & Allen, 1991), dans une approche compréhensive. Nous cherchons à appréhender les logiques qui sous-tendent l'engagement des formateurs dans cette activité, ses manifestations au cœur des pratiques, et ce que cet engagement produit en termes de développement professionnel pour eux-mêmes.

Cette étude qualitative s'est déroulée dans trois instituts de formation en soins infirmiers et porte sur seize formateurs, rencontrés à quatre reprises au cours d'entretiens semi-directifs, d'observations lors de conduite de séances de simulation et d'entretiens d'autoconfrontation, sur une période de vingt mois. Dans chacun de ces instituts, l'activité est structurée en groupe de pilotage (certains formateurs en sont référents), mais tous les formateurs de l'équipe animent ces séances.

Nos résultats mettent en évidence un profil d'engagement dominant, privilégiant des logiques dialogique (engagement envers les étudiants et/ou le collectif de pairs) et herméneutique (traversé par des questionnements continus sur les enjeux éthiques et pédagogiques), et des formes d'engagement affective (en référence aux valeurs, croyances et émotions) et normative (sens du devoir). Ce profil est stable dans la durée. La plupart de ces formateurs construisent ensemble un monde commun, servant de repère idéologique, méthodologique et pragmatique, pour optimiser leurs compétences pédagogiques individuelles et collectives. Ce faisant, ils questionnent leur posture professionnelle, et composent entre un besoin de contrôle (diriger la production réflexive du groupe d'étudiants), et une volonté de lâcher-prise qu'ils jugent nécessaire à leur rôle de médiateur. Nous relevons des indices de développement professionnel dans une triple dimension : professionnalisante, transformatrice et identitaire. Les personnes dont le profil d'engagement révèle une dominante dialogique-herméneutique sont celles dont le développement comporte une forte dimension transformatrice (évolution de leurs croyances sur l'apprentissage et changement de posture).

Nous mettons notamment en exergue la dimension interindividuelle, avec un rôle déterminant du collectif de formateurs comme affordance sociale disponible et accessible pour être utilisée comme ressource de développement. Cependant, le degré d'ouverture du groupe de pilotage aux autres formateurs semble agir comme facteur de conversion dans l'utilisation effective par ces derniers de ces affordances sociales. Plus le groupe de pilotage est ouvert (sécurisant et soutenant vis-à-vis des autres formateurs, partageant ses prérogatives et collaborant dans l'activité d'ingénierie pédagogique notamment), plus celui-ci apparaît comme un facteur contextuel de maintien de l'engagement dans la durée et comme une affordance effectivement utilisée à la fois par ses membres et par les non-membres pour apprendre et se développer.

### **Rôle de la simulation dans le développement de compétences en communication : le cas d'une formation d'anesthésie-réanimation**

**Elodie Ciccone, Lucie Cuvelier, Françoise Decortis**

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Notre communication aura pour objet une recherche-intervention menée par des ergonomes en partenariat avec un service d'anesthésies-réanimation en pédiatrie situé à l'hôpital Necker. Elle s'inscrit dans un projet ayant pour but de réfléchir à la conception de dispositifs de développement des compétences en sécurité. Nous plaçons dans une approche constructive de la sécurité (Nascimento, Cuvelier, Mollo, Diciocco, & Falzon, 2013) et l'envisageons comme une valorisation de « l'agir en sécurité » (Cuvelier, 2016).

Dans cette perspective, être compétent en sécurité revient à être compétent tout court, c'est-à-dire, savoir s'adapter aux situations nouvelles, faire preuve d'intelligence au travail (Pastré, 2011). Ainsi l'enjeu n'est plus tant de développer des formations « à la sécurité » mais de développer des dispositifs intégrés à l'entreprise et à l'activité collective (Casse & Caroly, 2014) qui permettent à l'individu d'ouvrir le champ des possibles et lui permette ainsi de réagir aux situations qu'il rencontre. En d'autres termes l'enjeu pour l'ergonome n'est plus seulement de transformer les situations de travail, il est aujourd'hui de contribuer à rendre les travailleurs compétents, c'est à dire capable de mobiliser, de combiner et de transposer des ressources individuelles et des réseaux dans une situation professionnelle. Il ne s'agit pas d'appliquer des savoirs pour agir, mais de les mobiliser au bon moment (Beaujouan & Coutarel, 2013).

Notre approche pour développer la sécurité passe par la réflexivité sur le travail du quotidien. En effet nous émettons l'hypothèse que l'enjeu est de mettre en place des méthodologies qui encouragent la mobilisation des acteurs et le « développement du pouvoir d'apprendre » ou du « pouvoir d'agir » des travailleurs (Beaujouan & Coutarel, 2013; Coutarel, Caroly, Vézina, & Daniellou, 2015). C'est pourquoi nous nous sommes intéressés aux approches par la simulation.

Dans le but d'améliorer la prise en charge des patients, l'Hôpital Necker a mis en place des formations à la communication avec les familles d'enfants malades, nous avons eu l'occasion d'assister à 4 sessions de formation sur simulateur. Deux journées étaient destinées à des groupes d'internes en médecine qui restent 6 mois dans le service, les deux autres au personnel paramédical en poste permanent. Au cours de la journée, les participants sont amenés à travailler sur un dispositif de simulation à la communication. Chaque session comporte 4 cas simulés.

Lors du congrès, nous reviendront sur les situations de débriefing, nous intéressant plus particulièrement :

- Aux rappels d'expériences vécues
- Aux retours sur la simulation

- Cette catégorisation des différents moments du débriefing pourront notamment être mis en lumière grâce aux différents niveaux de langage employé par les participants (Donnay & Charlier, 2008). Ces niveaux de langage permettent notamment d'appréhender le niveau de réflexivité du discours.

Ces premières analyses couplées à des entretiens avec les professionnels et les formateurs auront pour but de mettre en lumière le rôle de cette formation dans le développement de la professionnalisation.

### **La simulation haute-fidélité en santé : de la simulation à son débriefing, des ethnométhodes aux compétences "non-techniques".**

**Lucien Tisserand**

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L'objet de cette présentation sera de montrer en quoi une étude conversationnelle des pratiques de simulation haute fidélité en santé peut fournir des résultats intéressants pour les professionnels de la santé.

La simulation haute fidélité est une pratique d'apprentissage et d'entraînement basée sur la reproduction de situations de travail en équipe qui sont ensuite débriefées. Le dispositif au centre de cette pratique est un mannequin robotisé qui joue le rôle d'un patient. La fidélité de ce dispositif est également due au fait que l'équipe interagissant avec ce patient évolue dans un environnement reproduisant une salle de soin réelle, équipée d'instruments originaux. La simulation est ainsi observée en temps réel par les formateurs dans la cabine de pilotage et par les autres stagiaires grâce à une retransmission vidéo, afin que celle-ci soit une ressource interactionnelle partagée par l'ensemble des participants au cours du débriefing. Le développement de cette pratique répond à un impératif d'enseignement de compétences dites « non-techniques » – soit des compétences organisationnelles – dans le but de mieux appréhender le facteur humain (Cooper & Taqueti, 2004). Ce facteur humain, désignant « l'interrelation des hommes avec leur outils et environnements de travail » (Kohn, Corrigan & Donaldson, 2000, p.63), est pointé comme majoritairement responsable des événements indésirables graves liés aux pratiques de soin elles-mêmes.

L'analyse conversationnelle d'inspiration ethnométhodologique (Gülich & Mondada, 2001) se dote d'outils analytiques pertinents pour l'étude de ces compétences et facteurs en ce qu'elle rend compte des méthodes d'organisation des membres pour les fins pratiques de l'interaction (les « compétences non-techniques ») dans leur dimension émergente et contingente (le « facteur humain »).

Nous présenterons ainsi trois axes par lesquels une analyse conversationnelle revêt une dimension appliquée pour ce sujet d'étude. Les données présentées proviennent de l'enregistrement de formations (la simulation et leur débriefing) au sein d'un laboratoire universitaire de médecine.

1) Un exemple montrant que l'analyse séquentielle à l'intérieur de la salle de simulation permet de montrer la source d'un problème interactionnel repéré en aval par les formateurs dans la cabine de pilotage.

2) Un exemple de collection d'analyses documentant l'accomplissement réel et incarné de règles de conduites formulées dans les référentiels de compétences non-techniques.

3) L'étude de phénomènes d'ordre «longitudinal» montrant la mise en discours se référant, au moment du débriefing, à des événements précis analysés par le chercheur au moment de la simulation.

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## C08 - Paper session: Learning through verbal interactions

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: M1160  
Session Chair: Martin Johnson

### Becoming the third party: Professional socialization in hair salons

**Anne-Sylvie Horlacher**

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Skilled ways of getting involved in the hairdresser-client encounter are part of the apprentices' work in hair salons. This paper examines how apprentices address senior hairdressers when asking them how to pursue their own task. Their practical problem consists in initiating interaction with the hairdresser while at the same time preserving the privileged relation that the latter sustains with the client. The data shows that in this setting the hairdresser is, in the first place, a service provider, and then a skills trainer (Kunégel, 2012). In other words, the hairdresser is not always available for training the apprentices or respond to their requests. At times, this prompts the apprentices for "alternative help seeking methods" (Fillietaz, 2011 : 256); at other times, their lack of autonomy is more problematic, as visible in the challenges they face when joining the workplace (Billett, 2001; Fillietaz and Billett 2015; Pekarek Doehler, Bangerter, de Weck, Fillietaz, González-Martínez, Petitjean 2017).

This presentation provides a detailed analysis of the multimodal resources apprentices call on in reorganizing the participation framework (Goffman 1981; Goodwin & Goodwin 2004; Mondada, 2012) when seeking instructions, namely by turning their presence into an accountable event before claiming speakership. Preliminary results show that the apprentice's seeking of assistance is treated in different ways: a) The hairdresser responds to the apprentice's presence and selects him/her as next speaker; b) The client responds to the apprentice's presence and selects him/her as next speaker; c) A second apprentice joins the scene and helps his/her peer in upgrading his/her presence and maximizing his/her visibility; d) The apprentice unsuccessfully leaves the scene.

I present an analysis of a collection of such episodes drawing on Conversation Analysis (Sacks, Schegloff and Jefferson, 1974) and multimodal interaction analysis (Streeck, Goodwin and LeBaron, 2011; Mondada, 2017). The data has been video recorded in a hair salon located in the French-speaking part of Switzerland (18 sessions involving 18 clients, 3 hairdressers and 5 apprentices, 20 hours in total).

### Teaching and Learning to Weld in Interaction: Professional Development

**Stig-Börje Asplund, Nina Kilbrink**

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Creating efficient learning environments where students learn what they are supposed to learn, as well as understanding the relations between teaching and learning are recurring issues in educational settings. The importance of studying these issues in school practices is highlighted in different studies, but in relation to vocational objects of learning, there is an evident lack of such studies. By implementing an action-oriented study in iterative cycles, this research aims to redress this lack by focusing on learning processes involved when a vocational teacher and upper secondary students interact with tools and materials in relation to the object of learning to weld. At the same time the study aims for professional development for teachers facilitating collaboration at a school.

In the study, we combine two different theoretical perspectives; conversation analysis (CA) (Sidnell & Stivers, 2013) and variation theory analysis (VTA) (Marton & Tsui, 2004). Results from our previous studies on learning to weld form the basis for teaching in the present study (cf. Asplund & Kilbrink, 2018), which is conducted as a collaborative project between a vocational teacher from upper secondary school and two researchers from the university. The study is funded by The Swedish Institute for Educational Research. Video recorded interactions between the teacher and students in relation to learning to weld are analysed using CA and VTA. CA allows for in-depth exploration of how participants use both verbal and non-verbal communicative resources when learning is done (Sahlström, 2011) and VTA helps us understand what critical aspects of the object of learning are possible to learn in the actual learning situation (Asplund & Kilbrink, 2018).

Our results show that by combining those theories we can reach a detailed understanding of how the learning is done in interaction in relation to the specific object of learning "to weld". We can also see that critical aspects and what is possible to learn is depending on actions introduced by the teacher as well as by the student. In the conference, we will present results forming the basis for the action oriented project, as well as results from the first cycle of implementing those results in collaboration with the vocational teacher.

The study contributes theoretically, by developing new ways of combining theories and methods to reach a broader understanding of the whole process of teaching and learning in relation to specific learning content, but also practically, by showing how results from research studies can be implemented at school and contribute to teachers' professional development.

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### Learning to think alike: A study of professional examiners' feedback interactions in a UK Qualification Awarding Organisation

**Martin Johnson**

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CONTEXT

In the UK, many school and professional qualifications are delivered and administered by Awarding Organisations. The administration of qualifications involves a great number of examiners who are responsible for assessing individual performances according to pre-specified mark schemes.

In the case of the Awarding Organisation in this study, groups of examiners work under the remote supervision of a senior examiner (Team Leader [TL]). A TL is responsible for overseeing the training of a group of examiners, and for ensuring that high quality marking performance is maintained throughout the marking period for that group of examiners. Feedback communication has an important role in this training and monitoring process. During the training and supervision period TLs give feedback to each examiner on their work quality via electronic mail or telephone messages.

#### AIM

My study data comprises of 991 professional feedback interactions that take place between three TLs and 27 examiners working for a UK-based Awarding Organization, and my research sets out to explore which features of professional feedback make it effective for professional learning.

#### THEORETICAL PERSPECTIVE/METHODOLOGY

For my study I adopt a sociocultural perspective on learning that suggests that interaction supports the development of reasoning through the alignment of culturally appropriate collective thinking (Littleton & Mercer, 2013). In other words feedback affords professional learning by allowing examiners to gain insights into the marking procedures and linguistic interpretations that characterise the professional examiner community of practice.

As a consequence, this perspective suggests that it is crucial to understand the nature of interaction as intrapersonal development is a function of the quality of interpersonal communication. In addition, I am also interested in the way that the TLs use feedback discourse to coordinate divided labour across their marking teams. Drawing on the notion of 'articulation work' (Strauss, 1985), I analyse how feedback involves the often unnoticed and taken for granted work that is carried out during interactions to ensure that coordinated task completion is managed.

I analyse the feedback messages using a Sociocultural Discourse Analysis approach (Mercer 2004) which employs methods informed by the traditions of Discourse Analysis, Ethnomethodology, and Corpus Linguistics.

#### RESULTS/IMPLICATIONS

My use of a mixed methodology enables me to develop a picture of feedback practice that is both contextually and theoretically grounded, and my study provides a methodological framework for analyzing devolved, remote communication. My outcomes show that effective feedback has a number of both transactional (content-related) and interactional (stylistic) qualities (e.g. Brown & Yule, 1983). These outcomes are useful for supporting training in feedback giving practices in other professional environments where remote interactions are used as a mechanism for inducting new members into a community of practice.

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## C09 - Paper session: Linking education and work in higher education

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: M1170  
Session Chair: Juergen Seifried

### Workplace learning in dual higher education

Alexander Brodsky<sup>1</sup>, Jürgen Seifried<sup>1</sup>, Sailmann Gerald<sup>2</sup>

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Workplace learning plays an important role in the context of vocational education and training (VET) and is considered to be an appropriate strategy for the development of vocation, career and professional identity (Poortman et al., 2014). In dual educational systems, students are in an employment relationship as apprentices during their training and attend school lessons beside that (Tynjälä, 2013). Meanwhile, the dual concept has also been implemented in study programs of higher education (Tynjälä, 2013) which combine studies at vocational academies or universities and in-company work experiences. The number of both dual study programs and dual students increases steadily and the programs promise graduates who are well prepared to enter the labor market. While the practical experiences of the students play a crucial role in such study programs, the influence of workplace learning on the development of the students' competencies has not yet been sufficiently examined.

Hence, this study aims to receive insights in workplace learning in dual higher education by examining a bachelor program aiming to develop its students towards job market-consultations in German job centers (employment offices). We documented job tasks of the students by using learning diaries/journals and surveyed factors such as the students' prerequisites (beginning of the internship), working and learning conditions, and the perceived development of the competencies (end of the internship) in the course of the first two internships of the program.

We used a combination of an input-output-process model (3-P-model by Tynjälä; modified from Biggs, 1987, 1999) and the job characteristics model (Hackman and Oldham, 1976) as the basis of our research model. The input-component of our model includes the individual preconditions of the students such as their professional self-efficacy or their expectations regarding their following internship. To analyze the workplace learning process, the learning and working conditions at the workplace (e.g. autonomy), the individual processing of the students and the interaction between the different components are taken into account. It is assumed that these elements directly affect the development of the student's competencies (output).

The results show that the student's expectations towards the development of their competencies were predominantly fulfilled. Furthermore, the findings reveal that observing colleagues and working on the internship reports were the dominant tasks of the students, although the own performance of tasks became more important during the internships. Most of the students reported (rather) good working and learning conditions at their workplace.

The project provides various insights in the growing field of dual study programs, which can be used to implement improvements into the examined study programs and to provide a basis for further research.

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### Can Classroom Experiments Challenge Students' Understanding of Economic Concepts? – Results from a Common Goods Experiment

Isabel Cademartori, Jürgen Seifried

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Low economic literacy is associated with higher debt, poor risk diversification and generally low levels of saving and retirement planning (Jappelli, 2010, Lusardi & Mitchell, 2007). The question of how instruction can be designed to help students gain and retain economic knowledge has not been answered fully and requires further research. This paper seeks to explore whether the use of classroom experiments in economic courses can help bring about conceptual change in the economic thinking of students (Dickie 2006; Emerson & Taylor 2004). The results of a study with 58 students of two secondary schools, with a focus on business and economic studies, are reported. The students participated in an economic classroom experiment aimed at illustrating the economic concepts of common goods using game theory. The aim was to acquire a better understanding of the process of learning economic concepts through an economic classroom experiment. The research questions were:

1. How students learn through a classroom experiment and,
2. Whether classroom experiments can support the conceptual change process for economic concepts?

A classroom experiment was conducted with four groups of secondary school students (N=58) with no control group. For the data collection, pre- and posttest were used as well as videography during the experiment. Additionally, a post-experiment interview was conducted with each participant. Results of the quantitative and qualitative data will be reported.

First results show that even though 31% of students were familiar with the experiment, only one of the four groups did manage to not deplete the pond before the end of the experiment and reached an agreement about the number of fish that should be caught.

In order to determine a possible increase in content knowledge about common goods, we compared pre-test with post-test knowledge test performance. A paired samples t-Test reveals a significant knowledge increase in the posttest ( $T(54) = -5.36, p < .001$ ). Although male students had a slightly higher knowledge increase ( $N=31, M=1.56, SD= 2.02$ ) than female students ( $N=24, M=1.03, SD=1.56$ ), a t-Test reveals that the difference between genders is not significant ( $T(53) = -1.065, p = .292$ ). Those who had previously taken business courses did have a slightly higher increase in content knowledge ( $N= 26, M= 1.43, SD=1.89$ ) than those without previous experience ( $N= 28, M= 1.27, SD=1.85$ ), however, the difference was not significant ( $T(52), p = .761$ ).

The interview data shows that 31 students (N=42) confirm that they feel as though the experiment had a positive learning effect. When asked about what the main takeaway from the experiment was, most students report that they learned about the content matter related to the experiment, such as the characteristics of common goods and ecological sustainability.

The results of our empirical analysis indicate that economic knowledge about common goods can be advanced by means of this experiment. How students experience the experiment, what they learn from it and what learning effects can be found for different groups of students will be determined by further analysis of the quantitative and qualitative data.

### **[CANCELLED] Self-regulated professional learning: Developing skills for the fourth industrial revolution**

**Uta Boesch, Ivo Mersiowsky**

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Digitization and the fourth industrial revolution will not only change technology and economies, they will also reshape occupations, careers, collaboration, and job markets. The pace of this change is even accelerating and it is not predictable, how work will evolve in the future. Under these circumstances professionals need the ability to learn new skills, to adapt to changing environments, and to shape their careers. Therefore, self-regulated learning (SRL) might be one of the most important skills for professional development. However, research on self-regulated learning in the workplace is still limited.

The current study focuses on how interns experience and reflect upon their self-directed development of one selected competency during job performance. Three groups of students in their last semester for a bachelor's degree in business psychology planned, realized and evaluated a self-directed and self-regulated competency development project. Each student chose one competency to work on during a course of 8 to 10 weeks while doing a professional internship. The project started with a detailed plan, followed by a daily or weekly report of actions or reflections on specific aspects of their experience. A final evaluation and reflection complemented the learning project. The degree of support and the questions for reflection varied between the three groups. Results show the mindsets, students bring to SRL in the workplace and the difficulties students encounter, when putting their theoretical knowledge about learning and their experiences with self-regulated study behaviour into action.

## C10 - Paper session: Adult learning processes within the context of work

Time: Wednesday, 12/Sep/2018: 4:30pm - 6:00pm · Location: M2150

Session Chair: Ray Smith

### Self-regulated learning in the crowd workplace

**Anoush Margaryan**

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Crowdworkers are an online workforce operating outside organisational settings; they have no access to formal training and development opportunities that employees typically do (Kuek et al, 2015). Crowdfork has been criticised for being low in learning-intensity, causing deskilling and discouraging workers from developing and applying their skills (Degryse, 2016). Emergent empirical findings challenge these accounts showing that crowdworkers develop skills, such as business development, marketing, digital literacy and technical skills (Barnes et al, 2015). Yet, how crowdworkers go about self-regulating their learning and how their self-regulated learning (SRL) practices compare to those of 'conventional' employees is not understood. This paper begins to address this gap, by scoping and comparing SRL strategies of crowdworkers and employees.

Data were collected using a validated instrument, Self-regulated Learning at Work Questionnaire (Fontana et al, 2015). Four groups of workers were surveyed (n=668); the procedures/samples for these extant datasets are detailed in the following publications:

1. Crowdworkers, n=113 (Margaryan, 2016)
2. Finance professionals, n=170 (Milligan et al, 2015)
3. Educationalists, n=35 (Milligan et al, 2013)
4. Healthcare professionals, n=350 (Milligan et al, 2016)

The non-parametric Chi-square test of independence was used to compare these 4 groups regarding the use of each SRL strategy.

The detailed findings are summarised in Table 1 available at <https://tinyurl.com/y94qgnpg>

We found that the majority of crowdworkers used all 20 SRL strategies. We uncovered a statistically significant difference in the use of only one SRL strategy: crowdworkers were significantly less likely to write down a learning plan. Thus, whilst over 90% of crowdworkers set personal performance and learning goals, fewer of them (68%) appear to formalise these into a written plan. A possible explanation is that employees are often required to articulate learning plans as part of their performance review in organisations whilst crowdworkers are not required to do so. We conclude that crowdwork is learning-intensive and that, despite operating outside organisational structures, crowdworkers are just as likely as employees to use a range of SRL strategies at work.

This is the first empirical study analysing the use of SRL strategies in crowdwork. The findings challenge the prevalent discourse that crowdwork is low in learning-intensity and that crowdworkers do not engage in workplace learning.

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### Cambodian teachers' group interactions during a professional development program using video

**Leandra Lok<sup>1</sup>, Gonny Schellings<sup>1</sup>, Perry Den Brok<sup>2</sup>**

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[leandralok@gmail.com](mailto:leandralok@gmail.com)

#### Aim

This study is a follow-up of a study in which it was concluded that an intervention with video footage was beneficial for Cambodian teachers' self-perceived knowledge and skills about student-centred teaching methods (Lok, Schellings, Brouwer & den Brok, in press). That study showed that teachers in a group setting observing model videos were most positive about their learned knowledge. The present study investigates teachers' interaction in a similar setting. This study elaborated on the existing body of research about using video in teachers' professional development training by looking at the actual conversations during the professional development activity, in this instance in a challenging context (Cambodia).

#### Method

Interaction was analysed of seven Cambodian teachers in video club meetings with regard to the role of initiative in the discussion, teachers' content focus and teachers' types of remarks. In a monthly session, the seven teachers discussed the footage guided by the facilitator. All sessions were taped, translated and transcribed. To analyse the data, Sherin & Han's (2003) distinction between teacher behaviour and student learning helped us to identify the focus of the topic. A system inspired by Chan & Harris (2005) was then used to identify possible types of teachers' remarks in terms of description, explanation, opinion, connection to own practice and intention to implement.

## Findings

The facilitator turned out to be important in the process as teachers did not take initiative during the conversations. The teachers mainly interacted upon teacher behaviour which did not change over the seven meetings. Remarks were mostly labelled as "description", "opinion" or "explanation" and were related to the teaching methods shown by the footage. Over the meetings, there was no trend in the total number of remarks but a diminishing trend in the category "opinions" was noticed. Teachers' input during the interaction was not balanced.

## Conclusions and significance

Cambodian teachers in this intervention were stimulated to interact by a combination between the footage (video) and the questions the facilitator asked. They used the same types of remarks Chan & Harris found, except for 'intention to implement'. This study indicates that for a challenging context (such as Cambodia), it is important to deploy well-trained facilitators who are able to scaffold teachers' interaction to student behaviour, to let all teachers participate and to select appropriate videos.

## References

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## Understanding work-learning through forms of negotiation

**Ray Smith**

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The concept of negotiation has been used throughout work and learning research and literature as a means of capturing the kinds of interactions that identify and explain learning in work as a social practice (e.g., Billett 2008, Illeris 2011). The foundations of this use lie in the generic understandings of the concept and the rich metaphoric qualities generated. Hence negotiation connotes meanings of coming together, making arrangements, dealing with, pursuing objectives, navigating trajectories and accommodating change – all of which are actions enacted jointly as parties (the universal term for people and things involved) must engage each other in order to do whatever it is they are doing. When that doing is learning in work the generic understandings and connotations the concept carries can become too vague and inappropriate to the task of accurately identifying and explaining what workers are doing as they engage in the practices of their work and so learn through that engagement. Clearer and more specific understandings of the concept are required when it is to be used as a mean of describing and explaining the kinds of interactions that constitute work-learning, that is, learning in and through work.

This paper reports research and discusses findings that advance a set of three inter-related ways of understanding and representing the kinds or forms of negotiations that workers enact as work-learning. The three sets of negotiation forms are: i) telic/atelic, ii) contingent and iii) compound. Each of the three representations marks a particular level of analysis of the personal work-learning practices of the twelve working men and women who participated in the project. From four different workplaces, the twelve (nine men and three women) engaged in different forms of work, with different roles and responsibilities and different levels of experience and status. They were each observed and interviewed on numerous occasions over an 18 month period. This generated a wealth of rich qualitative and highly verified data that supported the robust thematic analysis that gave rise to the findings reported and discussed here. The three sets of negotiation forms elaborated through those findings advance conceptions and categories of negotiation that move beyond the generic and often taken for granted understandings the concept often carries. In this way, more accurate and more specific representations of work-learning as negotiation may be secured and considered.

Billett, S. (2008) Learning throughout working life: A relational interdependence between personal and social agency. *British Journal of Educational Studies*. 56(1), 39-58.

Illeris, K. (2011) *The fundamentals of workplace learning: Understanding how people learn in working life*. New York: Routledge.

## **D01 - Symposium: The sequential organization of instructions in and for the professions**

*Time:* Thursday, 13/Sep/2018: 8:30am - 10:30am · *Location:* MR160  
*Session Chair:* Oskar Lindwall

Invited symposium

### **The sequential organization of instructions in and for the professions**

*Chair(s):* **Oskar Lindwall** (University of Gothenburg, Sweden)

*Discussant(s):* **Silvia Gherardi** (Università di Trento)

This symposium aims to empirically explore and conceptually discuss the relation between instructions, interaction and expertise. Through close analyses of video recorded interaction, the four presentations demonstrate some ways in which professional actions and objects are made accessible and intelligible to novices: a) Lymer and Lindwall examine how dentists demonstrate techniques and anatomical structures to students; b) Mondada shows how professional tasters are instructed in tasting and describing cheese; c) Tuncer analyses how researchers with experience of a specific experiment instruct peers who are doing the experiment for the first time; d) and Nishizaka demonstrates some patterns in the instructional interaction between a master of calligraphy and professionals who are entitled to teach calligraphy but who do not share the master's expertise. Although the investigated settings vary substantially between the four presentations, there are strong ties between them, including how video recordings are analyzed, how theoretical traditions are drawn upon, and the phenomena that are analyzed and discussed.

The focus of the symposium is the sequential organization of instructions in and for the professions; in other words, how instructions are shaped by prior actions and events, and how, in turn, the instructions shape what comes next. The sequential organization of talk-in-interaction is one of the main contributions and topics of conversation analysis (Sacks, 1992; Schegloff, 2007). Building on concepts and findings from conversation analysis and related fields, and particularly prior work that have investigated visual, material and embodied practices in professional domains (e.g., Goodwin, 2017), the four presentations demonstrate the organization of instructions in and for the professions and the multifaceted ways in which instructions are produced and responded to.

The term instruction has two different meanings that both are relevant here. On the one hand, the term is used for activities that involve some sort of teaching or training. In such activities, there typically is an instructor (a teacher, a trainer, a demonstrator) and the main purpose of going there is to be instructed in various things. On the other hand, the term can be used synonymously with certain types of actions, such as orders or directives, which do not necessarily have any educational import. While the first use of the term has been the topic of educational research, instruction as a social action has mainly been studied by sociologists, sociolinguists, and discourse analysts. In this symposium, the two meanings are interrelated. The analyses take their starting point in particular social actions and their sequential environments, but also in settings where experts teach novices how to see, act or taste in professionally relevant ways. In this way, the presentations are able to shed light on the complex relations between instruction, interaction and expertise: how instructions are produced and understood in sequences of interaction, and how expertise thereby becomes accessible and intelligible to novices.

#### *Presentations of the Symposium*

### **Seeing and seeing-as in instructional question-answer sequences**

**Gustav Lymer<sup>1</sup>, Oskar Lindwall<sup>2</sup>**

<sup>1</sup>Stockholm University, <sup>2</sup>University of Gothenburg

In the present study, we take an interest in the familiar distinction between seeing and seeing-as. We do so not from a philosophical standpoint, but from the perspective of ethnomethodology (Garfinkel, 1967) and conversation analysis (Sacks, 1992). Typically, seeing-as has been addressed as the capability of an individual to see an object under some aspect, to see a shape in the sky as a cloud for instance, or borrowing Wittgenstein's familiar example, to see an ambiguous line drawing as a duck or a rabbit. Such aspectual vision has been approached from a philosophical perspective as "a juncture between the sensory and the intellectual" (Budd, 1987, p. 2). From the perspective of naturalistic studies of action and interaction, a counterpart to the philosophical discussion of aspectual vision can be found in research which addresses the social organization of seeing (Goodwin, 1994; 1996; 1997); how perception is lodged within situated activities, professional discourses, and material environments.

Building on that body of work, we will provide an alternative perspective on the topic of seeing and seeing-as through a consideration of sequences of instructional interaction in the training of dentists. Professional training provides a useful empirical case, in that it involves the guided development of students' abilities to, on the one hand, detect 'things' in a highly-specialized environment, and on the other hand, to understand these 'things' and reason about them in terms of specialized discourse. In our data, dental students watch live-video broadcasts of endodontic procedures guided by a teacher. Both the operating dentist and the teacher narrate the visual events, providing a continual stream of descriptions, of the mouth and tooth, as well as of the dentist's embodied actions. Focusing on sequences where seeing is addressed as somehow problematic by the participants, we analyze interactional orientations to the Gestalt formed by a visual field and a description of that field. More specifically, our examples will be sequences initiated by the teacher or operating dentist through questions concerning visibility, typically in the form of "do you see" or "can you see." Question-answer sequences of this sort are useful for our interests, since they explicitly bring an interactional element into the ways in which participants see and describe particular domains of scrutiny (Goodwin, 1994), bringing into relief "the procedural grounds for the ascribability of seeing" (Nishizaka, 2018, p. 346).

We demonstrate, first, that seeing and seeing-as can be approached as practical, local orientations displayed and managed in interaction; and second, that any orientation to seeing and seeing-as, respectively, implies taking the other for granted. In that sense one could speak of a reciprocal interdependence between orientations to seeing and orientations to seeing-as. As a continuation of the second point, we also demonstrate how this taken-for-granted status is itself locally managed in interaction. The discussion allows us then to return to the idea that aspectual vision constitutes 'a juncture between the sensory and the intellectual.'

## **Instructing sensoriality: Guiding taste in cheese tasting courses**

**Lorenza Mondada**

University of Basel

This paper focuses on a specific kind of professional training: it analyzes sessions – video recorded in Italy and Italian-speaking Switzerland – in which future professional tasters are trained to taste cheese. In these courses, trainees learn how to visually inspect, smell, touch and taste cheeses, on the basis of a list of categories and criteria, which they acquire and practice through the use of a tasting sheet.

Instructions have been largely studied in the ethnomethodological and conversation analytic (EMCA) literature, both within instructional educational settings and within other social contexts in which participants using directives and requests ask others to do something, and guide them about how to do. Although instructions can target a variety of actions, the EMCA literature has largely dealt with embodied tasks being instructed (such as in lab experiments, Amerine & Bilmes, 1988, teaching crochet, Lindwall & Ekström 2012, in families where parents instruct children, Goodwin & Cekaite, 2013, or in operating rooms where the surgeon instructs their assistant, Mondada 2014, etc.), as well as with discursive tasks (like in school exercises, Mondada & Pekarek 2004). But instructions of sensorial practices constitute a domain that remains under-studied and that raises interesting challenges.

How are sensorial experiences – and more specifically tasting – instructed? Tasting has been conceptualized in different ways: first and foremost, tasting is treated as a subjective experience, recognized as variable and individual. Secondly, tasting is also considered as physiologically constrained by specific organs: reflecting about taste is a form of awareness related to the own body to which the individual has a primary and privileged access. Third, it is also recognized that tasting has a cultural and normative dimension. Thus, tasting is both seen as highly subjective and as possibly intersubjectively organized (Fele, 2016; Liberman 2013). Given this diversity of conceptualizations of sensorial experience, the question is how sensorial training is organized and guided.

In the tasting sessions I video-recorded, the teacher faces a large group of participants –about 40. He shows a form of cheese and gives advice about how to appreciate its different facets. Firstly, the analysis focuses on how he organizes the instruction, by showing the object, but also by referring to the tasting sheet and the categories presented as relevant and imposed for the description. Secondly, the analysis shows how the co-participants follow the instructions. Often they immediately implement what the teacher is proposing and engage in doing it: instructions are immediately implemented by the audience engaging in smelling, touching, and tasting. Thirdly, of particular interest is the way the teacher accepts or rejects – sometimes very harshly – the output of tasting in the form of assessments and descriptions. His corrections clearly show the normative dimension of tasting – although I will show that participants might disalign with it and resist the corrections.

In sum, the paper discusses how instructing the senses is achieved in a interactional, intersubjective, and normative way – and what this reveals about instructing practices involving an intimate relation to the own body.

## **Professional development among peers in scientific laboratories: Learning experiments through multimodal and interactional instructions**

**Sylvaine Tuncer**

Stockholm University

Science as an institution and a practice rests upon people making experiments in laboratories (Knorr-Cetina, 1981). These professionals also learn new knowledge and skills throughout their career in everyday practice. The presentation takes the approach of ethnomethodology and conversation analysis (Garfinkel, 1967; Sidnell & Stivers, 2013), which aim to recover, in observable practices and interactions, actors' lived experience as they engage with each other and with the world. Based on ethnographic and video data collected in a biochemistry laboratory in Finland, its object results from a basic observation: one way for researchers to learn from each other, in addition to talking, is to show each other how they perform specific experiments.

I'm interested in a particular situation where a researcher with extensive experience of a specific experiment performs it in front of a peer who on the one hand has never done the experiment before, but on the other has both sufficient skills and theoretical knowledge of it. In order to understand what makes these live instructional sequences unique, and necessary for scientists' professional development, I analyzed in detail and in a sequential perspective (Lindwall et al., 2015) a series of instances. For this presentation, I will focus on and unpack two practices: how (1) the performer simultaneously formulates and shows the successive, component tasks forming environmentally-coupled gestures (Goodwin, 2000; 1997), and (2) the observer actively participates in formulating the instructions by completing them and asking additional questions. I will argue that these instructions are essentially multimodal and interactional to a degree specific of peers learning together, as opposed to situations where knowledge and skills are less symmetrically distributed.

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## **Seeing how it is done: The sequential organization of instructional actions in a Japanese calligraphy lesson**

**Aug Nishizaka**

Chiba University

This study uses conversation analysis to examine two segments from a video-taped interaction between a master of Japanese calligraphy and a student, who is also licensed to practice teaching. The master points out deficiencies in the student's writing. The focus is on how the master formulates his critique. A pattern is observable, with the master first indicating the incorrect manner of writing that the student's actual work embodies and then suggesting the correct manner. However, this pattern is

overlaid by another observable pattern, with the master first describing the appearance of the portion of the work in question and then unambiguously indicating the actions that the student actually performed and those that should be performed. The master, in indicating actions, uses the term *kataku motte* ("hold stiffly"), which directly refers to the proprioceptive sensations that the student may have experienced.

My argument is as follows. First, in the instructions (as an activity type), the student's actions (both his actual actions and those that should be performed) are oriented to as relevant. In terms of sequential organization, the master begins by providing a description of the appearance of the current work as evidence, which then leads to instructions (as an action type) for future performances. Second, in the instructions (as a distinct activity), the proprioceptive feelings that are usually transparent, or do not appear in one's own experience, are specifically oriented to as an object. Possibly because of this usual transparency of the feelings, the master has difficulty in saying them in so many words, although he sees them in the student's work. In fact, many hedges can be observed in the master's utterances that indicate how the writing was and should be done. Once they have been said in so many words, the explicit indication of such feelings is acknowledged by the student without any claim of his (the student's) primary access to these feelings, although the feelings unambiguously belong to his territory. Third, seeing the student's work under the aspect of his proprioception is not a private phenomenon lodged inside an individual but something that is publicly accessible. It can be discussed among the participants in the activity. The entitlement to such seeing is distributed among the participants by reference to the identities relevant to the current activity rather than as a result of any private access to these feelings.

It is uncertain how relevant the fact that this interaction occurs between professionals is to the phenomenon that this study addresses (i.e., the master's formulation of what he sees in the student's work by reference to the student's prior proprioception). However, the difficulty that the master displays in doing this may reflect the subtlety of the instructions that need to be provided to a student who has a high level of competence.

## D02 - Symposium: Relationships as Risks and Resources for Resilience

Time: Thursday, 13/Sep/2018: 8:30am - 10:30am · Location: MR170

Session Chair: Susan Beltman

### Relationships as Risks and Resources for Resilience

Chair(s): **Susan Beltman** (School of Education, Curtin University, Australia, Australia)

Discussant(s): **Julia Warwas** (University of Goettingen, Germany)

Resilience involves both individual and collective capacity to harness and negotiate for psychological, social, cultural, and physical resources that sustain wellbeing (Resilience Research Centre, 2014). Dynamic interactions occur between personal and professional aspects of individuals, such as efficacy and commitment, and the “external intellectual, social, and organizational environments in which they work and live” (Gu, 2014, p. 503). Reducing workplace stress and burnout, and enhancing wellbeing and resilience, is an issue for careers such as nursing (Wu, Fox, Stokes, & Adam, 2012), the military (Meredith et al., 2011) or the police (Balmer, Pooley, & Cohen, 2014). In educational contexts, concerns have been raised regarding resilience of school leaders (Day, 2014), school teachers (Doney, 2013) and preservice teachers (Mansfield, Beltman, Broadley, & Weatherby-Fell, 2016). Most research relating to resilience in the education workplace has focused on teachers and leaders in traditional school settings.

In school contexts research findings have indicated the importance of relationships with school leaders, colleagues, pupils and family and friends (Beltman, Mansfield, & Price, 2011). Other people can provide challenges (e.g. unsupportive leaders; colleagues with different practices) but also resources (e.g. emotional and practical support; professional learning). This symposium focuses on non-school and vocational education settings and addresses the question: What role do relationships play as challenges and resources for resilience in non-school settings?

The four papers illustrate current research examining relationships and resilience in different cohorts and settings (German apprentices in their school and work contexts; Dutch university students in their learning activities; Swiss vocational school teachers; and Australian educators in early learning settings). The studies use a variety of qualitative and quantitative methodologies to explore their specific aims and their findings contribute to our knowledge of this important topic in previously less-researched settings.

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#### Presentations of the Symposium

### **[CANCELLED] Two sides of the same coin – Apprentices' (work) relationships as risk and supportive factors in the resilience process**

**Jennifer Schwarze**

RWTH Aachen University, Germany

#### Aim:

Research on resilience in educational contexts other than vocational education has shown that professional relationships on the one hand can be the antecedent of the resilience process, but on the other hand, supportive relationships are an important resource for resilience. With regard to vocational education in Germany, nearly 30 % of the apprentices in Germany are not completely satisfied with their apprenticeship and that one reason for dissatisfaction is the treatment by their trainer (DGB-Bundesvorstand, 2015). Another study names conflicts with superiors as one of the main reasons for apprentices to terminate their contract early (Schöngen, 2003). In addition, research on teacher resilience has pointed to the importance of supportive relationships, both inside and outside the work-context (e.g. Le Cornu, 2013) and research with construction apprentices in a phase of transition has identified supportive relationships as an important resource (Corney & du Plessis, 2010). Hence, the aim of this presentation is to investigate the role professional and non-professional relationships play for (German) apprentices' resilience as they spend time in two learning places: in school and in the workplace.

#### Methodology:

The results presented form part of a survey on apprentices' resilience conducted in January 2018. Participants were 287 German apprentices, mainly female from various fields (trade, industry and commerce, agriculture, other). Participants were asked to name their most stressful experience during their apprenticeship in an open question. Those answers were structured using qualitative content analysis (Mayring, 2014) and quantified. Additionally, participants were asked to rate the perceived

stress of this occurrence. Participants also answered Likert-scaled questions on the extent of receiving support from potentially supportive groups for problems in both learning places, namely at work and at school.

#### Results

Preliminary results show that a subgroup of participants named stressful situations, which were caused by superiors or colleagues (e.g. "no one explains anything to me" P7). Another tenth of the participants named being alone or the absence of colleagues as the most stressful situation. All these situations were rated as very to extremely stressful, whereas problems with superiors were mostly rated as extremely stressful. Regarding support as a resource to master challenging situations, overall the most important resource was the support from family and friends, for both challenges at work and at school. Data also suggest that, in the work context, colleagues are the most important source of support, and in the school context classmates are regarded as the most supportive relationship. A detailed analysis of the data will be presented at the conference.

#### Significance:

These preliminary results are in line with findings from other fields of educational research. Results show that professional relationships are two sides of the same coin: apprentices name and find problems with superiors or colleagues very or extremely stressful, but on the other hand name colleagues as the most important source of support when it comes to challenges at the work place. Further analysis needs to be done, but these findings might help to create awareness for the importance of supportive relationships for apprentices.

### **Learning Communities: what influences knowledge sharing?**

**Ellen P.W.A. Jansen<sup>1</sup>, Jasperina Brouwer<sup>2</sup>**

<sup>1</sup>University of Groningen Department of Teacher Education/ Research Division Higher Education, <sup>2</sup>University of Groningen/ Faculty of Behavioural and Social Sciences

What makes a twenty-first century student successful? Universities increasingly recognise that students need to develop graduate attributes that will equip them for professional careers (Barrie, 2007). According to Osmani, Weerakkody, and Hindi (2017), among others, communication skills and teamwork are the most valued graduate attributes, because of their potential importance in workplaces. Communication and teamwork relate inevitably to social interactions and knowledge sharing. In our study we investigate factors influencing knowledge sharing in curriculum-based Learning Communities (LCs).

#### Research questions

The criticality of social interaction and a view of knowledge sharing as a developing graduate attribute within LCs, with possible effects on student success, guide our research questions.

1) To what extent do altruism, trust, and belongingness (identification with the learning community) contribute to social interaction and general attitudes toward sharing knowledge, and how do they affect expectations of personal and community outcomes achieved through knowledge sharing?

2) To what extent does knowledge sharing with personal and community outcome expectations relate to study success in LCs?

#### Design

At a Dutch, research-intensive university, first-year psychology students were assigned to a LC at the start of the first semester and received invitations to participate in an online survey, resulting in a sample of 183 students. The end of semester online survey measured background characteristics, altruism, trust, belongingness, general attitude toward knowledge sharing (e.g. 'Sharing knowledge with fellow students is always good'), social interaction, and knowledge sharing expectations (e.g. 'Sharing my knowledge will help my group of fellow students accumulate or enrich knowledge'), based on previously validated measures that were adapted to the Dutch higher education context and LCs. The model was tested by path analysis in Mplus Version 7.2.

#### Results

Sharing knowledge for different reasons, whether personal or community oriented, does not contribute to study success directly or indirectly, but a positive general attitude toward sharing knowledge contributes to sharing knowledge for personal and community benefits. Trust appears important for developing a positive general attitude about knowledge sharing and social interactions with fellow students. Altruism, belongingness, and identification with the community contribute positively to social interactions and thus to sharing knowledge for personal reasons. The relatively strong relationships of trust with general attitudes toward knowledge sharing and, to a lesser extent, social interactions indicate that trust among LC members helps build social capital and develop knowledge-sharing attitudes, as a graduate attribute.

#### Theoretical and practical significance

The current study contributes to extant literature by shedding new light on the factors that affect expectations of knowledge sharing among first-year students in a real-world setting instead of the virtual environments described in prior research. Furthermore, this study emphasises the importance of social interaction in the development of knowledge sharing as a graduate attribute.

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### **Relationships at school: supportive and unsupportive factors for vocational school teachers' resilience**

**Viviana Sappa<sup>1</sup>, Carmela Aprea<sup>2</sup>, Elena Boldrini<sup>1</sup>**

<sup>1</sup>Swiss Federal Institute for Vocational Education and Training (SFIVET), <sup>2</sup>Faculty of Business and Economics, University of Mannheim, Germany

Ample research has shown that a positive relational climate at school is a key predictor of teachers' wellbeing and resilience. In particular, a supportive leadership style and a collaborative relationship with colleagues were found to significantly contribute to reinforce teachers' professional commitment and to reduce the risk for burning-out and attrition. With this respect there is a growing interest in better understanding how and why such relational factors interact so significantly with teachers' wellbeing

and which aspects of the relational climate at school mostly impact teachers' resilience in a positive or negative way (Collie et al., 2012). This paper aims at contributing to this debate by reporting empirical data from a Swiss study about how relationship with colleagues and school leaders are perceived by teachers to impact on their professional wellbeing. An additional contribution is related to target population involved into the study, namely vocational school teachers whose wellbeing and resilience has been rarely investigated in the scientific literature.

Data were collected by means of narratives interviews conducted with 37 vocational school teachers in the Italian-speaking part of Switzerland. In semi-structured face-to-face individual interviews, teachers were invited to recall critical professional events in terms of loss of professional wellbeing. Interviewees were asked to detail the concrete challenges identifiable in those situations and the resources they accessed. A content analysis was first used to identify all risk and protective factors that were mentioned by the participants (Krippendorff 2013). A total of 24 risk and 23 protective factors were identified. Second, those categories related to relationship with colleagues and school leaders were selected and further examined by means of a thematic analysis (Braun & Clarke, 2006) in order to better understand their perceived interaction with teachers' wellbeing. All data analyses were supported by N-vivo software.

Although only seven categories out of 47 dealt with relational issues, the amount of text grouped into those categories was very large. More specifically, 29% of the narratives reported positive or negative relationships at school impacting on teachers' wellbeing. Thematic analysis showed 12 core themes dealing with relationship at school and teachers' wellbeing, including the following: collaboration among colleagues for didactical purposes; collaboration as a duty; shared pedagogical culture; interpersonal conflicts; recognition from school leaders; transparent and coherent school leadership; school administrative issues to the detriment of interpersonal relationship; mobbing; supports in negotiating interpersonal conflicts; opportunities for sharing; enlarged leadership. Each theme will be detailed at the conference particularly in relation to the teachers' resilience process. Also, peculiarities of the vocational education setting will be outlined and implications for teacher education will be discussed.

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### **Relationships and resilience in early childhood settings**

**Susan Beltman<sup>1</sup>, Caroline F. Mansfield<sup>2</sup>, Madeleine Dobson<sup>1</sup>, Jenny Jay<sup>1</sup>**

<sup>1</sup>School of Education, Curtin University, Australia, <sup>2</sup>School of Education, Murdoch University, Australia

#### Aim

This presentation aims to examine the role of relationships for resilience in Australian early childhood settings. Relationships with colleagues, mentors, family and friends are crucial for sustaining educators' commitment and providing practical, emotional and social support (e.g. Sumsion, 2003). Limited research has focused on maintaining the commitment and wellbeing early childhood educators (Royer & Moreau, 2016). We adopt a social ecological perspective where resilience is conceptualised as:

...both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being, and their capacity individually and collectively to negotiate for these resources to be provided in culturally meaningful ways. (Resilience Research Centre, 2014)

#### Methodology

Participants were 14 educators from three Early Learning Centres (birth-4 years) with a range of roles, qualifications and experience. University ethics and employer permissions were obtained. Participants gave informed consent and were assured of anonymity. In-depth interviews included questions relating to professional resilience and various relationships e.g. colleagues, children, friends, professional networks. Two researchers conducted deductive and inductive coding (overall agreement: 91.82%).

#### Results

Relationships could sometimes represent challenges for commitment and wellbeing. Challenges included: clashing personalities ("I just can't work with them" Ed8); working with inexperienced or less qualified staff ("you've got to work and work with people who may never be at the level you'd like them to be" Ed9); and workplace politics ("... I find that the politics can often get in the way..." Ed4).

Relationships also resourced resilience. Colleagues were important for support ("... the way we work together is really good so we do support each other..." E11) and collaboration to "... bounce things off people who are very professional and who you can trust" E14). Likewise, professional networks with leaders at other centres helped in this way: "... we know that if we have an issue ... you just call them and they're really helpful" (Ed13). Professional mentors had a positive impact. Most commented on the value of personal support networks e.g. "... my extended family, I think, has been like really important for my resilience..." (Ed6) and of their relationships with the children: "The thing that keeps me going is knowing that I'm providing for these children." (Ed7).

#### Significance

Early learning settings typically have a number of adults working together in close proximity and the importance of collegiality highlighted in this study resonates with Gu and Li's (2013, p.300) suggestion that resilience is not a personal attribute but "the culmination of collective and collaborative endeavours." Educators are committed to making a difference (Sumsion, 2004), and this was evident when participants experienced positive relationships with children. The findings also point to how those working in the early childhood sector, as well as those supporting them, may enhance capacity for resilience. Collaborating with colleagues with diverse personalities, levels of experience and role descriptions is the reality in early childhood. Leaders and in-service and pre-service educators need to be prepared for this.

References available on request.

## **D03 - Symposium: The use of role-play simulations of political decision-making**

*Time:* Thursday, 13/Sep/2018: 8:30am - 10:30am · *Location:* M2160  
*Session Chair:* Dorothy Duchatelet

### **The use of role-play simulations of political decision-making: Bridging the gap between education and work.**

*Chair(s):* **Dorothy Duchatelet** (University of Antwerp, Belgium)

*Discussant(s):* **Christian Harteis** (University of Paderborn)

Simulations provide virtual environments that facilitate realistic experiential learning and, therefore, they are known for narrowing the gap between education and work. They allow participants to practice and integrate their knowledge, skills and attitudes in a safe environment that includes realistic conditions, such as environmental distractions, stress, and time pressure. They have been implemented in various learning contexts to improve both the effectiveness and drawing power of formal learning programs. Role-play simulations of political decision-making are a specific type of simulations that refer to imitations of real-life decision-making settings (e.g. the UN Security Council, or a national parliament) in which participants play the role of political actors (e.g. ministers, diplomats, civil servants) and try to bring a particular issue (e.g. a piece of legislation) to a conclusion. These simulations come in various forms: sizes from 12 to up to 300 participants; durations from 1 class hour to up to several days; organized for students or professionals; either course-embedded (credit-bearing), extracurricular (non credit-bearing) or hybrid (mixed). Inherently to their design, these simulation-based learning environments are closely related to the workplace, often including a formal program (committee meetings) and informal program (coffee breaks, lunches) during which negotiations are on-going. They offer participants a first-hand experience of political and diplomatic practice, which includes several domain specific and generic skills. The claim has previously been made that simulations prepare for working life. However, there is still a need for more educational expertise to better understand which learning outcomes are being fostered in what way, and how exactly these are being transferred to the workplace context. This symposium probes into the first knowledge gap by presenting four contributions that investigate various role-play simulations of decision-making and their outcomes. It contributes to the field by introducing these specific learning contexts that, to date, mostly have been approached from an educational point of view but that might benefit from more workplace learning expertise in the future.

This symposium includes four contributions that provide a representative overview of current research in this field, using various simulation contexts. The first contribution (75 participants, two days, course-embedded) probes into the use of role-plays simulations of political decision-making and knowledge outcomes. The second contribution (24 participants, 1 class, course-embedded) investigates outcomes of citizenship. The third contribution (80 participants, several days, extracurricular) includes outcomes of self-efficacy and interest. The last contribution (180 participants, several days, hybrid) focuses on outcomes of self-efficacy.

#### *Presentations of the Symposium*

### **How do participants learn through policy simulation-games? Effects of simulation based learning**

**Robert Lohmann**  
Universität Passau

The proposed paper intends to present and discuss the method and results of a panel survey on the longterm effects of learning through policy simulation-games. The use of methods of active learning in general and simulation-games in particular is increasing constantly. However, a comprehensive debate on the sustainability of knowledge acquisition through simulations - and thus the success of this instrument - is still lacking. A study at a German university attempts to address this desideratum.

Within a lecture in Political Science, a policy simulation covers all content related to the European Union. Before taking part in the simulation, participants have been confronted with an online questionnaire including test and self-assessment questions. After the simulation, this has been repeated twice, two weeks after the simulation as well as one year later. To compare the effects of the simulation and the rest of the lecture, questions about both parts are included.

The responses on the questionnaire have been analysed with repeated measurements analyses of variances (rmANOVA), as well as normal analyses of variances, for the first and second round of questioning the participants. By doing so, a comparison of the responses on the questions related to the simulation could be analysed with the response to the other parts of the lecture within a quasi-experimental casedesign.

First results are astonishing. Participants learn much more by participating in the simulation than in the lecture. Moreover, they can remember the contents much better over a longer period. Nevertheless, these findings are only valid for the active parts within the simulation, not the passive parts like preparing for the game by given materials. Furthermore, deeper insights into how learning outcomes are being fostered are needed. For example, the participation in the simulation could not activate participants to engage more in political matters, like informing themselves about politics.

These and more questions will be addressed and discussed in the proposed paper, besides the presentation of profound findings and of the methods used for getting insights into short- as well as long-term effects.

### **Simulation games as a tool for teaching about the European Union – results of an intervention study**

**Monika Oberle, Sven Ivens, Johanna Leunig**  
Georg-August-Universität Göttingen

For promoting students' political competence, high expectations are placed on active and constructive learning tools such as political simulation games. Their anticipated advantages are of particular relevance with regard to problems identified for teaching about the European Union (EU) at school, such as perceived hyper-complexity, perceived distance from everyday life and lack of interest. Although simulation games today seem to be quite a well-known, internationally practiced method of teaching politics at school as well as at university level, there is a profound lack of systematically won empirical evidence regarding its effects and preconditions.

The empirical study presented here addresses this research deficit: It analyzes the effects of simulation games taking into account both the "subjective" evaluation of the games by participants as well as the "objective" effects of the simulation games on students' EU-related political knowledge, motivations and attitudes measured in a pre-post design (intervention group N=308). Furthermore, the study analyses the relevance of several predictors for the subjective evaluation and objective effects of the game, such as gender and cultural capital as well as participants' political interest and pre-knowledge. The study focuses on German secondary school pupils and relatively short games well usable in everyday teaching practice, simulating a decision of the European Parliament in three different policy areas (asylum policy, data protection, CO2 emissions of passenger cars). The written questionnaires contained closed (mainly item batteries with four-point Likert scales; for EU knowledge: 24 multiple-choice items with four distractors), semi-open and open questions. Measurement models, structural equations and class analyses were calculated using SPSS, ConQuest and Mplus.

Students' overall satisfaction with the simulation game is high and largely independent of socio-demographic background variables, with the exception that girls rate it more positively. Students express a clear increase in their understanding of political procedures and the way the EU functions. They state that gaining insight into how difficult it is to arrive at common decisions and compromises made a profound impression and express a positive effect of the game on their perception of the EU's relevance for everyday life.

These subjective effects are confirmed by pre-post mean value comparisons of students' political dispositions. After participating in the simulation games, pupils demonstrate greater knowledge about the EU (Cohen's  $d=.42$ ), higher political self-efficacy (Cohen's  $d=.56/.26$ ) and more positive EU attitudes, with changes in the perception of the EU's relevance to everyday life (Cohen's  $d=.26$ ) and the EU's responsiveness (Cohen's  $d=.42$ ) in particular. Perceptions of responsiveness change mainly in pupils who had a low prior opinion; in these cases, the change is extraordinarily pronounced (Cohen's  $d=1.34$ ).

While pupils with lower political pre-interest give the simulation game a less enthusiastic rating than their politically more interested peers, their evaluation is still positive overall. Moreover, the group of politically very uninterested students demonstrates the largest changes in political dispositions, such as EU knowledge, political self-efficacy, interest in EU and willingness to participate in politics.

### **The development of self-efficacy and situational interest during a simulation of decision-making**

**Pieter Spooren, Dorothy Duchatelet**

University of Antwerp

Simulations of political decision-making have been used for quite some time. Moreover, over the past years, research on their effects has also increased. Moreover, over the past years, research on their effects has also increased. However, it seems current research struggles to illuminate significant learning outcomes. This study aims to explore the development of affective learning outcomes during the simulation process. More specifically, the development of self-efficacy and situational interest for negotiating is explored. The dynamic aspect of self-efficacy as well as situational interest makes it interesting to combine both in order to capture the development of specific affective learning outcomes during a simulation process. Data from 84 undergraduate and graduate participants was collected during a four-day Model United Nations-simulation. Self-efficacy and situational interest, both for negotiating, were collected across 12 points in time. Data were analysed by means of applied longitudinal analysis via the SAS PROC MIXED procedure. After controlling for a number of background variables, results showed a statistically significant upward linear trend for self-efficacy and a statistically significant U-curved trend for situational interest. Initial findings were controlled for a number of background variables such as, individual interest for international politics, autonomous motivation for their field of study, gender, previous simulation experience and social cohesiveness. After controlling for these variables, the effect for time on self-efficacy remained significant. Moreover, gender had a significant effect, indicating that male participants scored higher on self-efficacy. This was also the case for participants who had more personal interest in international politics and for participants who reported higher social cohesiveness. Also, after controlling for background variables, the effect for time on situational interest remained significant. Situational interest shows initially a clear downward trend, which increases again towards the end of the simulation. More autonomous motivation for the field of study and more personal interest in international politics is positively related to situational interest. Having attended more MUN-simulations is negatively related to situational interest. Overall, affective learning outcomes clearly develop during the simulation process. Results suggest that participant's beliefs in his/her own skills for negotiating increase during the simulations experience and that his/her interest in the negotiating varies between the different measurement moments. Also, both, self-efficacy and situational interest are related to specific participant characteristics. In conclusion, results serve further theory building on the effects of simulations of decision-making in general and confirm participants benefit from simulations.

### **How participants develop their self-efficacy for negotiating: understanding the dynamics within simulation environments.**

**Dorothy Duchatelet, Vincent Donche, Peter Bursens, Pieter Spooren, David Gijbels**

University of Antwerp

Current research struggles to illuminate significant learning outcomes of role-play simulations of decision-making. This is particularly the case for more complex simulation environments such as Model European Union or Model United Nations. Previous research has shown that self-efficacy for negotiating is an important learning outcome that seems to increase over time within one simulation experience. However, results also show important individual variations in the development of self-efficacy for negotiating. Both contextual aspects (e.g. feedback) and individual characteristics (e.g. prior success) are known for influencing the development of self-efficacy. It is however unclear to what extent these or other aspects relate to stimulating or inhibiting conditions within a simulation environment that aims for fostering self-efficacy for negotiating. To increase our understanding of the simulation process, this paper presents a case study conducted during a four-day model European Union simulation, focusing on the conceptual development of negotiating and on self-efficacy for negotiating as learning outcomes. Using a single holistic longitudinal case study design, four respondents of the same university participated in this study. Data were triangulated using both in-depth interviews on four time-points (1pre-, 3 postinterviews) and reflection reports. The following questions were posed. How did participants experience the simulation environment? How are these experiences related to changes in their self-efficacy for negotiating? How are these experiences related to their conceptual development of 'good' negotiating? Results show variation in learning outcomes among participants both for self-efficacy for negotiating and for how they conceptualise 'good' negotiating. A cross-case analysis shows the importance of the relational component, how other simulation participants may or may not contribute to the development of self-efficacy for negotiating by creating conditions that

foster negotiation skills and/or by performing in a particular way e.g. to what extent is their performance related to reality, if and how is feedback provided. Conceptual development of negotiating varies across respondents and time points being largely influenced by specific simulation events.

## **D04 - Symposium: Workplace difficulties in teachers' professional conversations**

*Time:* Thursday, 13/Sep/2018: 8:30am - 10:30am · *Location:* M2170

*Session Chair:* Kristine Balslev

*Session Chair:* Soraya De Simone

### **Les obstacles dans les discours professionnels - Workplace difficulties in teachers' professional conversations -**

*Chair(s):* **Kristine Balslev** (Université de Genève, Switzerland), **Soraya de Simone** (HEP-VD)

*Discussant(s):* **Anne Clerc-Georgy** (HEP-VD)

Professional conversations are considered as a powerful site for supporting the construction of professional knowledge and the co-construction of meanings about practices (Orland-Barak, 2006). We consider these conversations as moments where teachers or prospective teachers articulate two worlds: the academic one and the professional one. In these conversations where prospective teachers or teachers speak together or with educators or researchers about workplace experiences, they often talk about difficulties. Discussing workplace difficulties means using specific words and explanations deriving from more or less formal knowledge. It involves positioning oneself regarding difficulties and adopting different attitudes towards them, for example to undergo or to have a control on them. When teachers or prospective teachers talk about workplace difficulties they also often mention ways to deal with them: either by telling how they have or how they shall overcome them in the future. Their conversation partners (other teachers, researchers or supervisors) ask questions, reformulate, validate, invalidate or give advice.

We will focus on how conversation partners discuss problems encountered in the workplace. We are particularly interested in the words or concepts used to describe the issue, the way interlocutors position themselves within their speech and regarding the problem, and finally the resources and knowledge used to solve the problems. We are aware that not all professional conversations foster professional development, therefore our aim is to put in light and to discuss the features that either show or foster professional development within (prospective) teachers.

In this symposium, we will be interested in conversations amongst professionals taking place in different contexts: in initial and continuous training, or in the context of researches on professional practices. The most important is that the conversations deal with work experiences (coming from a professional practice or from internships) and that they give access to the construction of professional knowledge, as defined by Vanhulle (2009): foundation knowledge for teaching activity, involving the integration of different types of reference knowledge and linked to professional experience.

The following questions frame the presentations:

- What resources are used to describe work problems?
- How do speakers position themselves when talking about their work issues?
- Which indicators show the articulation between "theory and practice"?
- What discursive indicators show the presence of professional knowledge or the construction of professional knowledge?
- What knowledge is mobilized in order to describe and solve work problems?
- How can the results be used to install or improve teacher education settings?

The presentations of this symposium will be in english and french.

#### **References**

Orland-Barak, L. (2006). Convergent, divergent and parallel dialogues: knowledge construction in professional conversations. *Teachers and Teaching: Theory and Practice*, 12(1), 13-31.

Vanhulle, S. (2009). Un "genre réflexif" pour travailler avec des savoirs hétérogènes. In R. Etienne, M. Altet, C. Lessard, L. Paquay, & P. Perrenoud (Eds.), *L'Université peut-elle vraiment former des enseignants?* (pp. 201-213). Bruxelles: de Boeck.

#### *Presentations of the Symposium*

### **[CANCELLED] L'articulation entre les discours théoriques et pratiques dans les conversations professionnelles : le cas des obstacles liés à la gestion de groupe en classe de langue étrangère**

**Laura Nicolas**

Université Paris Est Créteil

Professional conversations are considered as one of the most efficient way for teachers to develop their ability to reflect on their own professional practice (Bigot & Cadet, 2011; Vanhulle, 2009) and are subsequently regarded, in the field of teachers' training, as a potentially formative moment (Laurens, 2015; Aguilar & Cicurel, 2014). If results tend to show the efficiency of professional conversations on teachers' practices, researchers still need to delve into those discourses to identify the key articulations between theoretical (i.e.: definition and norms of the task) and practical (i.e.: facts, events, experiences, procedural information) discourses.

Using the methodological model which has been developed by Bulea & Bronckart (2012) and which makes it possible to describe speeches in terms of theoretical and practical implication of the agents ("figures of action"), we will focus on the words that teachers use during research interviews to refer to a specific dimension of teaching practice: group management. Indeed, teachers often insist on the difficulty to deal at the same time with students' individual needs and with what they identify to be the needs of the group "as a whole" (Dörnyei & Ehrman, 1998). We then propose to observe both the event "group management" as it is described and analyzed by teachers and the actions teachers say they undertake to deal with it. Among other findings, we will emphasize the following points:

- Theoretical discourses emerge mostly when teachers are asked to define their usual practice (which underlines the dialogic characteristics of professional conversations); on those occasions, speech turns management in class is described as a non-problematic, transversal and inevitable aspect of their daily work.

- When asked to reflect on situated conversational events, teachers most frequently use practical knowledge based on their previous experience ("usually I tend to do this or that") and to position themselves as moderators and solution finders;
  - When they feel that their choices of actions resulted in some kind of failure, teachers tend to define class management as a dilemma and to express:
    - o regrets not to have reacted in a "proper" way, i.e. with an action which is coherent with pedagogical theory ("I should have done + action + because theory");
    - o research of practical solutions for future practice ("next time, I will do + action + because theory");
- From this analysis, we can say that the articulation between theory and practice in professional conversations seem to emerge:
- mostly as a causal link,
  - mainly when something in the class did not go "as planned".

## **Interactions au travail et développement professionnel : comment les tuteurs et les stagiaires traitent les difficultés pendant les entretiens**

**Soraya de Simone**  
HEP-VD

Dans les entretiens entre tuteurs et stagiaires, il existe souvent une distinction entre les savoirs théoriques et ceux issus de la pratique. Ainsi, pour éviter ce clivage, les dispositifs de stage devraient promouvoir le lien entre théorie et pratique en articulant les savoir « pour » enseigner et ceux « à » enseigner (Chaliès & al., 2009 ; Vanhulle, 2009 ; Balslev, 2016). Sachant que les entretiens entre tuteurs et stagiaires sont des lieux privilégiés où la construction de savoirs professionnels sont discutés (Orland-Barak, 2006), cette recherche identifie les éléments contenus dans ces échanges discursifs. Ainsi, nous avons étudié les savoirs mobilisés par les tuteurs avec les étudiants-stagiaires, ainsi que la manière dont ils expriment leurs difficultés. Les données de cette communication représentent 6 entretiens entre deux tuteurs et leur stagiaire de 3ème année bachelor. Chaque tuteur a mené 3 entretiens à des temps différents du dernier semestre de formation des stagiaires. Ces échanges ont été transcrits et analysés à l'aide d'une grille réalisée à partir de la littérature traitant du travail de tuteurs (Ronveaux et Vanhulle, 2007; Hennisen & al, 2008 ; Mehran, Chaliès & al, 2009; Vanhulle, 2009 ; Balslev, 2016). Pour la présente recherche, la grille s'appuie sur une classification des types de savoirs (Vanhulle, 2009, 2013, 2015) ainsi que sur les processus de pensées traduits dans le discours des protagonistes (Anderson & Krathwohl, 2001; Efklidès, 2008). Notre but est de mettre en lumière les éléments mobilisés par les tuteurs, ainsi que de pointer, le cas échéant, leurs difficultés lorsqu'ils guident les étudiants.

L'idée est aussi de comparer la présence ou l'absence d'évolution entre les différents entretiens menés en début et en fin de semestre. L'analyse des entretiens fait émerger la manière dont les tuteurs décrivent le travail enseignant, et met également en lumière les indicateurs utilisés par les protagonistes pour identifier les savoirs mobilisés au fil du temps. Ce travail d'analyse permet de proposer des pistes d'ouverture quant aux formations continues des tuteurs. Ainsi, les questions sont les suivantes : Sur quels éléments les tuteurs focalisent l'attention des stagiaires durant leurs entretiens ? Quels types de savoir sont mobilisés dans ces échanges, notamment pour décrire les difficultés durant ces entretiens ?

## **Le temps: un obstacle majeur dans les situations de travail**

**Kristine Balslev, Alessandro Chidichimo**  
Université de Genève

According to Hartmut Rosa (2014), modern life is in a mode of constant acceleration. In most domains things are going faster due to technology. Nevertheless, modern humans do not benefit but rather suffer from this acceleration. In the field of teacher education, especially in triadic mentoring conversations dealing with internship experiences, time is a recurrent topic; at least in those we have filmed for the purpose of a research on the construction of professional knowledge. Chronological time is a constraint that teachers undergo as well as an element that they learn to master. In this communication we study words employed to talk about time in mentoring conversations and resources used to overcome problems linked with time. We performed a first lexicometric analysis of 54 mentoring conversations in the field of initial teacher education and found that this topic was present in all but one mentoring conversation. We then investigated if prospective teachers considered time as a difficulty. In order to answer that question we identified other words linked to "time". Our results show seven ways of considering time: as a limited resource; as a surplus; as related to desynchronicity (for example when pupils do not progress at the same pace); as a manner to categorize moments and activities; as an adversary; as an ally; as a controllable element. Thus, while time is often related to difficulties, it is not always the case. We then analyzed in detail two triadic mentoring conversations concerning two prospective teachers. We chose typical examples of such conversations in which prospective teachers encounter a problem shared by others (how to deal with heterogeneity in the classroom?). In this communication we will analyze words and expressions used to talk about time, resources used to solve problems linked with time. The results show that prospective students use theoretical definitions, practical and technical solutions to overcome problems linked with time and use different types of positioning (Rabatel, 2012) regarding workplace difficulties related to time: I-who-acts; I-who-thinks, I-who-learns. In conclusion, we note that time occupies an important place in prospective teachers' concerns; and that two main topics are related to time: planning and differentiation. In addition we found that the question of time raises different tensions that prospective teacher encounter: undergo time vs master time; undergo decisions taken by others vs. need to master decisions; take responsibilities vs feeling guilty; respect each child's rhythm vs respect the rhythm of the program. We will finally discuss in what respect the fact of talking about these workplace difficulties fosters professional development.

## **Outils partagés pour améliorer des conversations professionnelles dans le cadre des stages en formation**

**Maria-Teresa Fuertes, M. Carmen Balaguer**  
Universitat Internacional de Catalunya

Les conversations professionnelles doivent devenir un système dynamique qui rend possible le lien de la communauté universitaire avec l'environnement qui représente la communauté éducative. Bien que l'alternance en formation soit un dispositif qui permette l'élaboration de savoirs professionnels qui émergent dans les relations entre enseignants en formation, tuteurs et superviseurs universitaires (Balslev, Tominska, & Vanhulle, 2011), l'efficacité de l'articulation académique et

professionnelle passe par une prédisposition préalable de tous les agents impliqués au dialogue des situations vécues dans le cadre des stages.

Nous avons interrogé 50 tuteurs (universitaires et du terrain) pour connaître les obstacles qui empêchent le déroulement de leur tâche. La majorité nous a indiqué que la motivation et la reconnaissance sont toujours indispensables, mais ils ont souligné des difficultés au niveau de temps et de ressources pour faire émerger les compétences des enseignants en formation et connecter la connaissance théorique et l'articulation de la pratique (Cazden, 20019).

À partir de ces données nous avons initié un cours académique dans la formation des enseignants en alternance à l'Université International de Catalogne. Dans cette recherche nous avons voulu démontrer que l'alternance, pour devenir un processus actif dans la construction de savoirs qui découlent souvent de la pratique des stages, doit être accompagnée de dispositifs partagés. Pour assurer cette finalité nous avons utilisé une méthodologie expérimentale ayant comme buts spécifiques : 1. Mettre en place un travail interactionnel entre les enseignants en formation, leurs tuteurs et leurs enseignants-chercheurs à travers la narration des difficultés et de problématiques vécues dans les situations pratiques. 2. Utiliser une stratégie de réflexion (Schön, 1992).

Les premiers résultats obtenus d'un premier groupe de stages montrent des difficultés procédurales et de dialogue pour développer les conversations professionnelles entre tuteurs, enseignants et enseignants en formation. Au même temps, les enseignants chercheurs ont eu des difficultés pour trouver le temps et la façon d'inclure la réflexion dans ses programmations de matières. La contribution qu'on présente dans ce processus de recherche-action pour résoudre ces obstacles a été la formation à et pour l'utilisation de deux outils de support partagés: un registre des difficultés à travers de l'observation systématique et un dispositif d'analyse systématique et de questionnement qui nous permet le retour sur l'action (Lefebvre, 2015).

Les conclusions de l'utilisation de ces deux outils avec un second groupe d'enseignants en formation stagiaires montrent une systématisation du temps de réflexion dans les programmations de matières et un meilleur déroulement des conversations professionnelles parmi les mêmes interlocuteurs. La suite des modèles d'interaction à travers ces outils promeut une verbalisation et un raisonnement qui entraîne à mobiliser ce qui est appris en formation à l'université ancré dans des modèles théoriques (Vanhulle, 2011) et qui rend possible la «prise de conscience» des faits qui sont habituellement exécutés automatiquement (Bruner, 1997).

## D05 - Paper session Fr: Tutorat et apprentissages en situation de travail

Time: Thursday, 13/Sep/2018: 8:30am - 10:30am · Location: M1130

Session Chair: Marine Pelé-Peycelon

### Le dispositif d'apprentissage en situation de travail (AST), des interactions aux effets différents ?

**Sandra Enlart, Frédérique Gérard**

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Les pratiques de formation en entreprises sont en pleine évolution. La formation a été pendant des décennies totalement assimilée à l'idée de stages, modules, cours dans des centres dédiés – qu'ils s'appellent campus, universités d'entreprises ou centres de formation internes. L'utilisation de plus en plus fréquente du e-learning, de MOOC ou de serious game a introduit un changement dans la manière d'organiser les dispositifs mais assez peu dans les modèles pédagogiques sous-jacents. En revanche, une vraie rupture commence à émerger du fait de dispositif d'apprentissage en situation de travail (AST) qui déplace l'objet, le lieu et les acteurs de la formation. C'est pour répondre à la question du rapprochement des situations pédagogiques et des contextes de travail que ces dispositifs d'AST ont vu le jour. En effet, ayant pris conscience que l'objectif des entreprises n'était pas de former mais bien de développer les compétences de leurs collaborateurs, les responsables formation ont cherché des dispositifs les plus proches possibles de la mise en œuvre des compétences.

Dans cet article, notre objectif est de partager le rôle des interactions qui se produisent dans le cadre de ces dispositifs AST, ce qui les caractérisent, ce qu'elles produisent et ce qu'elles ne produisent pas en termes de processus d'apprentissage. Nous retenons ici en particulier deux types d'interactions :

- l'observation, c'est-à-dire le moment où l'apprenant travaille sous le regard d'un tiers appelé « compagnon »,
- et le débrief entre l'apprenant et le compagnon, une fois l'activité de l'apprenant achevée.

Notre intention est de comparer l'impact de ces deux types d'interaction sur les processus d'apprentissage, l'une étant à dominante non verbale et l'autre à dominante verbale.

Pour cela, nous nous appuyons sur une monographie de trois accompagnements AST réalisée dans le cadre d'une thèse menée au sein d'une grande entreprise française qui a développé une politique d'AST sur une grande échelle. Les données recueillies via des observations et des entretiens semi-directifs ont été analysées à l'aune des travaux de Billett (2001, 2004, 2010) et de Pastré (1999, 2005, 2011).

A l'issue de notre analyse, nous pouvons conclure que pour les trois accompagnements AST observés, les résultats mettent en évidence un impact de nature différente des deux types d'interaction. D'un côté, l'observation du compagnon influence davantage la trajectoire sociale de l'apprenant au sens de Billett. D'un autre côté, les débriefs relèvent davantage de transformations du modèle opératif au sens de Pastré. Cette étude tend à montrer que, si les processus cognitifs et sociaux sont intrinsèquement liés, tout ne se joue pas en même temps. Elle confirme également l'intérêt d'avoir un cadre théorique qui intègre deux approches différentes. Cela permet d'analyser des types d'interactions distinctes au sein du dispositif AST.

### Interactions tutorales en situation dynamique

**Christèle Billing**

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L'étude que nous présentons explore les pratiques tutorales des infirmiers anesthésistes. En France, les IADE (Infirmiers Anesthésistes Diplômés d'Etat) sont des infirmiers spécialisés travaillant au bloc opératoire en collaboration avec des médecins anesthésistes. Les élèves IADE ont une expérience d'au moins deux ans en temps qu'infirmier avant de pouvoir intégrer la formation.

L'objectif de l'étude est l'apprentissage de la pose d'un diagnostic de stabilité de l'anesthésie (narcose, curarisation et analgésie). Pour cela, dans un premier temps nous avons étudié le travail de l'infirmier anesthésiste en nous basant sur les travaux de Pierre Pastré. Nous faisons référence au schéma « Structure conceptuelle d'une situation professionnelle (Rabardel & Pastré, 2005, p. 76). La particularité de notre travail est qu'il s'exerce dans un milieu fermé (le bloc opératoire). De plus, l'anesthésie est d'après Xiao une situation dynamique « surtout dans les conditions particulières générées par l'anesthésie et la chirurgie ». (Thuilliez, 2005, p. 227).

Nous avons réalisé huit vidéos d'infirmiers anesthésistes en situation de travail afin d'obtenir des traces de l'activité. Nous avons suivi sept professionnels et cinq élèves. Trois élèves ont été tutoré par deux professionnels différents et les deux derniers par le même infirmier anesthésiste.

Nous avons mis en évidence trois modes d'interaction qui varient en fonction du stade d'apprentissage de l'élève : les modes répéteur, directif et autonome.

Le mode répéteur s'observe quand l'élève débute. Le professionnel fait « réciter » les données abordées en cours. Les deux autres modes (autonome ou directif), s'appliquent aux élèves plus avancés. Les tuteurs apprennent alors à l'élève à poser un diagnostic de situation. Afin d'atteindre ce but, ils signalent (directif) ou laisse chercher (autonome) aux élèves des indicateurs de profondeur de l'anesthésie. Ceux-ci peuvent être scientifiques ou pragmatiques. Nous avons donc défini un modèle opératif de transmissions qui peut être, en fonction du choix de la nature des indicateurs : pragmatisé ou scientifique. Ceci dépend du modèle opératif du professionnel.

La nature des indicateurs et le mode tutorial choisis par les sept infirmiers anesthésistes ayant participé à l'étude n'ont pas varié en fonction de l'élève qu'ils tutoraient.

Dans un deuxième temps lorsque l'élève a atteint un niveau d'apprentissage suffisant. Les tuteurs abordent la pose du diagnostic différentiel. Ceci est le cas lorsque plusieurs diagnostics sont possibles. Il faut alors poser le bon diagnostic afin d'adapter le traitement.

Cette activité en bloc opératoire n'avait à notre connaissance pas encore été explorée. Cette étude permettra de construire à brève échéance des formations au tutorat adaptées aux professionnels de santé.

## Bibliographie

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- Thuilliez, H. (2005). Rôle de l'opérateur et du statut fonctionnel des informations lors de la prise d'informations en anesthésie. Le travail humain, Vol. 68(3), 225-252. <https://doi.org/10.3917/th.683.0225>

## Apprendre au travail en début de vie active

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### Objet

Les jeunes actifs, âgés de moins de 30 ans, entrés depuis peu sur le marché du travail, déclarent plus souvent que leurs aînés, avoir acquis récemment de nouvelles compétences : 68 % contre 45 %, d'après les données du dispositif d'enquêtes DEFIS (voir ci-dessous). Moins on en sait, plus le potentiel de découvertes est important. Pour autant, tous les jeunes ne sont pas logés à la même enseigne en matière d'apprentissages.

Quel que soit l'âge, l'acquisition de nouvelles compétences résulte de la combinaison de formations organisées et d'apprentissages informels. Les premières sont aisément identifiables. Les seconds échappent à la quantification mais il est possible de discerner les facteurs qui les favorisent. Pour repérer les conditions propices aux apprentissages informels dans le travail, un nouvel outil d'analyse est proposé, la « dynamique de travail », qui conjugue le contexte organisationnel et managérial de l'entreprise et l'activité de travail du salarié ; la « dynamique de travail » est plus ou moins favorable aux apprentissages. Une typologie de ces « dynamiques » est élaborée à partir du dispositif statistique DEFIS.

Les témoignages des jeunes interviewés font écho aux conclusions de l'investigation statistique. Tous mettent en avant l'importance des apprentissages informels réalisés au travail.

Méthodes et sources : nos investigations s'appuient sur l'exploitation de deux sources d'informations.

- Un dispositif statistique : un dispositif d'enquêtes novateur, initié par le Céreq, intitulé DEFIS (Dispositif d'enquêtes sur les formations et les itinéraires des salariés) tente d'élargir l'appréhension des apprentissages en recueillant des données sur les conditions qui favorisent – ou pas – le développement des compétences, au-delà de la seule formation organisée. Ce dispositif présente l'avantage d'interroger d'une part les salariés, d'autre part leurs employeurs et permet ainsi d'articuler les déclarations formulées par l'une et l'autre partie.

- Une série d'entretiens : une série d'entretiens, non représentative, visant plutôt à faire émerger de nouvelles hypothèses ou à illustrer les constats mis en lumière, a été réalisée afin de compléter la source statistique mobilisée. Onze jeunes ont relaté le début de leur vie active, en pointant les façons dont ils ont appris depuis leur sortie du système scolaire et comment ces apprentissages complètent les compétences acquises en formation initiale. Deux employeurs ont également été interviewés afin d'éclairer les politiques d'entreprise relatives au développement des compétences des jeunes.

Intérêt : ce travail cherche à mettre en lumière les modalités d'accès des jeunes actifs à de nouvelles compétences, au-delà des formations organisées recensées traditionnellement par les enquêtes statistiques. La mise en perspective des informations livrées par les salariés et leurs employeurs, issues du dispositif statistique DEFIS, et les récits des interviewés pointant les façons dont ils ont appris depuis la sortie du système scolaire, permet de souligner quelques traits de cette « partie immergée de l'iceberg » que sont les apprentissages informels.

### Références :

Fournier C., Lambert M. et Marion-Vernoux I. (2017), "Apprentissages informels et dynamique de travail", Sociologies pratiques, n°35, octobre

Fournier C., Lambert M. et Marion-Vernoux I. (2017), "Le travail au coeur des apprentissages en entreprise", Céreq-Bref n°353

## Configurations et affordances : impacts du collectif sur le parcours des tuteurs débutants

**Marine Pelé-Peycelon**

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Si depuis quelques années, la littérature scientifique s'intéresse de plus en plus à ce qui s'apprend au travail et au rôle du tuteur dans les cursus en alternance (Billett, 2011; Boru, 1996; Filliettaz, 2011; Fuller & Unwin, 2004; Kunegel, 2011; Mayen, 2000; Savoyant, 1995; Vadcard, 2013; Veillard, 2012) elle ne dit rien de la façon dont ces tuteurs, qui ont en charge un jeune à former apprennent à jouer ce rôle. En France, les tuteurs sont peu formés et les formations qui leurs sont proposées sont souvent de courte durée (une journée). De même les prescriptions institutionnelles restent relativement floues, mentionnant peu le tuteur. Nous formons alors l'hypothèse que la fonction de tuteur s'apprend très largement sur le tas. La question que nous formulons ainsi est de comprendre les pratiques formatives des tuteurs débutants et notamment, comment les interactions et les relations que le tuteur débutant va avoir avec d'autres acteurs (du monde scolaire ou professionnel) vont l'aider à construire sa pratique.

Dans ce but, nous avons mené une enquête d'inspiration ethnographique sur une durée d'un an. Nous avons suivi quatre duos tuteur-apprenti. Nous avons constitué un corpus à partir d'observations ethnographiques et de notes de terrain, mais également de captations audio et vidéo, ainsi que des entretiens avec les différents acteurs.

Nous mobilisons principalement deux concepts théoriques pour mener nos analyses afin de comprendre la façon dont les interactions et les relations peuvent être saisies par les acteurs afin de construire leur pratique. La notion de configuration, empruntée au sociologue Norbert Elias (1981) est définie comme les réseaux d'interdépendances dans lesquels sont engagés les acteurs et qui vont impacter leurs propres actions. Nous empruntons également la notion d'affordance à Stephen Billett (2011) définie comme des opportunités de participation et d'apprentissage offertes aux individus lors des activités et interactions professionnelles.

Grace à des analyses croisées, portant d'une part sur des interactions locales et brèves, et d'autre part sur des relations qui se mettent en place dans le temps long, nous mettons en avant que là où l'on a l'habitude de penser un duo tuteur-apprenti, il y a en réalité un réseau d'acteurs aux profils, objectifs et caractéristiques variés qui se crée dans le but d'accompagner l'apprenti. C'est ce que nous nommons la configuration tutorale. Cette configuration tutorale varie selon les contextes, mais peut-être constituée, outre l'apprenti et son tuteur, par des acteurs de la place de travail (hiérarchie, collègues, etc.), des acteurs de l'école (tuteurs-école, enseignants) ou encore des acteurs de la sphère familiale, amicale, etc. Chaque acteur de cette configuration a ses enjeux propres qui vont contribuer à orienter la mise en place de la configuration et son évolution dans le temps. Nos analyses montrent que cette évolution peut favoriser l'appropriation par le tuteur de son rôle. Ainsi, les différents acteurs de cette configuration peuvent avoir pour enjeu d'accompagner le tuteur lui-même. Nos analyses nous renseignent sur la façon dont sont créées ces affordances et dont elles sont saisies par le tuteur qui les rend pertinentes pour sa pratique.

## D06 - Paper session: Language teaching and learning

Time: Thursday, 13/Sep/2018: 8:30am - 10:30am · Location: M1140

Session Chair: Maria Pannatier

**The contribution has been withdrawn.**

### **Physician-patient communication: an integrated multimodal approach for teaching medical English**

**Daniele Franceschi**

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### **Epistemics and Embodied Action in the Organization of Professional Development for English Medium Instruction**

**Joan Catherine Ploettner**

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The introduction of English Medium Instruction (EMI) at university in Spain and elsewhere in Europe is limited by a lack of teaching staff prepared to teach in English. The need to prepare personnel to teach subject matter in English has resulted in an increasing number of professional development programs for EMI. Yet a lack of research exists as to how EMI teacher development is negotiated by the participants and how the development of expertise is encouraged or hindered in interaction.

This multimodal workplace study analyses how talk, bodily conduct and material artefacts interact in the context of professional development for English Medium Instruction (EMITD) in an informal institutional interactive context (Drew and Heritage, 1992).

Video-based conversation analysis (Heath and Luff, 2011) provides a framework for the study of professional learning and development (Goodwin, 1984; Streeck, Goodwin and LeBaron, 2011). A case study presents a teacher training process which involved collaboration between one English language teaching specialist (LTS) and one content specialist (CS) to prepare the content specialist to teach in English. The EMITD session activities included: negotiation of the objectives and activities; EMI lesson planning; EMI classroom teaching and collective viewing of video recordings of EMI teaching. The data set included video recordings, documents, and ethnographic field notes collected longitudinally over 10 sessions of the EMITD partnership. Epistemics (Drew, 2018; Heritage, 2013) frames analysis of members' methods for attributions of and claims to epistemic access, epistemic entitlement and responsibility (Stivers, Mondada and Steensig, 2011). Comparative analysis of data selected from 3 different points in the EMITD process looks at epistemic stance/authority with respect to the EMITD process itself and 2) epistemic stance/authority with respect to the domain of EMI.

Analysis reveals how talk, bodily conduct and material artefacts participate in the attribution of and claims to epistemic authority regarding EMI. Comparison of data sheds light on the process of EMI teacher development and its effects on CS epistemic stance with respect to both the domain of EMI and the EMITD process itself.

Interactional analysis from a multimodal perspective provides a unique contribution to understanding of the development of expertise in the teacher training process, particularly with respect to the mediating role of material artefacts.

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Heath, C., & Luff, P. (2013). Embodied action and organizational activity. In Sidnell & Stivers (Eds) *The handbook of conversation analysis* (pp. 284-307). Oxford: Blackwell.

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### **Growth in social inclusion and reading skills through literacy programs for adults**

**Evangelia Ipektzidou<sup>1</sup>, Maurice De Greef<sup>2</sup>, Simon Beausaert<sup>1</sup>, Mien Segers<sup>1</sup>**

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Social inclusion is a core topic on the European social policy agendas. Prior research has been indicating that adults with poor reading and writing skills are threatened by marginalization from society (European Commission, 2000; OECD, 2013; Sparkes 1999). Therefore, adult education programs have been used as means against this marginalization through the enhancement of participants' literacy levels. Justification of the effectiveness of these programs is a constant challenge for policy makers while research in this direction is still scarce.

The study presented here aims to shed light on the increase of participants' social inclusion and reading skills after participation in adult education programs. More specifically, the focus is on the extent of the change in social inclusion and reading skills, on whether this change may differ for sub-populations of participants (e.g. age, gender) and on the characteristics of the education programs which can contribute to a positive change.

Data were collected from participants in Dutch literacy programs, using a pretest-posttest design (social inclusion: n=631, reading test: n=391) allowing us to examine the growth in both aspects. Data were analyzed via chi-square tests, correlations and logistic regression analysis.

The results indicate that most of the participants experience an increase in their social inclusion while there is a percentage of participants with no change or decrease in social inclusion. This could be attributed to the existence of ceiling effects or to the

participants' self-criticism after participation in training and the realization of possible knowledge or skill insufficiency. The results of the technical reading test show an increase on this skill for the majority of the participants. Additionally, the level of social inclusion differs across subpopulations and those differences vary depending on the aspect of social inclusion being examined (assertiveness being significant most of the times). With respect to reading skills men show larger increase than women. Moreover, the non-autochthonous participants experience large increase on their reading skills. Finally, progress in reading skills is shown by participants younger than 34 and older than 51. In the learning environment, teacher support plays a role to the extent to which participants engage in meeting others and attempting. Moreover, participants' direct surroundings and transfer possibilities back to their daily life play a role in the development of their language skills.

The results of this study add to our understanding of social inclusion and reading skills after participation in literacy programs for adults. They are also input for providers and organizers of literacy programs for social inclusion regarding the effectiveness of those programs and the factors that play a role to further support the participants.

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Word count without references (440/500)

Word count with references (486/500)

### **Learning occupation specific language in vocational education in the workplace**

**Anke Settelmeyer, Christina Widera**

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In Germany, for the vocational and educational system the current migration of refugees creates new challenges: Never before such a numerous group of young people at the same age from different cultural and educational backgrounds has come to Germany within a short period. The political aim is to integrate the young refugees as soon as possible into the vocational and educational system. Most of the refugees entering the dual system have to improve their language proficiency during the training in order to fulfill it successfully. Therefore, the potential for developing language proficiency of the two learning venues of the vocational and educational system, companies and vocational schools, has to be revealed. In our presentation we focus on the company.

Firstly we will present typical linguistic requirements trainees have to master in the workplace. Examples will be given for three occupations: motor vehicle mechatronics technician, medical assistant and management assistant for retail services. We show that trainees have to master many different tasks containing written and oral requirements. The requirements are occupation specific related to the quality of performance, to their addressees, their functions, and tasks characteristics. However, the workplaces of all three occupations offer meaningful learning opportunities to develop language proficiency. Then we will elucidate how language proficiency is supported in the workplace and we will discuss how learning language in the workplace can be intensified.

The results are based on data of the research project „Language and communication requirements in vocational education and training“, carried out by the Federal Institute for Vocational Education and Training until 2017. The project reveals the linguistic and communicative requirements of the dual vocational training system of Germany. Data have been collected by documentary analyses, 46 semi-structured qualitative interviews with trainees, trainers and teachers, and 22 participant observations in companies and vocational schools.

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### **Video in Foreign Language Teaching and Learning: A Systematic Literature Review**

**Maria Pannatier, Mireille Bétrancourt**

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Video has emerged in the foreign language teaching and learning (FLTL) in the late 60s and early 70s by translating traditional classroom approaches to the screen. With the appearance of video tape in the late 80s and early 90s videos were used to convey real or at least authentic language experiences. However, they often remained secondary to the main process of language learning playing merely an illustrative or entertainment role. With the advent of digital age and the development of distance education in professional training, video is becoming one of the primary means of information presentation, content delivery, language competence development and communication. The aim of this literature review is to question the value and effectiveness of various video-based instructional settings for TLFL and the learning approaches underpinning them.

A systematic literature review (Petticrew & Roberts, 2006) surveying research on FLTL using video technologies since 1970 till 2017 was conducted. It was based on a considerable body of peer-reviewed publications outlining the results of experimental interventions in this field (N=1180). After considering the inclusion criteria (e.g. adult learning, all language levels, all video technologies except for video-conferencing, video games. etc.), 119 papers were used for the final review, representing 83 studies.

The analysis of research papers raised several basic formats of FLTL with video (face to face, blended, web-based, at a distance). There has been found few research on video implementation in a specific distant format. The review included the

research results on most popular languages, though the studies that include several languages were not presented. The most popular education level appeared to be the undergraduate university education. The most represented language levels were beginning and intermediate. The review process resulted in analysing the four types of instructional video-based frameworks: receptive (intensive and extensive) and productive (process and product) (Tudor, 1986). The learning theories used to support their implementation range from behaviourist, immersive to communicative, multimedia and active learning theories. We classified the types of video content (e.g. authentic, instructional, self-made by teacher, student-created), as well as the degree and types of interactivity they provide. Regarding effectiveness, the use of video significantly improved students' competence in 90% of the studies. In those studies where no statistically significant results were reported, video-based interventions increased subjects' motivation and decreased language anxiety.

The review pointed out the characteristics of the efficient video implementation setting for FLTL (e.g. content authenticity, segmentation, interactivity, subtitles/captions, advanced organizers, active and collaborative viewing or production, etc.). It offered the framework for the future guidelines for the digital video use in FLTL. A limitation of the review is that we concentrated on a narrative role of video in its exploitation and not all video technologies were covered. The review showed that few studies were conducted in professional language learning contexts. Future research focusing on their online formats at advanced language levels, integrating content and language learning is needed.

Petticrew, M., & Roberts, H. (2006). *Systematic reviews in the social sciences: a practical guide*. Malden, MA; Oxford: Blackwell Pub.

## D07 - Paper session: Knowledge, concepts and epistemic development

Time: Thursday, 13/Sep/2018: 8:30am - 10:30am · Location: M1150

Session Chair: Monika Nerland

### **Actions and allocated gaze: Music educators' role in promoting group-level regulation**

**Tarja-Riitta Hurme<sup>1</sup>, Hans Gruber<sup>2</sup>, Marjaana Puurtinen<sup>3</sup>**

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In the field of educational psychology, there is a growing interest toward enriching explorations of classroom interaction by analyzing teachers' foci of attention with mobile eye trackers. We propose that this type of gaze data could also provide us better insight how music educators could enable group-level regulation processes to happen in collaborative learning situations. The aim of this study is test this idea. It is attempted to identify triggers that enable group-level regulation to emerge by examining the role music educators play in collaborative tasks.

Three professional music educators each guided a pair of teacher students through a given musical task in 45-minute sessions. In the session, the group's task was to familiarize themselves with a given song, prepare an arrangement suitable for a group of nine-year-olds, and make notes about their arrangement. During the collaborative task, the music educators wore mobile Tobii Glasses. For the video-recordings of interaction one digital camera and two iPads were used to cover the whole classroom area. Detailed qualitative analyses were performed of the professional music educator's (1) musical activities, (2) verbal interaction and (3) gaze targets (here: either the students or the musical score). Musical activities were categorized as body percussions, instrumental playing, vocal (singing, hymning), body percussions & vocal, vocal & instrumental playing, and no musical activities. Verbal interactions were coded as comments advancing the joint task or positive reinforcement. The comments advancing the joint task were classified as questions or statements. The questions proposed by a music educator were considered as an invitation into negotiations and actions. The statements included a music educators' speech turns including either instructions, bringing up his/her own idea, or a reply to a student's question. The positive reinforcement comments were identified as short positive feedback with a maximum of two words ("Yeah, good.") or as detailed positive feedback with more than two words ("That was a great idea, we will keep it.").

Musical activities, verbal interaction and gaze targets occurring simultaneously within five-second intervals will be analyzed with logistic regression analysis to explore which activities perhaps predict and triggered group-level regulation. The results of the analysis and the inter-rater reliability of the verbal interaction coding will be presented. Observations of professional music educators' actions and gaze targets can provide new insights how group-level regulation could be supported in music education where playing together constantly requires regulation of joint activities. Understanding how to guide and support joint musical activities is essential for music educators' professional development.

### **Disciplinary academics or teacher educators? Negotiating epistemic boundaries in professional education**

**Hege Hermansen**

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This paper examines how program leaders approach the boundaries between disciplinary and professional knowledge domains in teacher education, and how disciplinary knowledge and identities are renegotiated when academics are expected to situate disciplinary courses within the context of a professional education program. An increasing amount of research has examined "theory-practice" relationships in teacher education and the relationship between campus and school based education (Hammerness, 2006; Zeichner, 2010). However, less attention has been paid to how disciplinary knowledge is positioned within professional education, and how coherence is pursued in the intersection between professional and disciplinary knowledge domains. This paper explores the tensions that arise at the boundaries between disciplinary and professional education, and the ways in which teacher educators negotiate the resulting dilemmas. The research questions addressed are:

1. What epistemic tensions and interdependencies between disciplinary and professional knowledge are revealed through teacher educators' work on program design?
2. How do program leaders negotiate the resulting dilemmas and contradictions?

The empirical context is a teacher education program where disciplinary courses, the practicum and courses in pedagogy and subject didactics are distributed across a five-year trajectory. The program provides an interesting case because disciplinary departments and faculties that contribute to the program are increasingly being positioned as "teacher educators" in addition to their role as teachers of disciplinary knowledge. Data was collected from four institutions, and consists of individual, semi-structured interviews with 19 informants, supplemented with participant logs and institutional/policy documents. The participants held specific responsibilities for designing and quality assuring the programs.

Theoretically, a socio-material perspective that foregrounds the object-centred characteristics of human activity is adopted (Nicolini et al., 2012). More specifically, the analysis combines three notions of objects to explore the epistemic dimensions of program design: object of activity, boundary object and epistemic object (ibid.).

The empirical analysis is in progress. Initial findings indicate that a) a significant amount of epistemic boundary work is carried out by program leaders; b) collaborative work on program design constitutes a focal point for epistemic negotiations between different academic communities; and c) disciplinary academic identities are being re-negotiated and in some cases repositioned.

The paper contributes to existing research on coherence in teacher education by examining aspects of program integration that has currently received limited scholarly attention. Another contribution is to examine the work of program leaders. In spite of the political attention afforded to teacher education over the past decades, few empirical studies have investigated how program leaders work to develop teacher education programs and how they negotiate the multiple demands inherent in their practices.

Hammerness, K. (2006). From coherence in theory to coherence in practice. *The Teachers College Record*, 108(7), 1241-1265.

Nicolini, D., Mengis, J., & Swan, J. (2012). Understanding the Role of Objects in Cross-Disciplinary Collaboration. *Organization Science*, 23(3), 612-629.

Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college-and university-based teacher education. *Journal of Teacher Education*, 61(1-2), 89-99.

### **Knowledge building in professional learning: new insights**

**Claire Tourmen<sup>1,2</sup>**

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A classic and efficient way to account for professional knowledge building has been to refer to the Piagetian model of equilibration (Piaget, 1968, 1985), that is a dynamic interplay between assimilation and accommodation processes occurring while working (Billett, 2001, Vergnaud, Pastré & Mayen, 2006, Author et al., 2017). Our idea is that the new probabilistic theories of learning developed in philosophy of science, psychology and Artificial Intelligence (Glymour, 2001) offer an efficient way to complement the Piagetian model, by trying to describe the reasoning dynamic at its very heart. They indeed propose to study learning as a process of “belief updating” (Oaksford & Chater, 2009), or “theory” building, testing and enriching through experience (Gopnik et al., 2004). Learning would occur through back and forth movements between thought and facts. This process would be fueled by theory prediction and testing in experience and might be realized through probability estimations (Glymour, 2001). Can it offer new insights to study informal learning in the workplace?

We used such a framework to study the micro-genesis of professional knowledge over a long period of time. Our intent was to better characterize and understand the dynamic of professional learning, defined as the development of a better understanding of the work environment associated with a more efficient capacity of action upon it (Billett, 2001). In order to study such a long and complex process, we decided to access to professionals' knowledge and past experience through “explicitation interviews”, an interview technique developed by the French psychologist Pierre Vermersch (1999, 2009), inspired by Piaget's work (1976), in order to provoke a “grasp of consciousness” in subjects. Our research study involved 9 professional program evaluators, from 10 to 30 years of experience. We conducted long “explicitation” interviews (Vermersch, 1999, 2009) with them. We then analyzed and compared the knowledge (coded as theories) they expressed about public programs: their form, content, origin and evolution through time.

Our results show that each professional has developed, through his/her experience, a rich web of theories about the main object of his/her work, namely public programs. These theories seem to emerge from an initial movement of surprise – a failed prediction-, which Piaget has described at the very heart of equilibration processes (1985) and which new probabilistic models of learning also describe as a fundamental motor for theory building and revising (Gopnik & Wellman, 2012). Professionals have then tested, developed and enriched their initial theories of public programs through other experiences, by assimilating new cases to their initial theories and accommodating their growing theories to new cases. In addition, these theories seem to be organized around a causal structuration of events, which seem to influence the probability estimations that professionals will be inclined to make in future cases.

We will conclude on the interest to combine a Piagetian framework with probabilistic models of learning in order to extend our understanding of the dynamic of professional learning processes over a long period of time, and possibly enrich the Piagetian model of equilibration.

### **Knowledge work in professional-client partnerships: analysing interactions from an epistemic perspective**

**Nick Hopwood<sup>1</sup>, Monika Nerland<sup>2</sup>**

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#### **Aims**

Changes in the relational nature of work raise important challenges for professional responsibility and expertise. Significant attention paid to knowledge dynamics in inter-professional / inter-agency work (Edwards et al 2009), but less to professional-client relationships. Professionals struggle putting their knowledge to work in new partnership approaches (Harris et al 2014), but still have responsibilities as experts informed by bodies of specialist knowledge. This paper aims to deepen understandings of professional-client work by taking an epistemic practices perspective (Knorr Cetina 2001; Nerland & Jensen 2012).

#### **Methodology**

Seventy-one interactions were observed in services for families with young children. After analysis across all data, two cases were identified as contrasting ways of enacting partnership: one from home visiting, one from a day stay clinic. These exemplify sites infused with intensified epistemic tensions and multiple logics of professionals as experts, facilitators, mandatory reporters of child safety concerns etc. The analysis traces practices through which knowledge is generated and shared in professional-client interaction, focusing on how the professional and client propose, communicate, justify, assess and legitimate knowledge claims (Markauskite & Goodyear 2016).

#### **Results**

In the day stay, the professional solicited information from the parent as a source of knowledge about the past and the mother's feelings, and used diagnostic reasoning to connect parent experience to a professional vocabulary. In the home visiting

the surfaced knowledge was more about how the parent was coping and what it would mean to proceed in the partnership, and diagnosing was used to activate the parent's space of reasons. The day stay brought the mother into a recontextualised professional epistemic frame, generalising knowledge made actionable in relation to this mother and child. In the home visit, it was more about building up the mother's epistemic frame, shifting the mother as a kind of knower, and making the mother's knowledge actionable by generalising from the mother's experience so that knowledge became available across situations.

#### **Significance**

The analysis shows how partnership is socially and interactionally accomplished through a series of knowledge-related actions. The contrast between the two cases highlights strikingly different ways of enacting partnership. Theorising diverse epistemic enactments of partnership can help professionals in critical reflection on practice, making it possible to consider when and why particular epistemic approaches may be more or less appropriate.

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## D08 - Paper session: Teachers learning and professional development

Time: Thursday, 13/Sep/2018: 8:30am - 10:30am · Location: M1160

Session Chair: Michael Goller

### Development of a self-evaluation methodology for VET teacher teams to evaluate the quality of their assessment programme

**Liesbeth Baartman, Wendy Peeters, Ellen de Kwant**

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#### AIMS

In 2013, we developed a self-evaluation methodology to enable VET teacher teams to evaluate the quality of their assessment programme (Baartman et al., 2013). An assessment programme (AP) is a coherent combination of school-based and workplace-based assessment methods to monitor student progress, provide feedback and award a diploma (Van der Vleuten et al., 2012). APs are an essential part of any VET curriculum, as competence (development) cannot be captured using single assessment methods.

The past years have seen an immense increase in research on APs in VET. Recent insights focus on the role of APs in VET students' learning and agency (e.g., Jessop & Tomas, 2016), feedback on competence development (e.g., Hughes et al., 2014) and the integration of school-based and workplace-based assessment (e.g., Koenen et al., 2015). Therefore, an update of our methodology was timely. The purpose of this research was to update the self-evaluation methodology, incorporating recent theoretical insights and our practical experiences of the past six years.

#### METHODOLOGY

The self-evaluation methodology was updated in four meetings with VET teachers (4-6 teachers per session) using design thinking methodologies (e.g. Ideo, 2012), resulting in a "prototype". Three expert researchers were interviewed to validate and improve this prototype. Also, the prototype was systematically compared to publications on APs from 2013-2017.

#### FINDINGS

The updated self-evaluation methodology consists of three steps taken by VET teams collaboratively and a "rubric" of quality criteria for APs. The three steps are: (1) create an overview of the AP, including all school-based and workplace-based assessments, (2) collaboratively evaluate this AP using the "rubric", and (3) formulate an action plan as a team.

The rubric consists of quality criteria related to:

- Validity: whether students' competence development is captured in its entire complexity at school/workplaces;
- Learning function: whether the AP provides feedback on students' competence development and stimulates students' agency;
- Decision function: whether the AP enables to reach robust decisions to award a diploma.

The quality criteria were further worked out in a rubric ranging from "low quality" to "quality at the level of single assessments" to "quality of the programme".

#### SIGNIFICANCE OF THE RESEARCH

Theoretically, this research incorporates recent insights on APs in VET. Practically, the self-evaluation methodology enables teacher teams to improve their AP and work on their professional development as a team.

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### Mentoring experienced teachers: A cultural historical perspective

**Veronica Elizabeth Morcom, Judith Anne MacCallum**

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Teacher retention in the classroom is a pervasive and complex global issue with large numbers of graduate teachers leaving the profession after 3-5 years and experienced teachers feeling frustrated with constant change (Darling-Hammond, 2003; Fullan, 2001). Mentoring is one means to support new teachers' transition into the classroom and retain experienced teachers through renewal of practice. However, mentoring remains 'a contested concept' without conceptual cohesion and often used for multiple purposes that can be in conflict with each other (Kemmis, Heikkinen, Fransson & Aspörs, 2014). Different purposes create different mentoring practices resulting in different mentee dispositions that orient them differently to themselves, to others and their professional work (Kemmis et al., 2014). Vygotsky's cultural historical theory (1978) and Hedegaard's (2014) concepts of demands and motives are used as theoretical frameworks to underpin conceptualisation and interpretation in the current research. The aim was to examine the dispositions, motives and practices of three teachers, mentored by a teacher-leader to navigate the demands made on them by students, parents and the school administration.

Two teachers were experienced year 1 and 4 teachers and the third was a year 4 teacher in her second year. The teacher-leader taught a year 2 class that included students previously taught by the year 1 teacher who was being mentored. All teachers had worked on various school projects together but not in a formal mentoring program with each other. Qualitative methods were chosen as suitable for data collected from the naturalistic setting of the classroom and to highlight teachers' perspectives from the formal teacher focus group meetings (Patton, 2002). The main sources of data for this paper are based

on the transcripts of the teacher focus groups, pre and post teacher surveys, teacher reflective logs in emails, and the teacher mentor's reflective log that provide insights into the issues that underpinned different teachers' motives and orientations to engage in new practices in the classroom. The data are examined using Hedegaard's (2014) institutional, activity and person perspectives.

New demands in transitions created the possibility for teachers to renew their classroom practice. Although teachers expressed interest and value in the research project and commitment to innovate in the classroom, institutional demands restricted the practice teachers perceived was possible. Examining teachers' participation in the mentoring activity shows the dynamic of teachers' motives and orientation to the demands made on them by the principal and parents despite the support they experienced from each other and the teacher-leader. Teachers develop motives through participation in institutional practices which are embedded in the "the dynamic relation between person and practice" (Hedegaard and Chaiklin, 2005, p. 64). The findings lend support to Weldon's (2018) analysis that environmental factors are important in understanding teacher attrition. The current research has implications for how mentoring is conceptualized and implemented in schools where the purpose is pedagogical renewal and retention. Developing robust professional cultures that support renewal require school policies that articulate an understanding of mentoring as an integral part of everyday practice for all teachers (Hargreaves & Fullan, 2000).

### **Lessons planning instrumental genesis: between teachers' instrument systems and professional development**

**Leandro Marques Queiros<sup>1</sup>, Alex Sandro Gomes<sup>1</sup>, Grégory Munoz<sup>2</sup>**

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The literature on the teacher-student relationship reveals that the learning phenomenon begins even before the teacher comes in direct contact with the students (Bruno & Munoz, 2010; Rienties & Toetenel, 2016). Recent studies point to the importance of lessons planning as a crucial activity to increase the impact on student performance (Yamada et al., 2016; Wills & Pegler, 2016). In contrast, few information systems are specifically designed to mediate this teachers' practice (Oliveira & Gomes, 2015). Besides that, the efforts that promote positive effects include tentatives to stimulate the reuse of educational materials and how they are planned, developed, distributed and evaluated (Gros & al., 2016). According to John (2006), there are several attempts to train teachers to develop lessons planning skills. Such teacher training initiatives aim to provide new paradigms that engage students through the use of digital technologies in the classroom. This need for innovation in teaching practices and the incorporation of new materials have imposed challenges for teachers (Dalziel & al., 2016) and designers. Theoretical frameworks of Instrumental Genesis and System of instrumental are respectively used to describe the professional development in terms of instrumentations and transformations of systems of instruments. As an example, we cite a case study conducted with a pedagogical advisor of school teachers. This study allows us to illustrate how the system of instruments developed in a field is more or less reinvested in a new field, becoming then a set of artifacts proposed and/or prescribed to the teachers it accompanies. This is why it is possible to say that its professional activity consists of building instrument systems and prescribing systems of artifacts (Munoz, Vidal-Gomel & Bourmaud, 2015). In fact, the activity of the pedagogical adviser does not consist directly in giving prescriptions to teachers, but rather in accompanying them, giving them advice. However, in this way, they develop what Goigoux (2002) calls the secondary prescription. In this kind of study, we identify the artifacts to which it refers, as well as its instrument systems (Munoz & Bourmaud, 2012) and how they are used and transformed with the aim to document the evolution of its resources according to its own professional development. However, to guide the design of new mediational artifacts for professional usage the relation between theories and methods is epistemological different. The aim of this paper is to describe the way we constructed knowledge about the meaning of artifacts for teachers using the instrument systems (Body, Munoz & Bourmaud, 2017) theoretical framework to guide a participatory design of new mediational information system that, when inserted in the professional context, will promote professional development. We focused the actual research on teachers' lessons planning activities in order to be able to think better about design in use (Béguin, 2013) of the new artifact. Then, our design hypothesis is that to the extent that the new artifact is appropriate by users, it dialectically promotes their professional development. The main findings pints the structure of the actual instrumental system and the meaning each artifact, digital a mundane, have for the professional.

### **Changes in learning-to-teach patterns of student teachers during long-term internships: A Latent Transition Analysis approach**

**Michael Goller<sup>1</sup>, Dagmar Festner<sup>2</sup>, Alexander Gröschner<sup>3</sup>, Tina Hascher<sup>4</sup>**

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Student teachers differ in their learning-to-teach patterns. According to Oosterheert (2001) four learning patterns can be described: (a) survival-oriented learners (learning equals teaching practice and no feedback or help of others is required), (b) preproduction-oriented learners (learning within their established frame of reference), (c) dependent-meaning oriented learners (expanding their frame of reference by depending on external sources), and (d) independent-meaning oriented learner (learning by using external sources as well as self-regulation). Although empirical evidence exists that these pattern are subject to change due to significant learning experiences during internships (e.g., Endedijk et al., 2014) it is still not clear why these changes occur. In addition, it is still unclear whether occurring changes are related to learning outcomes. Based on previous studies (see Arnold et al., 2014) it is hypothesized that (a) students change more often into desirable learning patterns as long as they are strongly guided during their internships and that (b) students that change into a more desirable pattern (or stay within it) learn more during their internship than students that change into less desirable patterns (or stay within them). Thus, the following research questions arise:

1. Do students who change their pattern towards independent meaning oriented learning perceive better conditions as students who change their pattern in an undesired direction in regard to the experienced mentoring during the internship?
2. Do the learning patterns and/or the changes between the learning patterns explain competence development during the internship?

In our study 512 German students enrolled in a teacher education master program filled in a questionnaire at the beginning and the end of their five-months internship. To capture the learning-to-teach patterns the "Inventory Learning to Teach Process"

(Oosterheert, 2001) was administered. Originally, the instrument included 10 scales which cover learning conceptions, learning activities and emotion regulation. As one scale had to be excluded due a low internal consistency, 9 scales were used. Perceived guidance during internship (Gröschner et al., 2013), self-reported competence according to different tasks during the internship (Festner, 2015) as well as teaching in particular (Gröschner, 2015) were assessed using validated scales. To answer the research questions a Latent Transition Analysis (Vermunt & Magidson, 2002) approach with covariates and Kruskal-Wallis tests were used.

A three pattern solution could be identified: (1) students that generally exhibit low learning efforts, (2) students that learn by depending on external sources and self-regulation, and (3) students that depend on external sources but use less self-regulation than pattern 2. In other words, the profiles discussed in the literature could only partly be replicated. The transition probabilities moderated by perceived guidance show that students that experienced strong mentoring during their internship more often change their learning patterns in a desirable direction. The Kruskal-Wallis tests show that students that show desirable patterns in T2 and those that changed into desirable patterns during their internship significantly develop more competences than students in undesirable patterns or students that changed into undesired directions. All results will be critically discussed in the presentation.

## D09 - Paper session: Learning in organisations

Time: Thursday, 13/Sep/2018: 8:30am - 10:30am · Location: M1170

Session Chair: David Guile

### New Challenges in Utilizing Ethnography in Studying Learning and Development-Related Issues in Organizations

**Kaija Marjukka Collin, Susanna Paloniemi, Soila Lemmetty**

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The aim of this paper is to elaborate on the opportunities and challenges of ethnographic methodology in studying learning and professional development amid changing work organizations. The requirements of knowledge-intensive work have changed in recent years. Work has become more complex in terms of intensified competition, the time, and space of work, and the variety of available technological tools (Van Maanen, 2011; Yanow, 2009). Given these changes, researchers must develop innovative methods and techniques to ensure that their ethnographic practice addresses the unique factors of contemporary work environments. Thus, new types of ethnography have been developed, including multi-site ethnography, self-ethnography, as well as critical, institutional, visual, and/or virtual ethnography (see Rouleau, de Rond, & Musca, 2014). Ethnography is also transforming into a group instead of an individual endeavour.

Based on theoretical views (Down, 2012; Zikar & Carter, 2010; Ybema, Yanow, Wels, & Kamsteeg, 2009) and our own experience conducting organizational ethnography in different work domains, this paper aims to discuss the utilization of ethnography in investigating the phenomena of learning, creativity, and leadership in workplaces. We will offer insights into the opportunities and challenges of ethnography at the general level. Additionally, we will concentrate on: i) new possibilities of how virtual work platforms can change the nature and study of interaction, ii) the balance between conducting ethnography for research itself and/or emphasizing developmental aspects, and iii) ethical issues associated with researching work organizations.

As virtual work is becoming more common, the boundaries between the physical and intellectual, the public and private, as well as the workplace and home are eroding. From the point of view of research methodologies, this challenges the idea of using traditional ethnographic observational methods for studying contemporary forms of interaction. How do we effectively observe organizational life and interactions when they are dispersed in time and space, and if they arise unexpectedly, for example through chat channels, etc.?

It is also noteworthy that ethnography has increasingly been utilized in developing organizational work practices. Ethnographers have, therefore, partially abandoned purely academic research by transforming ethnographic methods into sellable services, for example by approaching organizations to examine clients' unidentified needs or unused potentials from a commercial point of view. As a result, there is now the increasing expectation that one must be both an ethnographic researcher and a developer. The challenge is how to appropriately intertwine the positions of researcher and developer, especially in terms of ensuring timely development in work organizations. How can we successfully combine the painstaking and minute nature of ethnographic research with fast development? Further, these new forms of conducting organizational ethnography raise several ethical questions that must be resolved (e.g., the confidentiality of knowledge, the ownership of the findings, etc.). These can challenge the principle of open access and/or the researcher's role, not to mention the effect of emotions in fieldwork. Surprisingly, however, the two latter issues in particular have not received much attention in organizational ethnography. Therefore, this study aims to fill this gap in the literature.

### [CANCELLED] Team work, team stress & information processing.

**Piet Van den Bossche<sup>1,3</sup>, Catherine Gabelica<sup>2</sup>, Steffi Sassenus<sup>1</sup>**

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In many situations, teams of experts are made responsible to react accurately and swiftly to critical situations. Exemplary are flight crews ensuring a safe flight in extreme weather conditions. Given the evident importance of effective teamwork in these circumstances, there is a pressing need to understand behaviors and abilities of teams when solving problems that are time-compressed and high-stake, supported by complex, ambiguous data.

Research has provided understanding which types of interaction behaviours are indicative of the processing of information available to the team and the establishment of shared cognition that underlies effective decision-making. What did remain mostly out of sight in this line of research, is the specific influence of stress. This does not mean that 'pressure' is not acknowledged, but it is mainly considered a contextual issue, and it is seldom questioned how stress impacts the processes studied. More recent research has drawn attention to the idea that stress is embedded in the social context, as for example in the 'contagiousness' of stress between team members (Westman et al., 2011). Little understanding is available on when this synchrony in stress at team-level emerges, and what the impact is of the (lack of) synchrony on team process such as knowledge sharing.

Therefore, this study questions the relations between stress-levels of team-members (i.e. synchrony) and how this is related to communication and information processing behaviors?

#### Methodology

Participants in the role of pilot and co-pilot complete four landing missions of Flight Simulator (Gabelica et al., 2014). For the measurement of stress we rely on the assessment of electrodermal activity (EDA) through the Empatica E4 wristband (Garbarino et al. 2014). Three teams were videotaped. The algorithm of Marci et al. (2007) was used to calculate the moment-by-moment EDA synchronization. Synchronization sequences were categorized in positive (higher than 0,5) or negative (below -0,5) value groups. Corresponding video fragments were explorative analyzed, identifying team behavior and interactions patterns within each value group.

#### Findings

Differences in team interaction behavior were noticed depending on the level of EDA synchronization. High value sequences showed team members asking question, informing one and other, following each other instructions, laughing together, and

working together to overcome obstacles. These behaviors and interactions seem to point to a sense of sharedness within the team.

In contrast, they could not find this commonality in low value sequences. During these sequences team members did not decide on a strategy, disagreed on the meaning of information, ignored each other instructions or lost clear purpose in their task objectives. These interaction behaviors could point to a disconnection within the team and with its task. (Analyses are ongoing and full results will be available at the conference).

#### Significance

This research extends the existing research designs by taking stress into account. The inquiry of both is necessary to provide an integrated understanding of how teams deal with non-routine situations.

These insights and measurement tools can provide input into systems that provide feedback, and even interventions to regulate the effectiveness of collaboration.

## Personal and organizational antecedents of informal learning in the workplace

**Julian Decius, Niclas Schaper**

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#### Background

Small and medium-sized enterprises (SMEs) have to support the competence development of their workers to cope with globalization effects and organizational change. However, most of vocational learning takes place informally, routinely and self-directed in the workplace (Eraut, 2011). Especially for blue-collar workers who often do basic, but essential manufacturing tasks within the production process (Decius, & Schaper, 2017), informal learning is very important because of some learning barriers of formal learning (Abel, Decius, Güth, & Schaper, 2016). Because of spatial and temporal independence and self-directedness of informal learning, SMEs cannot foster the learning process itself as they apply formal trainings, but they can create beneficial conditions for workplace learning.

At the moment, it is little known about factors which influence the informal learning at the workplace of blue-collar workers (Tannenbaum, Beard, McNeal, & Salas, 2010). This study has the aim to examine the relationship between personal and organizational factors and informal learning behavior.

#### Methodology

Based on the literature review by Kyndt and Baert (2013) and the meta-analytic review by Cerasoli et al. (2017), we identified personal and organizational factors which may influence the informal learning behavior in the workplace. To measure these antecedents, we developed a questionnaire, using established and validated scales, e.g. Lohdahl and Kejnar (1965) for job involvement, Fay and Frese (1997) for self initiative, or Rigotti, Schyns and Mohr (2008) for occupational self-efficacy, for personal antecedents; and e.g. Van Dam (2014) for learning climate, Richter et al. (2002) for job demands and for job control, or Sonntag, Schaper and Friebe (2005) for social support, for organizational antecedents. In total, the study examined eight personal antecedents and six organizational antecedents.

We operationalized informal learning behavior using a validated measure (Decius, Schaper & Seifert, in prep.) which is based on the dynamic model of informal learning by Tannenbaum and colleagues (2010). The sample consists of 383 blue-collar workers (mean age: 43.4 years) from seven German SMEs (logistics and manufacturing sector).

#### Results & Significance

Results of statistical analysis showed diverse influences of antecedents: Both personal and organizational factors determine the informal learning behavior in an important manner ( $\beta$ s from .08 to .57). We found high relationships between feedback orientation and the feedback components of informal learning (direct feedback, vicarious feedback), and between conscientiousness and reflection. The computed model fits the recommendations of Kline (2016) for SEM criteria of acceptance ( $\chi^2/df < 3.00$ , TLI and CFI  $> .90$ , and RMSEA  $< .80$ ). Limitations of our study are that we used self-reported data of workers. Future research may also consider assessments by others (e.g. by line managers) or monitoring of the target group.

The results shed light on selected interrelationships between personal / organizational factors and informal learning. However, in order to be able to make reliable statements about the relative weighting of the influencing factors and the role of possible mediation relationships, more research is needed. Practitioners may use the results to decide which conditions should be modified first to foster informal learning behavior of the workers.

## Understanding networks and coworking: Towards a fourth-generation activity theory analysis

**David Guile<sup>1</sup>, Clay Spinuzzi<sup>2</sup>**

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Over the last few decades, we have seen a shift from hierarchically-oriented work to knotworking (Engeström, 2008) and project-oriented work (Guile 2012). In this work arrangement, knowledge workers assemble temporary teams as multi-professional networks to address issues which require interdisciplinary solutions. This shift has necessitated new organizational arrangements for grounding such work, such as coworking (Spinuzzi 2015) and nomadic work (Czarniawska 2013). In such arrangements, learning and development are transgressive, in other words, run across professional boundaries and specialisms. This is very different from conceptions of learning predicated on a linear movement from novice to expert (Lave and Wenger, 1991 and Wenger, 1995), or the development of 'common knowledge' among members of interprofessional team (Edwards 2010). The above type of transgressive learning and development is closer to Engeström's (2009) acknowledgement that when working and learning processes become simultaneous, multidirectional, and often reciprocal, we require new theoretical tools to understand these differences; a development which might result in a fourth-generation of activity theory.

In this presentation, we propose to contribute to the better understand of transgressive learning and development and, in the process, offer insights into the development of fourth-generation activity theory. Specifically, we examine project teams (Blunden 2010) as a unit of analysis for understanding learning and development in heterogeneous, temporary activities. We have chosen project teams because this concept allows us to, simultaneously, retain the focus in activity theory on the object of

activity as defining the purpose of work, and introduce the possibility that team members may nevertheless have multiple objects they are working on.

To develop this unit of analysis, we examine two related cases: the global phenomenon of coworking and emerging phenomenon of high skill ecosystems since working and learning processes are simultaneous, multidirectional, and reciprocal, in both. First, we draw on coworking's global ethos, revealing that its notions of "community" and "collaboration" (Spinuzzi et al. forthcoming) are, at present, determined by the logic of the market rather than social production, and this goes against the grain of the spirit of the co-working literature. Next, we examine high-skill local ecosystems (Spours and Hodgson, 2018). We reveal the logic of: the market influences co-working between large-scale employers and Further Education Colleges to co-configure vocational programmes to address employers' skill needs; and, social production influences co-working between colleges are working with Small and Medium Size Enterprises to design vocational programmes to support the skill of co-working as an entry to freelance work. Hence there is a tension between market and social production in high-skill local ecosystems.

We conclude by arguing that (i) co-working, irrespective of context, is characterized by a hybrid object of activity; (ii) project teams provides a suitable unit to analyse that hybridity; (iii) further research is required to see whether co-working results, over time, in more socially progressive forms of activity and learning and development; and, this development may lead to a hybridised fourth generation of activity theory.

## **D10 - Paper session: Work and education as uncertain contexts for professional learning and development**

Time: Thursday, 13/Sep/2018: 8:30am - 10:30am · Location: M2150

Session Chair: Susanne Weber

### **Learning in uncertain situations: an examination of tensions within a large-scale transformation programme in a HE institution**

**Koula Charitonos, Allison Littlejohn**

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In an increasingly competitive global education market, Higher Education Institutions (HEI) are exploring ways to improve student retention and satisfaction as a financially sustainable way. These processes often are through strategic programmes leading to organisational change. However, the change process in itself brings about uncertainty and ambiguity that creates difficulties in terms of supporting stable, sustained change. Understanding the context in which this work is performed, namely examining work practices and exploring challenges as well as opportunities these developments may bring, is important for sustained organizational change.

With these considerations in mind, the paper draws on a study set out to examine the processes put in place to drive a large-scale organisational transformation programme over a year in an HEI in the UK. Departing from ethnographic and activity theory perspectives, the paper places attention on a group of thirteen individuals who were brought together from various units across the organisation and were tasked with leading a prominent strand of work within this programme. This group carried out activities together, adapted to emerging strategic directions and changes to strategic objectives, facilitated engagement across the institution and considered what implications this process had for the organisation itself and fellow workers.

The study sought to address the following questions: What are the challenges these individuals encounter when leading large-scale organisational transformation programme in an HEI? How do these individuals conceptualise their learning in uncertain/changing situations?

Data was gathered through participant observation in weekly team meetings over four months and interviews with each member of the team (n=13). The paper reports the analysis of this data by drawing on the cultural-historical activity theory (CHAT) (Engeström 1987) and traces tensions as individual group members develop and adopt new work practices: 1. tensions between the individual and institutional roles performed within the context of this work strand; 2. between the timescales of the specific work strand and of the evolving wider-organisational processes; 3. between the transfer of responsibilities from senior management team to the individuals for changes to be implemented in the institution; and 4. between the knowledge and skills required for successful performance.

Drawing on empirical examples from this work strand, practices of learning in a real and dynamically changing education environment are explored and discussed, despite learning not being the primary objective of this activity. The paper makes apparent that, whilst much learning was occurring, existing and emerging structures in the sociocultural context in which their practice is situated placed limitations in the uptake of new practices. In line with other studies (Kaatrakoski, et al., 2017) this paper argues that such uptake is influenced by factors at both the individual level as well as the organisational/institutional level and contributes to prior work and to the dialogue around emerging forms of professional practice.

Engeström, Y. (1987). Learning by expanding: An activity-theoretical approach to developmental research. Helsinki: Orienta-konsultit.

Kaatrakoski, H., Littlejohn, A. and Hood, N. (2017). Learning challenges in higher education: an analysis of contradictions within Open Educational Practice. Higher Education, 74(4) pp. 599-615.

### **The contribution has been withdrawn.**

#### **Cooperative learning new software for the workplace**

**Mandy Hommel**

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#### **The relationship between education-job fit and work-related learning in the first job**

**Ilke Grosemans<sup>1</sup>, Katrien Vangrieken<sup>1</sup>, Liesje Coertjens<sup>2</sup>, Eva Kyndt<sup>1</sup>**

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Employees are expected to continuously update their knowledge, skills, and attitudes to cope with increasingly rapid changes in the work context. This learning behaviour is particularly important for employees embarking on their career (Brunello, 2004). Prior research demonstrated that job characteristics play an important role in work-related learning (Kyndt & Baert, 2013). When focusing on early-career employees, an important job characteristic encompasses the fit between employees' job and educational background. Most research investigating this fit focused on vertical fit, including the extent to which the obtained and required level of education correspond (Verhaest et al., 2017). Additionally, recent research investigated the fit between the field of study and the job content, referred to as horizontal fit (Verhaest et al., 2017).

Theoretically, two (contradicting) processes are proposed to gain understanding in the relationship between education-job fit and work-related learning. Research starting from a human capital perspective argues that work-related learning complements an existing and appropriate set of competences (Brunello, 2004). Following this perspective, it is expected that employees who are in a job that fits their educational background participate more in work-related learning activities. In contrast, other studies argue that work-related learning could substitute for prior education in case of a misfit, which implies that employees who are in a job that fits their background participate less in work-related learning (Heijke et al., 2013). Consequently, this study aims to empirically assess these contradicting explanations for the relationship between education-job fit and work-related learning of early-career employees. This was done by identifying latent classes of employees based upon horizontal and vertical fit and assessing whether these distinct classes differ regarding reported work-related learning.

This quantitative study surveyed early-career employees (approximately four months after graduation) with a higher education background (N=780). Preliminary results identified four distinct classes of fit: full fit (n=588), mere horizontal fit (n=71), mere vertical fit (n=80), and full misfit (n=41). Employees with full fit and vertical fit undertook significantly more formal learning than employees with full misfit. Employees in the full fit class reported more (inter- and intrapersonal) informal learning than those with vertical fit or full misfit. Furthermore, employees with horizontal fit participated more in informal learning activities than employees with full misfit. In conclusion, preliminary results are in favour of the complementary hypothesis, indicating that employees in a job with an optimal fit undertake most work-related learning.

Brunello, G. (2004). Labour market institutions and the complementarity between education and training in Europe. In D. Checchi and C. Lucifora (Eds.), *Education, training and labour market outcomes in Europe* (pp. 188-209). London: Palgrave.

Heijke, H., Meng, C., & Ris, C. (2003). Fitting to the job: The role of generic and vocational competencies in adjustment and performance. *Labour Economics*, 10, 215-229.

Kyndt, E., & Baert, H. (2013). Antecedents of employees' involvement in work-related learning: A systematic review. *Review of Educational Research*, 83, 273-313.

Verhaest, D., Sellami, S., & Van der Velden, R. (2017). Differences in horizontal and vertical mismatches across countries and fields of study. *International Labour Review*, 156, 1-23.

### **Learn it, live it! – Influencing learners' intention-behavior-gap in the domain of sustainable consumption using graphical videos**

**Susanne Weber, Christine Kreuzer, Mona Off, Susanne Ritter von Marx**

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Sustainable consumption is characterized by an intention-behavior-gap, meaning that individuals want to behave in a sustainable way but do not realize it (Sheeran & Webb, 2016). Lacking emotions is assumed as one main driver of this phenomenon (Brickwedde, 2002). In the field of business education, we run an innovative intervention (Rieß, 2010) using graphical videos to inform learners on sustainable consumption and to stimulate related emotions. Those videos receive an increasing popularity (Reinermann & Lubjuhn, 2011). Nevertheless, empirical analyses on their effects are missing (Wolf, 2015). The aim of our study is to influence learners' intention-behavior-gap in the domain of sustainable consumption by using graphical videos.

RQ1: Which emotions are triggered by graphical videos and how do they last over time?

RQ2/3: Do graphical videos cause a change of intention for and realized sustainable behavior?

RQ4: How can the realized sustainable behavior be described?

RQ5: Are there group differences?

Sustainable development is understood as inter- and intra-generational fairness addressing the use of resources and considering the integration of economic, ecological, and social aspects (WCED, 1987). Education for sustainable development aims to change individual's awareness (Balderjahn 2013; Collins & Kearins 2010; Yen-Chun et al., 2010). However, for realizing sustainable behavior, the intention-behavior-gap must be overcome (Kollmuss & Agyemmann, 2002; Sheeran & Webb, 2016). The best predictor of behavior is an individual's intention (Armitage & Conner, 2001). Referring to the Theory of Planned Behavior (TpB) (Ajzen, 1991), personal attitude toward behavior (PA), subjective norms (SN), and perceived behavioral control (PBC) but also knowledge and emotions represent the main influential factors on an individual's intention (Ajzen, 1991; Fishbein & Ajzen, 2010). Graphical videos are able to activate emotions (Brickwedde, 2002; Reinermann & Lubjuhn, 2011). Research results give hints for differences with regard to gender, age, income (e.g., Balderjahn, 2013; Tannenbaum et al., 2015).

We conducted a quasi-experimental longitudinal mixed-methods design including a control group (N=160 students/apprentices). The intervention addressed a video-based consumer education instruction. Data is sampled by a questionnaire referring to general and content-specific item formulations for the TpB (Ajzen, 1991; 2005; Fretschner & Weber, 2013; Liñán & Chen, 2009; Kuckart & Rheingans-Heintze, 2006; Ziesemer et al., 2016). The data are analyzed by qualitative methods as well as by quantitative methods using multivariate statistics.

First analyses show that graphical videos evoke positive and negative emotions. Nevertheless, negative emotions fade away over time in favor of positive emotions. Positive emotions seem to change towards "decidedness" (RQ1). The intention for a sustainable behavior increased significantly after the intervention (RQ2); likewise the reported realized consumer's behavior (RQ3). Especially with regard to using plastic bags and the awareness for the certification of sustainable products (RQ4). Finally, we found differences only regarding gender differences (RQ5).

We assume that graphical videos help to foster a reduction of the intention-behavior-gap. Limitations can be seen as both groups are not selected randomly. Furthermore, we used self-reports. Nevertheless, the results are inspiring for using such innovative instructional means. Experiments may give more insights.

## **E01 - Symposium: Emerging perspectives of education in the professions: Learning through practice**

*Time:* Thursday, 13/Sep/2018: 1:30pm - 3:30pm · *Location:* MR160  
*Session Chair:* Christian Harteis

### **Emerging perspectives of education in the professions: Learning through practice**

*Chair(s):* **Christian Harteis** (University of Paderborn, Germany)

*Discussant(s):* **Piet Van den Bossche** (University of Antwerp)

#### Objective of the session

The proposed symposium aims at providing theoretical concepts and empirical findings on learning through practice in the context of education in the professions. Acknowledging the value of practice experiences, many educational programs also comprise elements of practice in order to improve their efficacy. In this symposium, we consider learning processes during internships of varying format: Formal instructions (e.g., briefings, adjustments) as well as informal learning (e.g. though social interaction at the workplace). Whereas the main purpose of internships is allowing practice experiences that enable individuals to relate theory and practice, there is only limited empirical evidence on individual or social and environmental conditions that foster or inhibit learning through practice. The issue emerged from observations that workers and professionals as well as the environmental setting at workplaces usually follow a performance orientation which is known to be a challenge for learning processes. Against this background and with a view on recent and ongoing discussions on lifelong learning and the implementation of contemporary organizational structures (i.e. a structures that support learning during work), the legitimate interest on learning through practice has been permanently increasing during the last years. Current research approaches emphasize the learning potential of practice, combining the application of competence (i.e. working) and its acquisition (i.e. learning). For sure, even under a paradigm of integrating working and learning, work environments do not automatically promote learning, particularly in internship settings. It is rather an educational challenge to design internships with rich learning potential without neglecting business and performance demands. The contributions to this symposium focus selected approaches of analysing learning in practice settings and discuss theoretical and methodological insights from recent empirical research.

#### Scholarly or scientific significance

This symposium explores theoretical and empirical analyses of learning through practice in the context of professional education. This area of educational research is an increasing field bringing a growing group of international scholars from the area of learning and professional development together. The audience will be introduced into exemplary pieces of recent research applying a mix of methods under different theoretical perspectives. The discussant will work out general patterns of insights across these various pieces of research. The session, hence, is of high scholarly significance.

#### Structure of the session

After a brief general introduction four presentations a 15 minutes each are following. The discussant highlights some general remarks and opens the discussion for the plenum.

#### *Presentations of the Symposium*

### **Learning during Internships: A Study of Engineering Students**

**Michael Goller<sup>1</sup>, Christian Harteis<sup>1</sup>, David Gijbels<sup>2</sup>, Vincent Donche<sup>2</sup>**

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#### Objectives

Internships aim at providing practice-based learning opportunities that help students to develop applicable knowledge preparing them for future demands of work. However, not all internships are alike since workplaces strongly differ in how they afford learning opportunities to their incumbents. The aim of this contribution is to answer the question of what workplace characteristics stimulate students' learning during internships and therefore support them to professionally develop. This question will be empirically investigated in the domain of engineering education.

#### Theoretical Framework

Within this contribution workplaces are considered as learning environments affording authentic problem situations and resources available for solutions. A widely used framework to describe the learning potential of workplaces is the job demand-control-support model (Johnson & Hall, 1988; Theorell & Karasek, 1996). This model claims that incumbents are more strongly motivated to engage in different informal learning activities if their workplace requires them to regularly take part in highly demanding work tasks by simultaneously affording them large degrees of job control as well as sufficient opportunities to qualitatively interact with supervisors or coworkers (learning hypothesis). Theoretically and empirically a variety of such learning activities—exhibited by students during internships—can be distinguished (Gijbels et al., 2014): (a) external regulation: interns approaching their mentor as external source for knowledge construction; (b) self regulation: interns try to solve problem situations on their own (e.g., trial-and-error); (c) shared regulation: interns purposefully approach experienced colleagues for practical suggestions; and (d) avoidance of learning: a general lack of adoption to challenging situations at work (i.e., non learning).

#### Methodology

This contribution utilizes data collected in Belgium involving a convenient sample of engineering students who finalized an obligatory internship (n=121). The data was collected with a validated questionnaire containing nine scales with four items each. Cronbach's Alpha indicates a sufficient to good internal consistency for all scales.

#### Results

The data was analyzed using multiple regression analyses with the described learning activities as criterion variables and job demands, job control, supervisor support as well as coworker support as predictors. Workplaces that afford highly demanding tasks significantly stimulate learners to engage in self-regulated and shared-regulated learning approaches. In addition, learners in highly demanding internship are less prone to avoid learning. Supervisor support is significantly related to external

regulation. In other words, availability of supervisor support increases the likelihood that students approach them with questions and problems. Coworker support was found to be significantly related to shared regulation and avoidance of learning. It follows that colleagues that are open for discussions motivate students' engagement information and feedback seeking at work. At the same time, such a team environment makes it less probable that student learners actively avoid learning.

All findings will be critically discussed in the presentation. A focus of the discussion will be laid on the practical implications of the findings: How should workplaces for interns be designed?

## **Effects of Internships on Self-perceived Competencies and Burnout of Student Teachers in Mathematics and Religion**

**Dagmar Festner<sup>1</sup>, Carina Caruso<sup>1</sup>, Alexander Gröschner<sup>2</sup>**

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### **Objectives**

In teacher education there is a debate how much practice is appropriate to prepare student teachers in the best way for their future workplace. Therefore in Germany long-term internships are implemented. The purpose of this study is to examine if effects of the internship are similar for all student teachers or if there are subject-specific differences.

### **Theoretical Framework**

Although there is wide agreement that practice is a highly valued facet in becoming a professional teacher (Arnold et al., 2014, Allen & Wright, 2014) and studies revealed that internships mostly lead to positive development (Gröschner et al. 2013, Hascher, 2012, Schubarth et al., 2014), empirical evidence for potential group-differences is scarce. In order to explore this issue we compare two groups of student teachers:

- 1) Mathematics – major subject, focused on declarative knowledge and examinations,
- 2) Religion, catholic – minor subject, focused on confession of faith.

Religion teachers are expected to adopt an anthropological angle of view and to express the individual confession of faith. Hence, we expect that religion teacher students experience their internships in a different way than mathematics teacher students. We compare these two -groups according to (H1-H5) self-perceived competencies and (H6-H8) burnout during a five-months-internship:

H1-H3: Student teachers in religion show higher self-perceived competencies in teaching, education and consulting.

H4-H5: Student teachers in mathematics show higher self-perceived competencies in assessment and innovation.

H6-H8: Student teachers in religion perceive less burnout (depersonalization, low performance, emotional exhaustion) during the internship.

### **Methods**

Our longitudinal study assessed self-perceived competencies (Gröschner, 2015, Retelsdorf et al., 2014) as well as aspects of burnout (Maslach et al., 1996) and applied ANOVAs for repeated measurements (GLM).

### **Data sources**

N = 948 student teachers in their second semester of the teacher education master program participated in this study. They filled in an online-questionnaire at the beginning (t1) and at the end (t2) of their five-months internship. This contribution focuses on the data of student teachers in mathematics (n1 = 89) and religion (n2 = 67).

### **Results**

Findings indicate that in both groups self-perceived competencies increase significantly during the internship (effect of time). Subject-specific effects only could be found for consulting: estimations of student teachers in religion are higher in the beginning and rise over time. Furthermore, data indicate that student teachers in religion perceive decreased burnout at the end of their internships.

Hypotheses 1-2,4-5 have to be declined and 3,6-8 can be accepted, but with the acknowledgment that the effect sizes are quite small. It might be the anthropological orientation of incoming teachers in religion that explains the differences to incoming teachers in mathematics.

### **Scientific significance**

The study provides first empirical insights into the impact of long-term internships in comparison of different groups of student teachers. To be aware of potential differences is important in order to provide demand-oriented support in teacher education.

## **Learning from Errors at Work in Vocational Education and Training**

**Andreas Rausch, Milena Huber**

University of Mannheim

### **Objectives and theoretical framework**

The German 'dual system' of vocational education and training (VET) combines classroom-based learning in state-run vocational schools and practice-based workplace learning in the training company. Despite an official curriculum for in-firm training and legal requirements for the supervision of VET trainees, much of their learning through practice occurs incidentally while pursuing working goals in regular workplaces. In addition to learning from off-hand instructions of skilled colleagues, learning from errors plays an important role for VET trainees. In our study, we investigate the complex interplay of types of errors (slips and lapses vs. mistakes; Reason, 1990), circumstances (e.g., visibility of an error for significant others; Oser & Spychiger, 2005), coping (emotion-focused vs. problem-focused; Boekaerts, 2011; Brown et al., 2005), emotions (e.g., feeling guilty; Tulis et al., 2016; Zhao et al., 2014) and learning from an error.

### **Methodology**

To overcome shortcomings of common retrospective self-reports such as interviews or questionnaires, we followed Rausch (2012) and Rausch et al. (2017) and administered a semi-standardized error diary. Individual and contextual factors were measured by standard questionnaires. Fifty-one VET trainees participated in the study and recorded n = 352 error situations in

a four-week diary period. To overcome a limitation in the study of Rausch et al. (2017), emotions were measured twice, once in the moment an error was discovered and a second time after an error situation was resolved.

## Results

First content analyses indicate that most of the errors are slips and lapses, which lead to insights relating to general work approaches such as double-checking, while domain-specific mistakes foster the acquisition of more detailed and job-related knowledge. Unsurprisingly, errors are likely to provoke negative emotions, which are even stronger if significant others become aware of one's error. Negative emotions lead to emotion-focused coping. However, as opposed to common theoretical arguments, negative emotions as a consequence of an error seem to support learning from an error. Correlation analysis reveals that taking time for emotion-regulation and even blaming oneself are related to one's self-reported learning in the respective error situation. These findings seem to underline that 'learning is painful', as Oser and Spychiger suggested in the title of their book in 2005. Further beneficial strategies were trying to understand the causes of an error (i.e., problem-focused coping) and asking for help in an error situation.

In large parts, this study is a replication of the study conducted by Rausch et al. (2017). However, some of their results were not replicated in our first analysis. Further analysis will be focused on the changes in emotional experience during an error situation as well as the influence of individual factors (error orientation and big five personality traits) and contextual factors (department, team size, psychological safety).

## **The Relevance of Beliefs, Motivation and Self-Regulation for the Development of Educational Knowledge during Internships**

**Sarah Mertens, Sabine Schlag, Cornelia Gräsel**  
University of Wuppertal

### Objectives

The purpose of this study is to examine if students due to their (1) motivational dispositions (2) self-perceived competencies and (3) self-regulation differ in their development of (4) educational knowledge during a long-term internship.

### Theoretical Framework

Long-term internships are recently introduced elements in German teacher education that should improve the professional competencies of student teachers. Teachers' professional competence can be described as an interplay of different aspects like professional knowledge, beliefs, motivational orientations and self-regulation (Baumert & Kunter, 2013). König and Rothland (2012) have already shown connections between professional knowledge and motivational-affective characteristics. Research addressing competence development during longer internships also shows positive effects regarding different aspects of competence (Gröschner, Schmitt & Seidel, 2013; Seidel & Stürmer, 2014). Overall, research identifies systematic differences between the knowledge of student teachers, but it is not yet clear which factors affect these differences (Kunina-Habenicht et al., 2013).

### Methods

To rate different aspects of professional competence, five validated instruments were used:

- (1) Self-assessment, focusing on teacher practice to measure self-perceived competencies (Gröschner, 2009).
- (2) A questionnaire on motivation for choosing teacher education (FEMOLA, Pohlmann & Möller, 2010).
- (3) Scales by Grob and Maag-Merki (2001) to measure self-regulation.

For measuring educational knowledge we used two different methodological approaches:

- (4.1) an educational knowledge test (Seifert & Schaper, 2010) to determine the conceptual educational knowledge and (4.2) the Observer, which is a video-based tool to estimate teachers' professional vision (Seidel & Stürmer, 2014).

Motivation for choosing teacher education was assessed retrospectively at the beginning of the long-term internship. In the longitudinal study self-perceived competencies, self-regulation and educational knowledge were examined before and after the long-term internship.

Variance analysis with repetitions (ANOVA) were used to analyze the development of determined aspects of professional competence. Multiple regressions were used to prove the impact of (1) motivational dispositions (2) self-perceived competencies and (3) self-regulation for (4.1) conceptual educational knowledge and (4.2) professional vision.

### Data sources

The study focuses on the data of N =142 student teachers (71 % female). They filled in a paper-pencil-test before (July 2015) and after (February 2016) their long-term internship which is part of the teacher education master program.

### Results

In the analysis student teachers have shown a significantly higher professional vision and higher self-perceived competencies after the long-term internship. A significant development of conceptual knowledge and self-regulation could not be demonstrated. Self-perceived competencies represented a significant predictor for professional vision only after completing the internship. Relations between the conceptual knowledge and other determined aspects of professional competence could not be shown for any time of measurement.

### Scientific significance

Until now, studies have focused predominantly on single aspects of competence development during internships. This study provides a first insight into the interaction of the different aspects of professional competences. By revealing relations between these aspects, the education of future student teachers should be improved. The results indicate that facilitating positive beliefs, like self-perceived competencies, might be one aspect of fostering student teachers' educational knowledge.

## E02 - Symposium: Interactions et potentiel d'apprentissage des situations professionnelles

Time: Thursday, 13/Sep/2018: 1:30pm - 3:30pm · Location: MR170

Session Chair: Paul Olry

Session Chair: Patrick Mayen

Invited symposium

### Interactions et potentiel d'apprentissage des situations professionnelles

Chair(s): **Paul Olry** (AgrosupDijon, France), **Patrick Mayen** (AgrosupDijon, France)

Discussant(s): **Marianne Cerf** (INRA,)

Ce symposium adopte une perspective de didactique professionnelle (Pastré et al, 2006 ; Mayen, Olry, Pastré, 2017) pour examiner le potentiel d'apprentissage des interactions dans des situations de formation par le travail, au travail et en formation.

En effet, la place des interactions comme moteur du développement professionnel connaît un regain d'intérêt (Van Belleghem, 2016 ) dans la suite d'une tradition bien établie (Trognon, 2000 ; Mayen 2001 ; Fillietaz, 2007 ; Vinatier, 2007).

Ces interactions portent sur le travail, la manière de l'effectuer et sur les coordinations entre partenaires. Elles ont aussi une visée de formation et d'apprentissage les conditions pour les réaliser, dont les positions respectives des acteurs en présence (Chrétien, 2014).

Elles se réalisent soit : 1/ dans le cours de situations quotidiennes de travail, avec un aménagement didactique très variable (Kunegel, 2006 ; Fillietaz, 2009 ) ; 2/ dans le cadre d'organisations de travail qui intègrent des dispositifs de formation en situation de travail plus ou moins cadrés je ne crois pas que ce soit un plan didactique (espace test, FEST, stage, apprentissage) et adoptant des modalités de formation variées (échange entre pairs, tutorat, formation sur le poste de travail, formation formelle en salle, mise au travail, etc.)... ; 3/ dans des organisations de formation qui intègrent des structures dans lesquelles se s'effectue un travail de production ou de service aménagé dans une perspective d'apprentissage (ateliers, restaurant, exploitation agricole... des lycées professionnels).

Les interactions entre humains au travail participent des facteurs d'apprentissage ou de formation en situations de travail. Les activités d'interactions entre acteurs, interactions verbales ou interactions de coordination et de coopération, sont porteuses, a priori, d'un potentiel élevé d'apprentissage et de formation. Toutefois, elles ne sont pas indépendantes des conditions dans et par lesquelles elles peuvent s'engager et se dérouler : dispositifs de participation, positions respectives des acteurs, ressources disponibles, conditions de temps et possibilités d'aménagement de l'environnement à des fins formatives, etc.

Le potentiel d'apprentissage des interactions dans des situations de formation par le travail, au travail et en formation peut être mis à l'étude selon les conditions :

- de déploiement d'une interaction à visée d'apprentissage dans les situations professionnelles (positions respectives, conditions de participation, engagement des personnes, etc.);
- d'aménagement et/ou d'affordances du milieu favorisant ou non la possibilité d'une interaction à visée d'apprentissage (espaces hybrides, etc.);
- d'aménagement de curriculum d'apprentissage du travail par le travail, au travail et en formation.

L'enjeu du symposium est de mettre en évidence ces conditions par lesquelles des interactions effectivement apprenantes s'engagent et se développent dans et par les situations de travail, réelles, aménagées, transposées, simulées : conditions de déroulement des interactions, contenus des échanges, conditions liées au contexte interactionnel.

Ce symposium s'appuiera sur trois contributions qui s'attachent à documenter ces thématiques et les questions afférentes sur la base de recherches empiriques et/ou de réflexions théoriques :

Une discutante, Marianne Cerf, engagera les débats par une mise en perspective de l'ensemble des communications avec différents travaux de recherche concernant la place des interactions comme moteur du développement professionnel.

#### *Presentations of the Symposium*

### La conception d'un EVE, pensée, agie et projetée selon une technologie didactique professionnelle

**Anaïs Loizon, Fanny Chrétien**

AgrosupDijon, France

une intervention didactique professionnelle déployée par un projet de co-conception en cours de réalisation. A travers la description d'une démarche de co-conception d'une ressource numérique à visée didactique, nous analysons en quoi la technologie didactique professionnelle oriente les interactions constitutives du processus de conception, et amène les chercheurs impliqués à formuler des hypothèses sur l'usage en situation de cet outil à concevoir. Or, ces postures portent l'hypothèse d'un potentiel apprentissage que médient des usages, des interactions futures entre un outil (Environnement Virtuel d'Apprentissage ou EVE), des apprenants et des formateurs au regard des compétences préfigurées à développer. La problématique de transposition didactique s'applique ici non seulement aux savoirs savants relatifs au fonctionnement d'un écosystème forestier, mais aussi aux interventions des professionnels. Trois autres mouvements de transposition traitent de ces dernières :

- didactiser des situations professionnelles par l'usage de l'EVE en contexte d'enseignement,
- pragmatiser les connaissances acquises par la manipulation guidée de l'interface numérique (simulant l'évolution de la forêt) au sein de situations professionnelles à maîtriser en sortie de formation. Un accent est porté sur une diversité d'activités cognitives que développe l'usage de l'EVE et qui, sous certaines conditions de transposition, sont utiles à la maîtrise des situations professionnelles du forestier (gestionnaire ou ouvrier) ;
- un dépassement des schèmes d'utilisation de l'EVE pour la construction de schèmes professionnels.

Nous présenterons un traitement des interactions (plus ou moins formatives) entre acteurs de la co-conception. Nous voulons ainsi rendre compte à la fois de ce qu'induit une préoccupation didactique professionnelle sur une activité de co-conception

essentiellement constituée d'interactions verbales, et des façons d'introduire une ingénierie didactique dans la suite du projet projeté. Les moments d'échanges entre acteurs du projet jusqu'ici présentent les caractéristiques d'une activité de co-conception (Darses, 2009) : recherche d'un référentiel opératif commun, ajustements socio-relationnels, coopération communautaire et complémentaire, apprentissages mutuels et prise en compte des prescriptions réciproques, etc.

Les premières étapes de co-conception présentées décrivent les infléchissements d'orientations qu'apporte une didactique professionnelle dont l'objectif est de développer des apprentissages professionnels par l'usage de l'EVE (par ex. identifier les situations professionnelles emblématiques du métier de forestier) et les ressources (concepts, connaissances, agencement de tâches, etc.) utiles à leur maîtrise :

- analyse du travail forestier et formalisation d'une tâche experte ;
- acculturation aux savoirs scientifiques de l'écosystème forestier;
- contraintes d'une transposition didactique;
- prise en compte du potentiel (projeté) d'apprentissage des interactions élève/EVE/formateur ;
- transposition professionnelle ou pragmatisation des usages de l'EVE pour la formation professionnelle, dont le test est en cours par une mise à l'épreuve du prototype de l'EVE par une conception continuée dans les usages.

Nous analyserons ensuite les transformations qu'opèrent les interactions sur les préoccupations des différents acteurs en présence et sur leurs représentations de l'objet de conception.

Nous présenterons enfin ce que produisent ces interactions pour co-concevoir : débats sur des objets et des conditions (futurs) d'apprentissage ; hypothèses sur les modalités et freins pédagogiques, etc.

### **Jouer et imaginer, deux fonctions de tutelle dans les interactions pour apprendre en situation de travail**

**Patrick Mayen**

AgroSupDijon, France

Cette communication est issue d'une lecture et d'une observation dont les ressemblances ont troublé l'auteur de ces lignes et ont entraîné une activité de réflexion sur quelques chantiers de recherche et deux auteurs fondateurs.

L'observation est celle d'une situation de formation en situation de travail. L'entreprise est une jardinerie, où sont vendus des végétaux, des outils et moyens pour les cultiver et les entretenir. L'un des enjeux d'apprentissage, bien connu dans les formations, est celui de la reconnaissance des végétaux. Il s'agit d'être capable de reconnaître des végétaux, à des stades de croissance différents des végétaux, de pouvoir les nommer, en français et en latin, et enfin, de connaître les conditions et les modes de croissance et d'entretien de ceux-ci. Ces connaissances sont opérationnelles dans toutes les situations de travail qui composent les emplois de technicien en jardinerie.

Dans le cadre de cette formation, le tuteur, gérant de cette petite jardinerie, développe ce qu'on peut appeler un système de stratégies pour étayer l'apprentissage de la reconnaissance des végétaux chez la jeune salariée novice dans le domaine. Ce qui relie les stratégies, tient en deux mouvements convergents ; il profite de tout pour en faire un jeu d'apprentissage, d'une part, il joue à un jeu, tout au long de la journée qui consiste à se cacher et à surprendre la jeune salariée lorsqu'elle est en train d'agir avec des végétaux, ou simplement, quand elle est à proximité et à l'interroger alors sur ce ou ces végétaux, puis valide ou corrige et disparaît en souriant.. La jeune salariée prend le jeu à son compte et on observe ainsi la mise en place d'une forme d'interaction qui comporte de nombreux facteurs d'apprentissage plus un : celui de créer un espace de jeu d'apprentissage.

Dans le récit de Mark Twain consacré à son apprentissage du pilotage de navire sur le Mississippi, Monsieur Bixby, le pilote que Mark Twain a payé 500 dollars pour qu'il accepte d'être son maître d'apprentissage, déploie lui aussi un système de stratégies facétieuses, mais pour autant très raisonnées et tournées vers l'efficacité. Parmi elles, lui aussi se cache, laisse Mark Twain croire qu'il est seul et qu'il doit se débrouiller, au cours d'une séquence de formation qui est cependant très maîtrisée.

Ces observations conduisent à revenir à deux auteurs fondamentaux : Le premier est Jérôme Bruner et son livre intitulé comment les enfants apprennent à parler dans lequel il analyse des observations d'interactions entre des mères et de très jeunes enfants, notamment consacrées au jeu de cache-cache. Bruner montre comment des acquisitions fondamentales se réalisent dans ces jeux. Le second est Donald Winnicott et sa théorie du jeu et de la création, comme espace de développement et son invention du squiggle, fascinant médium d'interaction.

Dans cette communication, nous reviendrons donc sur l'analyse de quelques cas d'interactions de tutelle avec l'intention de mettre en évidence le rôle de l'imaginaire et du jeu comme composantes du potentiel d'apprentissage des situations de travail et des interactions entre une personne qui apprend et une personne plus expérimentée.

### **Transmettre des savoirs-faire de métier : hybrider les formats en didactique professionnelle**

**Jean-François Métral, Paul Olry**

AgroSupDijon, France

La question « du transfert des savoir-faire » entre générations est d'actualité dans divers secteurs professionnels. Dans le secteur agricole elle est liée à l'installation d'une population de futurs agriculteurs ayant de moins en moins une origine agricole. Dans le secteur de la transformation fromagère, elle est liée au risque de perte du savoir-faire des fromagers, spécifique à chaque appellation d'origine protégée (AOP), du fait du renouvellement des générations tant des fromagers que des conseillers techniques qui les accompagnent. Ce transfert des savoir-faire est soumis à tensions entre :

- tangibilité des phénomènes de transformation fromagère et capacité des professionnels expérimentés à expliciter le travail réel qui fonde ce savoir-faire;
- objectif de transmettre ces savoir-faire, en tant que patrimoine du métier et l'objectif professionnel de les transformer au regard des contraintes et attentes sociétales nouvelles (agriculture plus respectueuse de l'environnement ; fabrication fromagère artisanale mais avec un haut respect des normes en matière d'hygiène, de constance de la qualité du produit...).

Les conditions d'un transfert sont ainsi interrogées, tant sur le contenu de la formation des futurs professionnels des secteurs concernés (Métral et al., 2016), que sur les pratiques de conseil adoptées par les personnels des organisations professionnelles qui les accompagnent (Olry, Cerf, Duhamel, 2017). La communication présente une voie empruntée pour

dépasser ces tensions et créer des conditions favorables à ce transfert. Nous prenons appui sur la proposition de Boutet (2001) : « le langage peut contribuer assez largement au caractère hybride ou intermédiaire [des situations] (...) la « part langagière » de la formation professionnelle est elle-même potentiellement le fruit d'une certaine hybridité et (...) contribue à produire des espaces intermédiaires de formation ».

Une « situation hybride » entre formation et travail a été conçue avec et par les conseillers techniques croisant un artefact, des temps, un dispositif, un rôle nouveau, des pratiques d'action et de transmission, des types de savoir ou de connaissance relevant soit des sphères de la vie de travail, soit des sphères savantes ou de la technique.

Cette communication exploratoire a pour objectif de caractériser davantage le concept de transmission par hybridation pour : (i) mieux saisir cette hybridité lors de l'analyse ; (ii) déterminer ce qu'il pourrait apporter à l'analyse des conditions de la « transmission professionnelle » (Chrétien, 2015 ; Olry, 2008) ; (iii) de tester son opérationnalité didactique pour construire des dispositifs et situation de formation en situation de travail.

Pour cela, nous examinerons : 1/ quelques travaux analysant des interactions dans le cadre de situations pouvant être qualifiées d'hybrides (stage en entreprise, atelier école, espace-test) ; 2/ des situations originales construites dans le cadre de deux recherches, que nous tenterons d'analyser sous l'angle de leur hybridité pour évaluer leur potentiel d'apprentissage professionnel ; 3/ des matériaux pour transmettre (analyses de « bout de champs » en agronomie) et/ou des situations d'analyse de l'activité comme outil de formation (réalisées avec des techniciens : ces professionnels expérimentés enquêtent sur les raisonnements soutenant la compréhension des fromagers).

### **Le novice en quête d'autonomie : interactions tutorales en formation et aux premiers mois de travail**

**Otilia Holgado**

Université de Sherbrooke

Composantes indissociables de la formation professionnelle (FP), l'école et l'entreprise jouent des rôles différents mais complémentaires dans l'apprentissage d'un métier (Billett, 2011). Ainsi, faire le choix d'un modèle essentiellement scolaire pour le développement des compétences requises par le marché du travail n'est pas sans répercussions sur l'adéquation entre la formation et le marché du travail. Ce choix amène notamment à l'installation d'un écart entre les pratiques d'apprentissage et les pratiques professionnelles observées sur le marché de travail et à la légitimation de cet écart. Cette différence peut être observée entre autres au niveau des interactions à visé formative, d'ordre langagier et gestuel, pour lesquelles nous proposons ici une analyse comparative : d'une part, les interactions entre les élèves en fin de parcours scolaire professionnalisant et leurs enseignants, d'autre part, les interactions à double visée, formative et productive, entre les jeunes diplômés dans les premiers mois d'emploi dans le secteur de leur formation et les tuteurs qui leur sont désignés pour parfaire leur formation et faciliter leur intégration dans le milieu de travail. Ça sera également une occasion de revisiter la notion de compétence, cette notion polysémique (Jonnaert, 2011) qui, dans un système scolaire professionnalisant organisé « par compétences », fait sens pour certains et débat pour d'autres. En effet, les interactions observées en formation montrent que le développement des compétences en formation professionnelle scolaire est à certains moments orienté par un objectif de transmission et d'acquisition de savoirs (Lessard et Tardif, 2003; Delgoulet, 2001). Les situations mises à disposition des élèves sont alors conçues par les enseignants comme des espaces d'apprentissage présentant un éloignement temporaire des objectifs de travail.

Nous nous appuyons sur des données portant sur deux métiers : transport par camion et aménagement paysager, issues de deux recherches complémentaires mais conduites de la même manière, selon une démarche de didactique professionnelle, définie comme l'analyse du travail dans une démarche de compréhension des compétences professionnelles (Pastré, 2008) en vue de la formation des travailleurs (Pastré, 2011).

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Pastré, P. (2008). Etude comparative des trois chantiers de l'AFPA. *Travail et apprentissages*, 2, 131-139.

Pastré, P. (2011). *La didactique professionnelle. Approche anthropologique du développement chez les adultes*. Paris : Presses Universitaires de France.

## **E03 - Symposium: The epistemic use of material objects in workplace participatory practices: Exploring the context of health**

*Time:* Thursday, 13/Sep/2018: 1:30pm - 3:30pm · *Location:* M2160

*Session Chair:* Åsa Mäkitalo

*Session Chair:* Laurent Filliettaz

### **The epistemic use of material objects in workplace participatory practices: Exploring the context of health**

*Chair(s):* **Åsa Mäkitalo** (Gothenburg University), **Laurent Filliettaz** (University of Geneva, Switzerland)

*Discussant(s):* **Monika Nerland** (University of Oslo)

Learning and instruction processes as they are accomplished in the conditions of occupational practices are deeply shaped by contextual arrangements. According to socio-cultural approaches to learning, they rely not only on personal or individual factors, but also on external resources as they are available within specific cultural and contextual arrangements. Amongst these resources, materiality and tangible objects have been recognised as playing a significant role for learning when they become instruments associated not only with practical functions but also with specific work-related knowledge. Depending on the theoretical frames in which they have been investigated, these objects have been conceptualised as “cognitive artefacts”, “boundary objects” or “meditational means”, to quote a few.

From that standpoint, the objective of this symposium is to investigate the role and place of material objects in workplace contexts, when these objects are used by participants not only for production purposes, but also as support for accomplishing epistemic practices and bringing visibility to knowledge associated with these objects. Sharing a common analytic interest for social interactions in naturally occurring institutional contexts, the four papers included in the symposium will examine how participants negotiate the meanings associated to the use of objects in workplace participatory practices, and how that meanings may contribute to the framing and the reframing of the contexts in which interactions take place. Contributions will also investigate what learning opportunities may arise when interacting with or by means of material objects in workplace practices.

At a conceptual level, the contributions gathered in the symposium will present diverse theoretical frameworks that may be enacted to describe and understand the epistemic use of objects in workplace participatory practices. What are the existing conceptual constructs available to understand how material objects may contribute to epistemic practices? What conceptions are best suited to analyse the learning potential associated with such practices? At a methodological level, analytic issues related to data collection, preparation and interpretation will be discussed, in relation to the conditions under which the role of materiality in learning and professional development may be captured and investigated. Finally, practical implications associated with the epistemic use of material objects in workplace contexts will also be addressed. The symposium will reflect on how to expand the role and place of objects as learning devices within specific institutional arrangements.

Special attention will be dedicated to the context of health. Health professionals are often working in environments characterised by a high density of technological artefacts. They also accomplish face-to-face interactions with patients and apply and develop specific knowledge about their bodies. Interactions between health professionals and patients will be explored, as well as interactions taking place in the context of medical education and training. Contributions will investigate diverse practices associated to learning opportunities in health care contexts, including vocational training interactions in radiology and the development of tools and artefacts for managing chronic diseases such as hypertension and diabetes. From there, epistemic practices and learning experiences associated with materiality and objects will be investigated both from the perspective of patients and professionals.

#### *Presentations of the Symposium*

### **Renderings of an invisible condition : Graphs as objects and means of communication in hypertension consultations**

**Åsa Mäkitalo, Karin Kjellgren, Roger Säljö**  
Gothenburg University

Hypertension is a common condition and a riskfactor for developing cardiovascular diseases. With an ageing population it has become a societal concern that a growing number of people suffer from high blood pressure. In the medical field it is well known what causes this condition and how to effectively treat it pharmacologically, which is why hypertension consultations have been targeted as important sites for professional–patient intervention, interaction and learning (Bengtsson et al, 2018). Hypertension is not visible to the naked eye, and although symptoms have been reported it is hard to grasp why the blood pressure fluctuates over time. Successful treatment is usually also dependent on lifestyle changes, which is a sensitive topic to address in consultations.

The introduction of “tangible objects” in this professional context accordingly respond to several of these challenges; the difficulty patients report in gaining control and agency over the condition and for professionals in following-up their treatment. In our study, graphs re-presenting data that refer to signs, symptoms and everyday activities reported by the patients have been analysed. The data consist of 10 video-recorded consultations with patients and their health care professionals. In this paper, we analyse these graphs as material-semiotic means in interaction (Wertsch 2007) and the ways they mediate the consultation activity.

The results show how the visual features of the graphs become vehicles for joint attention and discussion, and they gain several meanings and functions in the consultations. As artefacts, they both enable and constrain professional-patient interaction and reasoning in situ. On the one hand, they have stabilizing functions in communication, providing constraints that tend to move the interlocutors toward a set of targeted actions. On the other hand, there are also context transcending potentials of their use. As mediational means their activity–tied features also enact relevancies across time and local sites, which point to their potential as boundary objects (Star & Greisemer, 1989) when health care activities are re-located from the clinic to people's homes.

The use of graphs as “tangible objects” in hypertension care, accordingly, has considerable potential, since they support the possibilities of a) coordinating patient-professional understanding and b) provide opportunities for following-up treatment of this common condition.

### **The epistemic use of the body in medical radiology : insights from an interactional perspective**

**Laurent Fillietaz**  
University of Geneva

This talk aims to contribute to the understanding of learning and instructional processes as they take place in the conditions of workplace participatory practices (Koschmann et al., 2007). Within the literature on workplace learning, it is now commonly recognised that workers do not only learn by conducting specific tasks individually; they learn when more experienced workers are able to guide them in their practice, and when adequate resources are made available to them (Billett, 2001; Tynjälä, 2009; Mikkonen, 2017). Amongst the resources that are be afforded to newcomers, material objects play a significant role in guided professional practices. Instructional practices may be directed explicitly to properties of the material environments; or elements of materiality may more generally mediate the conditions through which newcomers interact with other participants.

These premises seem to be particularly true in the empirical context of medical radiology. When learning to become technicians in radiology, students are faced with a wide scope of technical objects, including X-ray devices, scanners or RMI technology. They have also to learn how to position the patient's body so that adequate images are produced for diagnostic or therapeutic purposes. In this talk, we will reflect on the specific instructional practices that emerge when newcomers in medical radiology gain access to such technical skills in the conditions of practice, under the guidance of experienced workers endorsing the role of mentors. We aim at understanding how participants to interactions – including students, mentors and patients – use material resources to accomplish complex and layered actions, oriented simultaneously or alternatively to the production of work and knowledge associated with work. More specifically, the talk will aim at understanding how participants may use the patient's body as resources to navigate complex constraints associated with work procedures and epistemic practices.

To do so, we use a collection of audio-video data recorded in 2015 in a public hospital of the canton Geneva in Switzerland. Video recordings inform naturally occurring work and training practices as they take place during internships in a conventional radiology service. During internships, students in technical radiology learn to take images of patients' bodies, under the guidance of experienced technicians. At theoretical level, our approach is informed by conversation analysis (Schegloff, 2007), interactional sociolinguistics (Gumperz, 1982) and multimodal semiotics (Kress et al, 2001). Based on fine-grained multimodal transcripts of excerpts of interactions between students, mentors and patients, we will describe how materiality pertaining to the patient's body may be used as resources for epistemic practices. More generally, we will also propose to see such epistemic use of patients' bodies as a process of “instrumental genesis” (Rabardel, 1995), by which participants jointly elaborate the conditions of learning and professional development.

### **Building healthcare expertise in context: The teaching-learning processes of a new tool in different healthcare settings**

**Giada Danesi, Michèle Grossen**  
University of Lausanne

Diabetes is a chronic metabolic disorder characterised by an elevated level of blood glucose. When not properly managed, it leads to serious health problems over time. Requiring the involvement of many healthcare practitioners and a strict life hygiene, the management of diabetes has led to a reconfiguration of the role of both healthcare professionals and patients. Healthcare professionals have to adapt their practices to a healthcare system based on interprofessional team work and a highly technological environment, whereas patients are expected to be more active in the self-assessment of their health.

In diabetes management, patient-controlled devices play a central role. Due to their constant development, healthcare professionals and patients have to continually acquire new knowledge and skills. Moreover, the heterogeneity of competences held by the various actors creates a distributed knowledge environment in which everybody is liable to learn or to teach some sort of expertise. This raises the following questions: How do professionals learn the expertise they need to use new devices in their specific work environment? How is it distributed between the various practitioners involved in diabetes healthcare?

To answer these questions, we draw on an interdisciplinary theoretical framework taken from STS and sociocultural psychology. Both approaches consider human cognition as a situated activity, focus on the actors' practices in context, and pay attention to the artefacts mediating the development of knowledge and its use in context.

The data presented in this paper are taken from a broader multidisciplinary research project investigating knowledge translation through tool-supported practices in diabetes management. The paper focuses on the use of a new medical device, the Freestyle Libre (a flash glucose monitoring), which was introduced in Switzerland in May 2016. We studied its introduction in four settings: a summer camp for children and young people living with diabetes, two paediatric diabetes services, healthcare professionals' offices, and training courses. The semi-structured and informal interviews with 25 healthcare professionals and ethnographic observations in different settings enable us to collect data on how the Freestyle Libre was presented, to which expectations and practices it led, what obstacles were experienced by the healthcare professionals and/or their patients. More specifically we examined how the healthcare professionals learned and taught to use this device.

The results show that learning to use this new tool does not only require the mastery of technical skills but also depends on the mode of collaboration in a given work setting, and the presence of informal learning-teaching situations. Settings based on multidisciplinary work where the team members may face the other practitioners' practices, such as the paediatric diabetes services and the summer camp, does not promote the development of expertise in the same way as settings where healthcare professionals work more individually.

To conclude, the findings highlight the importance of informal situations in the acquisition of expertise. More broadly, our contribution reveals the importance of work organisation in the acquisition of new expertise and the importance of considering the ecology of the tool.

### **Simulations as hybrid objects in learning for the healthcare professions**

**Hans Rystedt**  
Karolinska

Simulators are increasingly used as means for education and training in healthcare. The rationale is that simulation environments offer opportunities to learn from active participation in dynamic scenarios involving many of the complexities characterising healthcare work. However, simulators differ in important ways in terms of how work settings are represented, ranging from rather abstract desktop simulations to so called full-scale simulations where patients are represented by hi-tech manikins. A prevailing discussion is to what extent the material properties of simulators determine the clinical relevance of simulators for learning. This presentation addresses this broad issue by analyses of how healthcare practices are evoked and re-contextualized in the participants' interactions with simulators.

The results are based on interaction analyses of video recordings from three different data corpuses (Heath, Hindmarsh & Luff, 2010). The first study concerned how students interacted with a desktop simulation as a part of their training to become nurse anaesthetists. A typical response was that certain patterns of signs displayed on the screen were interpreted in terms of pain. It is noteworthy that there were not any representations of pain in the simulation per se. Instead it was the students' employment of a specific type of professional practice, i.e. seeing patients through the monitors and relating a set of parameters, that shaped the simulation as an instance of pain during anaesthesia.

The second study was based on data from a full-scale simulation in which teams of nurses and physicians trained together. The scenario design was intended to recreate many of the challenges involved in acute care of trauma patients with life threatening injuries. As revealed by the analysis, the simulation as a simulation of clinical practice, could be both breached and re-established by the ways the participants drew on work routines, implying that the clinical relevance was rather to be understood as an interactive achievement than determined by the technology.

The third study concerned the use of high-tech simulators to train students and professionals to manage emergency situations. Whilst full-scale simulators situated in a real-like medical setting are expected to provide self-explaining environments, the present analysis evidenced that in-scenario instructions were decisive of how participants understood and acted in simulated situations. For instance, brief and timely prompts were at the core of keeping the momentum in the training of experienced teams to be in line with the acute character of resuscitation work. But instructions provided in a slow tempo could also slow down the tempo in the training of novices to carry out systematic examinations of patients step-by-step.

The examples illustrate that simulators are hybrid objects in the sense that they are flexibly interpretable and enable re-contextualisations of work practices in different ways. Both abstract and full-scale simulators can offer such opportunities depending on how their material properties are shaped in and through interaction, or as Rawls put it, "Things are made to appear as objects of a sort only when oriented towards in specifiable ways in the context of a practice" (in Garfinkel 2002, p. 167).

## **E04 - Symposium: Emerging directions in research on connectivity for interaction, learning and professional development**

*Time:* Thursday, 13/Sep/2018: 1:30pm - 3:30pm · *Location:* M2170

*Session Chair:* Sarojni Choy

*Session Chair:* David Guile

### **Emerging directions in research on connectivity for interaction, learning and professional development**

*Chair(s):* **Sarojini Choy** (Griffith Univ., Australia), **David Guile** (University College London)

*Discussant(s):* **Stephen Billett** (Griffith Univ.)

The vocational education and training systems rely heavily on the contributions of different physical and social settings to learning necessary for the development of competencies for contemporary workers and industries. A growing body of research has established the efficacies and contributions of authentic learning experiences in different sites. An emerging generation of research converges around connectivity, integrative pedagogies and boundary crossing, aimed at enhancing integration of learning in different sites. New conceptualisations, theories and methodologies for connectivity and integration are thus proposed.

The aim of this symposium is to synthesise recent and current research on key considerations for connectivity and integration. The presentations will discuss research traditions that inform investigations and contributions to emerging directions in connectivity for interaction, learning and professional development. Researchers from Australia, Finland, Germany, the Netherlands and the United Kingdom present studies surrounding a key concern informed by particular theoretical, methodological or practical tradition. The first presentation explains that when issues associated with the connective typology of work experience, the mediated relationship between vertical development (VD) and horizontal development (HD) are conceptualised as inferential processes that have to continually recontextualised it is possible to: (i) appreciate the limitations of the concept of connectivity; and, (ii) identify a more comprehensive account of the relationship between VD and HD. The second presentation draws on a theoretical study on the development and use of approaches such as Integrative Pedagogy model (IP model), connective model and ecosystems of learning as responses to increased demand on including work-related and work-based learning as part of further and higher education. This framework raises questions about ways that learning from work experience, theory-based disciplines and self-regulation in digital and real-life, school and workplace environments influence recontextualisation of knowledge from the perspective of learners, teachers, designers of curriculum and the world of work. The third presentation analyses cross-contextual learning processes from three perspectives: (1) guidance by vocational educators, (2) assessment of students' development and (3) design of VET-learning environments. The presenters use the theoretical framework of boundary crossing to clarify the complex, multilevel nature of these key issues. The researchers argue that boundary crossing processes take place at an intrapersonal, interpersonal and institutional level. The final presentation explores how transformations influenced by digitization impacts connectivity for interaction, learning and professional development. Key challenges of digitization for connectivity between different learning sites in VET (i.e. educational institutions and work organisations) are analysed. Suggestions on how digital tools can be used as boundary objects in VET are proposed. Together, the four papers contribute to enriching connectivity and integration of learning in different settings.

#### *Presentations of the Symposium*

### **Recontextualising connectivity for interaction, learning and professional development**

**David Guile**

University College London

The aim of this paper is to explain that when issues associated with the connective typology of work experience (Griffiths and Guile, 2004), for example, the mediated relationship between vertical development (VD) and horizontal development (HD) are conceptualised as inferential processes that have to continually recontextualised it is possible to: (i) appreciate the limitations of the concept of connectivity; and, (ii) identify a more comprehensive account of the relationship between VD and HD.

The paper concepts from two theoretical traditions: Socio-cultural theories of learning and the fourth from the Philosophy of Mind. The first three concepts come from the former, the fourth the latter. The concepts are: (i) Vygotsky's (1987) concept of mediated learning, that is, we develop by internalizing extant ideas and practices and externalizing our understanding of those ideas and practices or working with others to create new ideas and practices; (ii) Beach's (1999) development of situated learning with his concept of boundary crossing; (iii) van Oer's (1993) argument boundary crossing through the concept of recontextualisation, that is, using symbolic and material tools, in different ways in different contexts; and, (iv) Brandom's (2000) concept of the social practice of inferences, in other words, making judgments and articulating those judgements to others.

The empirical evidence is taken from case studies of firstly, students undertaking work experience presented in Griffiths and Guile (2004), which were based on visits, interviews and observations of work experience in the following countries: Denmark; Germany; Sweden and, the UK. Secondly, visits, interviews and observations in the UK of apprentices in the Media Industry (eg. Guile and Lahiff, 2017); trainee pharmacists in retail pharmacy (Guile and Ahmed, 2013) and experienced engineers working for a professional service firm operating in the global economy.

From a recontextualisation perspective, 'connectivity' presupposes a uni-directional process of forming inferences, making judgments and articulating those judgements to others: on some occasions, this involves forming inferences between theoretical concepts learnt in an educational context and their explicit or implicit manifestation in workplace practice (VD); and, on other occasions, it involves forming inferences between workplace practice and theoretical concepts or between workplace practice in one context and another context (HD). This perspective allows us to appreciate under-acknowledged features of interaction and learning. That they are: (i) normative and informed by a web of reasons and the inferences; and (ii) developed as people form new inferences and make judgements to accomplish the goal of their activity in one context and consider its implications for another context.

The concept of recontextualisation offers researchers who have: (i) used the concept of connectivity a way to make the inferential dimension of interaction and learning in their work more explicit; and, (ii) expressed reservations about the phase and stage approach to professional development with a way to adopt a holistic view of professional formation.

Key Reference

## **Pedagogical Models to Support Connectivity for Interaction, Learning and Professional Development**

**Päivi Tynjälä, Maarit Virolainen, Hannu L.T Heikkinen, Anne Virtanen**  
Finnish Institute for Educational Research, University of Jyväskylä, Finland

This theoretical study reflects on the development and use of approaches such as Integrative Pedagogy model (IP model), connective model and ecosystems of learning as responses to increased demand on including work-related and work-based learning as part of further and higher education. The development of the approaches is examined, and future challenges are pictured.

The starting point of the presentation is the IP model and how it has been used to investigate the integration of work experience into vocational and professional education (Tynjälä, 2009; Heikkinen, Tynjälä, & Kiviniemi, 2011). While the IP model is based on the analysis of expert knowledge, it acknowledges socio-cultural perspective as the broader context for enabling understanding of the situated nature of learning and expertise development (Bereiter, 2002; Eraut, 2004). Its development has also benefitted from research utilising the connective model (Virtanen & Tynjälä 2008). Discussions on recontextualisation of knowledge on the basis of the connective model provide a bridge for conceptualising how combining theory-based learning with learning from work experience changes in the ecosystems of learning (Evans, Guile, Harris & Allan 2010; Kemmis & Heikkinen, 2012).

The IP model has been implemented in several empirical studies to explore and enhance collaborative practices of educational institutions and the world of work to promote students' and employees' expansive learning (e.g. Heikkinen et al., 2011; Korhonen, Heikkinen, Kiviniemi, & Tynjälä, 2017; Tynjälä, Virtanen, Klemola, Kostiainen & Rasku-Puttonen, 2016). Recently, it has been used to create evaluative tools on how the IP model's principles are realized in learning environments (Elvira, Imants, Danbaar & Segers, 2017). In a recent study it gave a framework for analyzing how Finnish institutions of higher education (HE) have organised their pedagogical practices and workplace relations to support the development of generic skills (Jääskelä, Nykänen, & Tynjälä 2018).

The IP model highlights the importance of combining conceptual knowledge, practical knowledge, regulative knowledge and socio-cultural knowledge when planning study programmes for future professionals. When contexts of learning intertwine digital learning, workplace learning and networks of experts at school and work, there is a demand to better understand how planning for learning, support of learning and interaction is reorganized and interconnected in those multiple contexts. Approaches such as ecosystems of learning (Kemmis & Heikkinen 2012) provide fruitful starting points for picturing the forms of networks and the challenges they meet. The conceptualization of the "chain of knowledge recontextualisation" enables discussing how various ecosystems of learning intertwine the chain of recontextualising knowledge (Evans, Guile, Harris & Allan, 2010).

In sum, prospects of this framework relate to the question: how do the new combinations of learning environments, i.e. learning from work experience, theory-based disciplines and self-regulation in digital and real-life, school and workplace environments change recontextualisation of knowledge from the perspective of learners, teachers, designers of curriculum and the world of work.

Jääskelä, P., Nykänen, S. & Tynjälä, P. (2018). Models for the development of generic skills in Finnish higher education. *Journal of Further and Higher Education*, 42(1), 130–142.

## **Multilevel Boundary Crossing in connectivity for interaction, learning and professional development across contexts**

**Ilya Zitter<sup>1</sup>, Liesbeth Baartman<sup>1</sup>, Elly de Bruijn<sup>2</sup>**

<sup>1</sup>HU University of Applied Sciences Utrecht, The Netherlands, <sup>2</sup>HU University of Applied Sciences Utrecht and Open University

Learning across the contexts of school and the workplace is highly relevant to the VET-sector. This contribution analyses these cross-contextual learning processes with three key issues in mind: (1) guidance by vocational educators, (2) assessment of students' development and (3) design of VET-learning environments. Guidance, assessment and overarching VET-curriculum designs form the basis for constructive alignment as an approach to optimize conditions for high quality cross-contextual learning processes. We used the theoretical framework of boundary crossing to clarify the complex, multilevel nature of these key issues.

We consider the contexts of school and the workplace as social and cultural practices, with ongoing, two-sided actions and interactions between these practices. These constant, reciprocal processes are referred to as boundary crossing and involve, for example, legitimizing coexistence, creating routinized exchanges, perspective making and taking, and creation of in-between practices. Boundary crossing can take place at different levels, namely, the intrapersonal, interpersonal and institutional level (Akkerman & Bruining, 2016). We framed our three key issues with the multilevel boundary crossing theory (View figure 1 online: <https://goo.gl/AGSSup>).

At the core of cross-contextual learning in VET at all Boundary Crossing-levels, we position conceptualising and concretising and the closely related sense making and meaning making. Modelling, guiding, scaffolding, coaching and monitoring should be part of the guidance repertoire appropriate for cross-contextual learning, both at school and the workplace. At the institutional and interpersonal level, extended teams of jointly responsible educators and practitioners from the workplace provide suitable guidance. In line with such guidance, assessment should reflect authentic practices to evaluate learning outcomes developed across contexts. Moreover, assessment itself could function as a boundary object to facilitate boundary crossing. At the institutional level, our programmatic view on assessment can be positioned. In an assessment program, students' development is monitored and stimulated formatively, and robust decisions are optimized across evidence from multiple school-based and workplace-based encounters. Suitable guidance and programmatic assessment are ideally embedded in hybrid VET-curricula, that combine the advantages of co-designed school-based and workplace learning arrangements, by connecting these practices, without losing the strength of either. (View figure 2 online: <https://goo.gl/AGSSup>).

Contributions to understanding connectivity for interaction and learning

By framing our research from a multilevel boundary crossing perspective, the complexity and interconnectedness of the three key concerns are clarified. We bring to the fore that taking cross-contextual learning processes as the starting point has far-reaching consequences. It shows that not only our VET-students are crossing boundaries, the accompanying guidance,

assessment (programs) and educational designs also cross boundaries. Moreover, these boundary crossing processes take place at an intrapersonal, interpersonal and institutional level.

Currently, the above is mostly researched separately, i.e., separate concerns, boundary crossing-processes and levels, however, crossovers and more integrated approaches could yield rich and relevant insights for the VET-sector. Hence a more integrated approach to research is necessary.

Akkerman, S., & Bruining, T. (2016). Multilevel Boundary Crossing in a Professional Development School Partnership. *Journal of the Learning Sciences*, 25(2), 240–284. <https://doi.org/10.1080/10508406.2016.1147448>

### **Digitization in connectivity for interaction, learning and professional development**

**Carmela Aprea<sup>1</sup>, Alberto Cattaneo<sup>2</sup>, Viviana Sappa<sup>2</sup>, Sarojni Choy<sup>3</sup>**

<sup>1</sup>University of Mannheim, Germany, <sup>2</sup>Swiss Federal Institute for Vocational Education and Training (SFIVET), Lugano, Switzerland, <sup>3</sup>Griffith Univ.

The ongoing transformations associated with the term 'digitisation' are currently changing the world of everyday life and of work in a yet not fully foreseeable way. In this presentation, we explore how these transformations may impact connectivity for interaction, learning and professional development. We particularly ask: (1) What are the key challenges of digitization for connectivity between different learning sites in VET (i.e. educational institutions and work organisations); and (2) How can digital tools be used to shape these relationships.

Our research is informed by a multi-level vision of connectivity as advocated by Stenström & Tynjälä (2009). The system level relates to connectivity between the (vocational) educational system and the labour markets. It concerns coordination processes between economic and (vocational) educational policies, including VET curricula as important regulatory mechanisms and outcomes of these processes. The organisational level regards the interaction and communication between agents at different learning sites, whereas the individual level is focused on connectivity between school-based and work-based learning, particularly between theory and practice as well as cognition and action. Given these considerations, our aim is to identify priority themes and lines of debate regarding the impact of digitisation at the different levels of connectivity.

To that end, we draw on empirical studies on (1) consequences of digitisation for the world of work and employment; (2) how digitisation will change skill requirements in VET; and (3) how digital tools can be used to support interaction, learning and professional development. Our analyses presents prevailing developments related to digitisation, which likely influence the three different levels of connectivity.

With regard to these levels, the following key issues emerged: At the system level, there is an unresolved dispute about digitisation and its impact on massive worker redundancy. In addition, a tendency towards more complex and fast moving skill demands is stated. Given these circumstances it becomes impossible to codify VET curricula conclusively. This tendency in turn may not only require increased curriculum development activities from VET teachers and trainers, but also a better coordination of those activities at the organisational level. Moreover, the need for better cooperation and reconciliation of the learning sites is also mirrored at the individual level, where we found that digital tools can be effectively used as boundary objects in VET but require specific personal and institutional conditions.

Two questions are specifically important for future debate and research: (1) From a scientific point of view, which research approaches are most appropriate to gain further insights regarding the consequences of digitisation for connectivity in VET? (2) From a practical perspective, how could VET actors be supported to exploit the affordances of digitisation, and concurrently cope with its challenges in terms of complexity and speed?

#### **Key Reference**

Stenström, M.-L.; Tynjälä, P. (2009). *Towards integration of work and learning*. Amsterdam: Springer.

## **E05 - Paper session Fr: Apprentissage et développement dans les métiers de la santé et du travail social**

*Time:* Thursday, 13/Sep/2018: 1:30pm - 3:30pm · *Location:* M1130

*Session Chair:* Julien de Miribel

### **Comprendre l'expérience subjective d'une crise de santé : des enjeux professionnels majeurs pour les médecins de l'urgence**

**Marianne Lafitte**

CHU de Bordeaux, France, Collège Santé, Université de Bordeaux et Centre de Recherche sur la Formation-CNAM, Paris;  
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Les urgences cardiaques sont un enjeu de santé publique majeur des sociétés modernes. Lors de la survenue d'un infarctus du myocarde (IDM), le comportement le plus adapté pour recevoir les traitements est de recourir le plus rapidement aux secours médicalisés. Pourtant, de nombreux sujets qui subissent l'irruption de cette crise cardiaque diffèrent l'appel des secours, ou n'appellent pas. Les raisons de ce comportement inadapté en termes de survie font l'objet de nombreux travaux de recherche, dont les résultats sont insuffisants. En effet, les méthodes utilisées a posteriori sont peu adaptées à l'enjeu de compréhension du vécu de la crise et des phénomènes mentaux qui déterminent les choix pendant cette crise. Non observables par le chercheur par méthode directe, ils nécessitent la construction d'un dispositif méthodologique pour conduire une recherche en compréhension des phénomènes subjectifs pendant l'urgence cardiaque.

Une recherche qualitative compréhensive a été conduite au cours d'un doctorat en sciences de l'éducation. Le choix de l'épistémologie de la subjectivité a permis d'explorer et de comprendre (1) le vécu du sujet pendant la crise cardiaque, dans son corps (dans une sémiologie du point de vue de celui qui vit les symptômes), et dans son environnement, (2) les choix que les victimes d'infarctus opèrent pendant la crise, pour eux-mêmes, et dans leurs relations avec leur environnement, (3) les phénomènes mentaux qui influencent la décision de recourir aux soins, et en particulier, d'appeler les secours.

La crise cardiaque active des délibérations sur soi, qui participent à la construction dans l'urgence d'identités en tant que corps en crise, et en tant que sujet en crise. Le travail d'anamnèse du corps en crise participe à la construction d'un soi souffrant au travers du récit adressé à soi et aux autres des symptômes. Mais le sujet vivant la crise est d'abord un sujet délibérant sur soi en crise : un soi à préserver en tant que soi-même, et un soi à transformer en tant que soi souffrant, nécessitant des soins. Deux niveaux de délibérations sont investis par la conscience en prise avec une menace biologique, brutale et grave : soi comme corps en crise, et soi, comme sujet en crise. L'urgence de préservation est psychique et corporelle. En se représentant soi-même avec toutes ses capacités, le sujet en crise lutte contre l'angoisse provoquée par l'IDM. Mais pendant que le soi-même résiste, le corps en crise impose sa temporalité et menace le vivant. L'acceptation en urgence d'un soi souffrant est facilitée par une pleine conscience de soi comme corps et comme sujet. L'écoute au présent par le sujet en crise de ses ressentis du corps et de sa vulnérabilité, favorise la demande de soins.

Les enjeux identitaires au moment de l'IDM sont au premier plan de la décision de demande de soins en urgence. Ils doivent être connus des professionnels des secours, et des professionnels de l'éducation, afin de proposer des apprentissages adaptés de la gestion de la crise de santé, à tous les âges de la vie, et chez les malades.

### **La part du collectif dans l'apprentissage organisationnel dans les associations du secteur social**

**Vivien Braccini<sup>1</sup>, Emmanuel Triby<sup>2</sup>**

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#### **Contexte et problématique**

En France, les formes de solidarité et l'innovation sociale dont dépend le bien-être social sont le produit des interactions historiques entre l'État et les associations (Laville 2010). Cependant, la situation des associations de l'action sociale est en profonde mutation (Autès 2013). La désinstitutionnalisation du secteur (Aballéa 2012) et l'affaiblissement de l'État providence (Laville 2008) génèrent une injonction à l'adaptation et à l'innovation sans nécessairement conduire pour autant à l'isomorphisme institutionnel étatique ou marchand (Enjolras 1995, Draperi 2003). Le collectif constitue alors une composante de l'organisation de premier plan, car la capacité de transformation des organisations repose sur l'apprentissage des individus (Argyris et Schön 2002, Fillol 2009) qui lui s'élabore dans et par le collectif.

#### **Cadre conceptuel**

Pour comprendre et influencer la place du collectif dans ce processus multi dimensionnel, continu et auto-régulé (Giordan 1998, 2011) qu'est l'apprentissage, nous nous appuyons sur trois notions. Tout d'abord l'apprentissage par la problématisation, propice à la réflexivité et à l'abstraction dont dépend la conceptualisation dans l'action (Pastré 1999). Notre deuxième élément est « l'environnement capacitant » (Oudet 2012, 2016) pour prendre en compte l'effet du contexte sur l'apprentissage qui ne se résume pas à un processus endogène. Enfin, le troisième élément est la double dimension politique de l'apprentissage qui intervient dans la capacitation de l'organisation et s'exprime dans les modalités de gestion de l'action collective et dans les différentes formes de rapports de pouvoir qui organisent les influences et positionnements des individus et des groupes composant les organisations (Liu 2013).

#### **Démarche de recherche**

##### **La méthodologie**

Pour faire face au caractère situationnel et dynamique de notre objet, nous avons fondé notre approche sur la recherche-action (Liu 1997, Crézé et Liu 2006).

##### **Le terrain**

Notre démarche implique quatre centres socio-culturels qui souhaitent améliorer leur capacité d'adaptation et de changement dans un environnement incertain et fortement contraint, questionnant les professionnalités. Nous tentons avec eux de développer un dispositif expérimental d'apprentissage collectif à partir d'une question de départ, propre à chaque centre, identifiable à un problème.

##### **Principes directeurs de la recherche-action**

Pour animer la recherche, nous suivons trois principes directeurs : 1) l'apprentissage collectif se joue dans la mise en débats des savoirs en jeu dans l'activité respective des différents professionnels et bénévoles ; 2) la compréhension de l'activité et des situations qui l'organisent est indispensable à la mobilisation de la double dimension politique comme facilitateur de l'apprentissage ; 3) il est possible de créer des situations propices à l'apprentissage à partir de la problématisation collective, le débat interprofessionnel et un travail de conceptualisation explicite et outillé.

#### Premiers résultats

Bien que provisoires et encore partiels, nous tirons de notre démarche les premiers résultats méthodologiques concernant l'identification du problème initial, l'appropriation par les participants de la démarche d'investigation et de problématisation qui sont à l'origine d'une ébauche de théorisation des liens entre capacités, autonomisation et organisation apprenante ; la dimension politique s'actualise dans les débats de valeurs que fait émerger la collaboration interprofessionnelle.

### **L'expérience des aides soignants entrés en formation infirmière : Entre transition identitaire et reconnaissance des transiteurs**

**Catherine Bargibant**

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L'observation d' « incidents critiques » (Flanagan, 1956) auprès de certains étudiants en soins infirmiers, ex aides-soignants, rentrés en formation par le biais des études promotionnelles (ESI EP) a été ma façon d'entrer en thèse. Comment expliquer ces

« erreurs de comportements » (Meirieu, 1991) d'étudiants issus du milieu de la santé ?

Cette observation a été objectivée à l'aide de 211 questionnaires (Formateurs, ESI EP et non EP) et 26 entretiens semi-directifs (ESI EP et non EP). Après analyse thématique et statistique textuelle (IRaMuTeQ®) des verbatim recueillis, les résultats exploratoires ont montré :

- De nombreuses motivations intrinsèques objectivant un engagement fort en formation. (Deci & Ryan, 2000 ; Carré, 2001).
- Une formation perçue comme enrichissante mais très lourde, manquant de liens théorico-pratiques, de cohérence et de temps pour le travail personnel.

36 incidents critiques sont également retrouvés, le plus souvent vécus dans des contextes de « stress », de « pression », de peur de décevoir et de crainte de l'échec. Dans les verbatim, les perceptions de l'expérience des ESI EP semblent différentes entre les formateurs et ces étudiants. Notre objet de recherche se stabilise sur des savoirs d'expérience des ESI EP, ex aides-soignants, envisagés par eux-mêmes et par les autres acteurs de la formation infirmière (tuteurs et formateurs).

Le cadre théorique mobilisé pour étudier notre objet rapproche le concept d'expérience (Dewey, 1938 ; Laing, 1972) et celui d'identité, notamment, l'identité vue comme une « transaction » entre une identité pour soi et une identité pour autrui (Dubar, 2001). Ces références solides nous permettront d'appréhender la transition identitaire par le biais de la dynamique identitaire (Kaddouri, 2006, 2008) qui se joue dans une période d'« entre deux » depuis le métier antérieur vers celui de la profession visée. Ces périodes sont sensibles pour l'individu (Kaddouri, 2014, 2017) si elles ne sont pas étayées par un soutien individuel et collectif des figures significatives de la profession visée. En effet, la reconnaissance inexacte des savoirs d'expérience des ESI EP par les tuteurs/formateurs pourrait être vécue comme une atteinte à leur identité. Elle pourrait réactiver un sentiment d'insécurité délétère à l'apprentissage (Edmondson, 1999, 2003), à la transition identitaire (Kaddouri, 2017) et, in fine, à la qualité du profil motivationnel et d'engagement en formation (Bandura, 2001, Boutinet, 1998).

Une nouvelle investigation empirique est en cours d'analyse, mais nous observons d'ors et déjà un écart significatif entre l'expérience pour soi (ESI EP) et l'expérience pour autrui (Tuteurs et formateurs que nous appellerons "transiteurs") ; les ESI EP seraient peu conscients de la nature de leur expérience et très déstabilisés par cette originalité qu'ils préfèrent souvent taire. Ils disent craindre une évaluation erronée (positive ou négative) de leurs savoirs d'expérience. Pourtant, certains tuteurs et formateurs apprécient plutôt l'expérience des ESI EP, alors que d'autres, selon les établissements, ne la perçoivent pas toujours comme un avantage en formation infirmière.

### **La dimension interactionnelle dans le développement professionnel des infirmiers en psychiatrie en France**

**Julien de Miribel**

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Cette contribution examine des dynamiques à l'œuvre dans le développement professionnel des infirmiers exerçant spécifiquement en psychiatrie. La recherche ici présentée porte sur une initiative développée dans un établissement public de santé mentale situé dans la région de Lille et qui cherche à compléter la formation de ses infirmiers nouvellement recrutés, laquelle est jugée insuffisante en matière de psychiatrie (Rapport Robiliard, 2013). Il s'agit d'un dispositif dit de « professionnalisation » adressé à ces infirmiers et qui s'organise en deux instances. L'une, à visée transmissive, est constituée de sessions de formation à la spécificité des soins en psychiatrie. L'autre, constructive, repose sur un tutorat favorisant l'analyse réflexive (Schön, 1994) de l'expérience du travail soignant vécu par les néo-infirmiers.

Cette recherche examine le sens que prend ce dispositif dans le parcours des infirmiers concernés. Elle prend pour cela appui sur le concept d'enquête (Dewey, 1993) et notamment la manière dont celui-ci permet d'examiner les interactions entre un sujet et son environnement. Cette entrée repose sur une observation participante de trois années dans l'établissement hébergeant le dispositif ainsi que sur trente-six entretiens semi-directifs, pour certains exploratoires, menés auprès d'acteurs professionnels associés plus ou moins directement au dispositif.

L'analyse fait particulièrement ressortir l'originalité du tutorat mis en œuvre. Si ce type d'accompagnement se déroule « classiquement » dans les conditions de réalisation du travail (Filliettaz, 2017), le tutorat ici institué donne lieu à la création d'espaces-temps spécifiques, souvent juxtaposés au travail soignant. Il se caractérise alors essentiellement par une activité interactionnelle plurimodale cherchant à favoriser la réflexion sur et pour l'action (Wittorski, 2007). La fonction d'étayage (Bruner, 1983) permettant de faire face à des situations problématiques, voire critiques, est quant à elle souvent assurée informellement via des actions de travail collectif permettant de restaurer un équilibre acceptable pour les acteurs engagés dans de telles situations.

La dimension interactionnelle (impliquant également la relation avec le patient) apparaît particulièrement investie par les auteurs du dispositif comme voie de professionnalisation des infirmiers. Parallèlement, elle s'exprime de façon mal visible dans des situations quotidiennes de soins qui n'en favorisent pas moins l'apprentissage du métier. Ce faisant, elle constitue un enjeu de connaissance majeur pour les acteurs du champ soucieux d'identifier les dynamiques de transmission du travail (Wittorski, 2015) chez les infirmiers en psychiatrie.

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## E06 - Paper session: Learning in vocational education and training

Time: Thursday, 13/Sep/2018: 1:30pm - 3:30pm · Location: M1140

Session Chair: Joris Felder

### European approach: VET adults' problem-solving skills in technology-rich environments

Raija Hämäläinen<sup>1</sup>, Bram De Wever<sup>2</sup>, Sebastiano Cincinato<sup>3</sup>, Kari Nissinen<sup>1</sup>

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The technological landscape in the European workplace is changing rapidly and this is challenging adults' problem-solving skills in technology-rich environments (TRE). The requirements for professional skills and competences are increasing in all forms of work (e.g. Billet, 2006; Frey and Osborne, 2017). The interesting question for future working life involves how well adults' vocational skills and professional expertise match the changing needs of the European workplace. This presentation builds on the Programme for the International Assessment of Adult Competencies (PIAAC) data to understand the skills for solving problems in TRE of adults with vocational education and training (VET). Firstly, this presentation focuses on gaining insight into the problem-solving skills in TREs of adults with a VET background (N=50 369) in eleven European countries. Secondly, the presentation identifies the indicators for problem-solving skills differences (n=4503). Finally, the presentation focuses on European adults with a VET background that have sound problem-solving skills (N=12 929). When examining the similarities and differences in VET adults' problem-solving skills in TREs across 11 European countries, our results show the critical issue that only a minority of VET adults perform at a high level. A detailed examination indicates that more than two thirds of VET adults have weak skills or lack the skills in solving problems in TRE. Furthermore, we will illustrate that the likelihood of having fragile problem-solving skills is six times higher for adults with VET than for adults with at least upper secondary qualification. Since the need for TRE problem-solving is likely to increase in the future (Hämäläinen, et. al., 2017), this study also identifies the indicators for problem-solving skills differences. In this presentation, the models predicting problem-solving skills on the basis of theoretical assumptions as well as empirical support are presented. Our results indicate that VET adults' lower performance does not seem to be associated with the VET educational system itself, but is mostly due to age, education in years, occupation, and gender, as well as work-related and everyday life factors. Finally, the last part of the presentation, brings out new knowledge with respect to the socio-demographic, work-related, and everyday life background factors that contribute to successful VET adults' problem-solving skills. Our findings illustrate that a continuous process of development including non-formal and informal activity as well as learning taking place at work is associated with strong performance in problem-solving skills. An important implication of this study is that this series of studies introduces novel knowledge for VET adults' competences and can be used to support the development of VET adults' problem-solving skills in TREs. Finally, an important implication of this study is that our results bring out new prospects for VET adults' professional development.

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### [CANCELLED] Quality of VET - A Systematic Survey Review

Svenja Boehn, Viola Katharina Deutscher

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**Aim:** Research shows that the quality of VET varies widely between professions, employers and industries. Especially research on the company-based training component in VET is deficient although it constitutes a crucial part of most VET programs (Beck, 2005; Baethge et al., 2007; Rausch, 2013). In addition, those studies that focus on training conditions are characterized by different comprehensions of the concept and a great variety of test instruments. Hence, it is difficult to compare empirical results, for instance by integrating different studies in a quantitative meta-analysis. This article aims at understanding how training conditions in VET are operationalized by providing an overview of existing scales and items used in apprentices' surveys. Therefore, items of 42 national and international test instruments are categorized.

**Methodology:** A qualitative meta-synthesis was used starting with a systematic literature research. Out of more than 13.000 search results, 111 studies were extracted to be examined. As the aim was to analyze the operationalization of training conditions, items used in apprentices' surveys were analyzed. Subsequently, test instruments had to be procured. Those test instruments that were either not accessible, incomplete or in a foreign language were excluded from further analysis. Those that were used in more than one study were marked as multiple evaluations would have distorted the results. Considering that, 42 different test instruments (representing 3.205 items) remained for the analysis.

**Results:** Results show that training conditions in VET can be operationalized by the differentiation of thirty categories in eight content areas. Therefore, every single item was evaluated and categorized. For reasons of clarity, two perspectives were separated (operational factors, e.g. work tasks, and factors on part of the apprentice, e.g. biography). The qualitative meta-synthesis yielded a framework model differentiating categories based on input, process and output factors of VET (Biggs, 1996; Tynjälä, 2013).

**Theoretical and Practical Significance of the Research:** This contribution aims at contributing to summarize existing research results concerning the debate of working and learning conditions in the field of VET. With the help of the qualitative meta-synthesis, a better understanding of the operationalization of training conditions in apprentices' surveys could be gained. Furthermore, the detailed system of categories as well as the underlying item catalogue can be provided (possibly as an online item pool). This might be helpful for future research activities focusing on quantitative meta-analysis and using questionnaire designs in the context of VET.

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### **Career adaptability of VET students in the commercial domain – different operationalizations and relationship to professional identification**

**Sebastian Kirchknopf**

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In the face of a changing world of work and emerging demands for flexibility, career adaptability became an important construct in the field of vocational psychology. Although often merely conceived as the ability to adjust to transformations of the work environment (Hall 2004; Rottinghaus et al. 2005), career adaptability was originally introduced to replace the term of vocational maturity (Super/Knasek 1981; Savickas 1997). Therefore, career adaptability plays an important role regarding vocational choice as well as life-long vocational development and, on both counts, is highly relevant in vocational education and training.

Career adaptability, depending on the approach, seems to contain integrative as well as flexible elements. On the one hand, it is associated with a personal disposition of flexibility avoiding organisational or occupational commitment. On the other hand, it includes integrative potential as Savickas' influential conceptualization shows: 'career adaptability is a psychosocial construct that denotes an individual's resources for coping with current and anticipated tasks, transitions, traumas in their occupational roles that [...] alter their social integration' (Savickas/Porfeli 2012, p. 662). As it appears to be also beneficial for one's professional integration while initially entering the world of work, career adaptability is potentially an important factor for professional identification and vocational identity development of VET students. Despite the vast increase of empirical research in recent years (Rudolph et al. 2017), mainly featuring Savickas' four dimensional operationalization of career adaptability (Savickas/Porfeli 2012), VET students have not yet been a subject of investigation in this research context.

This raises the question whether Savickas' four dimensional conceptualization of career adaptability can be replicated among VET students in the dual system, and whether it can be empirically discriminated against other approaches, which tend to highlight aspects of flexibility and adjustment (Rottinghaus et al. 2005; Briscoe/Hall 2006). Furthermore, it is of major interest whether these different adaptability conceptualizations vary in their influence on VET students' professional identification as an indicator of their vocational identity development.

As part of a dissertation project, a quantitative survey was conducted with a sample of almost N=400 dual VET students of five different occupations in the commercial domain of German vocational education. They volunteered to complete a questionnaire including the Career Adapt-Abilities Scale (Johnston 2013) and fully or adapted alternative operationalizations of adaptability (Spurk/Volmer 2013; Gasteiger 2007).

Exploratory (EFA) and confirmatory factor analysis (CFA) were used to provide evidence for construct validity of Savickas' conceptualization of adaptability regarding the chosen sample. Furthermore, several structural equation models (SEM) using Mplus were conducted to regress the students' professional identification on the different conceptualizations of adaptability.

The four dimensional conceptualization of career adaptability could be largely replicated among German dual VET students. The number of factors extracted by EFA and the model fits of the CFA support the assumption that alternative approaches to adaptability seem to cover quite different aspects. Moreover, SEM show that Savickas' operationalization of adaptability, more than the alternative approaches, has a significantly strong influence on students' professional identification and therefore deserves greater consideration concerning the vocational identity development of VET students.

### **How can innovations best be propagated in dual VET?**

**Joris Felder, Jean-Luc Gurtner**

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Vocational education and training, especially where conducted in a dual mode, involves many stakeholders and actors with a large variety of interests. Innovating under these conditions requires complex coordination efforts. We however know little about how innovations best propagate in such conditions, in particular when they concern altogether, workplaces, vocational schools and intercompany courses. The progressive introduction of the Realto platform – a web-based platform developed within the Dual-T project ([www.realto.ch](http://www.realto.ch)) to connect the various learning locations and currently experimented by more and more professions across Switzerland – opens rich possibilities to examine what makes it adopted and spreading or not and with which speed, depending on the relative implication in the project of the various participating stakeholders. In accordance with Alter (2002), Realto is a true innovation since it is not only a new device but also requires from all actors involved – apprentices, teachers and supervisors – new behaviors and new implications within the training process.

In this communication, we will present an exploratory analysis of the propagation of this innovation within a single profession (painters) and contrast its propagation under different scenarios and actors' configurations. The dataset which will be used to make these comparisons is automatically generated by the platform itself. Two criteria will serve to assess the propagation, 1) the evolution of the amount of activity observed on the platform within a given timeframe and 2) graphical visualization of the morphology of the users' networks. Our analysis of this dataset confirms that propagation, both its speed and its form, depends on the way the platform has been taken up and its use initiated as well as on which stakeholders were there the driving force. If confirmed by similar observations in other professions, these results could provide a good basis to the formulation of helpful recommendations for a successful introduction of innovations in VET. This contribution will also discuss the relevance of learning analytics and the quality of specific indicators (Scheffel, M. & al. 2014) for the study of innovation propagation in VET.

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## E07 - Paper session: Emotions in learning and professional development

Time: Thursday, 13/Sep/2018: 1:30pm - 3:30pm · Location: M1150

Session Chair: Susanna Paloniemi

### Dynamic interplay of learning behaviours and affective reactions within work teams

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#### Relevance

Research identified the need for investigating dynamics and behavioural changes within teams over a certain period of time (Decuyper et al., 2010) while also taking into account input variables (Reiter-Palmon et al., 2017). As affects are inherent within teamwork and are related to learning within teams (Van Kleef & Fischer, 2016), and because of the gap in research on this topic, affective reactions are the input variables in the present study. This study focuses on the dynamics of team learning by investigating changes in learning behaviours and affective reactions within teams as well as the relationships between the variables over time. The following research questions will be answered: (1) To what extent do learning behaviours within teams change over time? (2) To what extent do affective reactions within teams change over time? and (3) What are the relationships between affective reactions and learning behaviours within teams over time?

#### Team learning behaviours and affective reactions

Team learning behaviours are based on an integrative and systematic model of team learning developed by Decuyper and colleagues (2010). We selected two behaviours (sharing and team reflection), because these two learning behaviours always occur within teams and can be observed during real-time team meetings. Affect is used as an umbrella term that refers to affective states or emotions (Forgas, 1994). The focus here is on the interpersonal character of team members' affective states with the assumption that affective reactions (positive, negative) can be influenced by someone else's behaviour (Van Kleef et al., 2012).

#### Method

The aim is to investigate affective reactions and team learning behaviours to increase understanding of how they influence each other during teamwork (Gardener & Quigley, 2015). Therefore, we conducted a fully integrated mixed-design study (cf. Schoonenboom & Johnson, 2017) in vocational colleges in Germany that included a survey and an observation study both with longitudinal perspective. 278 members (55.4% male, 44.2 % female) of 67 interdisciplinary vocational educator teams filled out the questionnaire three times (at the beginning, the middle and the end of the school year). Correlations and a cross-lagged panel model by using Mplus 7 were carried out. Six teams of the survey sample were observed over a period of 3 to 5 month. In total 28 team meetings were used for qualitative content analyses to analyse affective reactions and team learning behaviours.

#### Results

Research questions 1 and 2 could be answered by the survey and observation study, but with some inconsistent findings. In addition, the analyses of the survey data revealed relationships, in particular reciprocal findings between affective reactions and learning behaviours within teams over time. These findings could also be observed during the team meetings. In sum, this study highlights that team members' positive affective reactions can be an important resource in engaging in team learning behaviours during teamwork.

#### Selected Reference

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### Emotional processes and Adaptation: A longitudinal Study in An Adult Education Program

Michaël Raphaël Parmentier, Thomas Pirsoul, Frédéric Nils

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In today's global work context, the ability to cope with the unpredictability of ongoing changes and job transitions has become crucial, both at the emotional and cognitive level. Individuals are expected to continuously develop their skills to improve their employability (Baruch, 2004) and display both emotional competence/intelligence (Di Fabio & Kenny, 2014) and career adaptabilities (Savickas, 2005) in order to respond to career changes. Even though the concept of career adaptability has been coined as a key construct in vocational psychology and extensively studied in recent years (see, Rudolph, Lavigne, and Zacher 2017, for a meta-analysis), the literature has been less specific regarding (1) the interplay between adult education and career adaptation and (2) the importance of the emotional processes at play (Hartung, 2011). Within the context of an adult education program, the present study investigates the impact of emotional competence/intelligence on career adaptability and several professional development and work outcomes, i.e., self-perceived employability, job burnout, and positive and negative affect. More precisely, we hypothesized that career adaptability mediates the impact of emotional competence on self-perceived employability, job burnout and positive and negative affect. The data were collected in a repeated-measures longitudinal design in October 2017 (n = 262) and April 2018 in a university adult education program. Using path analysis, cross-sectional results of wave 1 demonstrated a satisfactory fit of our tested model with the data ( $\chi^2(6) = 16.9$ , CFI = .94, RMSEA = .08). Furthermore, using bootstrap estimation (10,000 samples), our results showed that career adaptability mediated the impact of emotional competence on self-perceived employability, positive affect, negative affect and burnout. Results including the second wave of the study will be presented at the conference. At the theoretical level, this study contributes to the growing literature on career adaptability and offers needed longitudinal evidence of the career construction model (Rudolph et al., 2017). At the practical level, this study stresses the importance of emotional and adaptation processes for lifelong learning and adult education. Implications for both research and practice are discussed.

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### **Training emotional competence for a successful school-to-work transition: An experimental study**

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Emotion seemingly play a crucial role during events of meaningful importance for individuals such as the school-to-work or job transitions. The role of emotion in vocational behaviour is gradually grasping researcher's interest and, the ability to perceive and manage emotions – namely emotional competence – is increasingly considered as crucial for career success (Coetzee & Harry, 2014; Di Fabio, 2012; Di Fabio & Kenny, 2014; Emmerling & Cherniss, 2003). In this experimental study, we propose to test the effectiveness of a structured training in emotional competence in improving last-year university students' professional development outcomes, that is, career adaptability (Savickas, 2005), career decision self-efficacy, and positive and negative affect. Sixty-three undergraduate students were recruited and randomly assigned to either an experimental (31) or control group (33). The EC training consist of 3-hr sessions per week during 5 weeks. This interval between sessions gave the participants enough time to apply their learning in their daily life. Each session was designed to enhance a specific emotional competence: understanding emotions, identifying emotions, expressing emotions, regulating emotions and utilizing emotions (Mikolajczak, Quoidbach, Kotsou, & Nelis, 2009). The results show that, compared to the control group, the training group displays a significant improvement of emotional competence directly after the training and shows higher levels of career adaptability and career decision-making self-efficacy. This experimental study support that emotions and, specifically, emotional competence can lead to different benefits for learning and professional development. Not only our results stress the importance of considering emotional competence as a key construct in professional development but also offer practical perspectives both for researchers and practitioners in the field of training, education and guidance.

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### **Emotions in Professional Learning: Integrating Self-Report and Psychophysiological Measurement Data**

**Susanna Paloniemi, Päivi Hökkä, Katja Vähäsantanen, Anneli Eteläpelto**

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Recent research suggests that emotions play a central role in organisational behaviour, leadership and decision making at work. Emotions are understood as situational and dynamic responses to an event or person. Further, emotions are expected to be elicited by a specific target or cause, and they include physiological reactions and action sequences (Barsade & Gibson, 2007). Despite a growing interest in emotions in adult learning, we lack knowledge of the role of emotions in professional learning in work contexts. Previous studies have noted the limitations of self-report data and the lack of capturing the process data of emotions during learning situations. Consequently, it has been suggested that self-reports should be combined with on-line measurement methodologies, which measure the physiological and behavioural levels of emotions (Azevedo et al., 2016).

This study has a two-fold purpose: to examine the kinds of emotions that emerge during a professional learning situation and to integrate multiple methods and data in researching emotions in professional learning. Six academic teachers participate in the study. In the data collection situation, participants watch video recordings from an identity coaching programme in which they have previously participated (Vähäsantanen et al., 2017). The video recordings consist of the selected moments of their learning processes. Data are collected via self-reports and psychophysiological measurements. Self-report data include the participants' assessments of the quality and strength of their emotions expressed via the Emotion Circle (EC) application, the think-aloud method, and stimulated recall interview. Psychophysiological data are collected from subjects' electrodermal activity (EDA) and heart rate variability (HRV). The process data on the quality, strength and duration of emotions are synchronized with the data on psychophysiological, individual-level peaks of emotional arousal. In addition, self-report data are analysed through qualitative thematic analysis.

The study's findings reveal the different emotions that the participants report during the learning situation together with their psychophysiological reactions. The study also explores how to connect self-report and psychophysiological data on emotions in a learning situation. The findings will be discussed in terms of elaborating the quality and valence of changing emotions during professional learning situation. For methodological development, this study provides a starting point for integrating self-report and psychophysiological methods in researching emotions in professional learning.

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## E08 - Paper session: Teachers expertise and professional development

Time: Thursday, 13/Sep/2018: 1:30pm - 3:30pm · Location: M1160

Session Chair: Henny P. A. Boshuizen

### The use of audio diaries in the mentoring process of initial teacher education

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This small-scale longitudinal study explores a specific qualitative methodology, the use of audio diary in self-reflective activities. It also presents its validity for initial teacher education (ITE) research drawing on findings from previous research on ITE in Hungary and beyond. We explore analytical and technical issues to offer an alternative method for supporting continuous professional development of teachers and mentors (Monrouxe, 2009; Crozier & Cassel, 2015)

In this study we aim to explore (1) how this innovative method of recording audio diaries of their own practice affects mentor's and mentees' general role concepts and reflective practice; (2) if and how recording audio diaries contribute to professional development in their self-perceptions.

This exploratory study represents the preparatory phase of a large-sample quantitative study in which we will analyse on-site mentoring practices in Hungarian schools (scheduled for 2018).

In this phase, we monitor ten mentor teachers' (n=10) and their thirteen mentees' (n=13) work during a semester-long mentoring process. We understand each mentor and their matched mentee/s as one 'mini' case, hence a total of ten case studies. Mentors and their mentees reflect on their work and development in three phases (initial, mid-term and end-term) during the mentoring process. They record their reflections with their handheld devices supported by prompt questions set by the researchers. The duration of the collected audio material was at least 60 mins per participant, which adds up to more than 23 hours of audio material. We performed an exploratory thematic content analysis on the interview data (Fereday et al., 2006).

We found agreement among mentors and mentees about the usefulness and meaningfulness of recording self-reflections and the benefits it encompasses. In particular, verbalization and documentation of their teaching and mentoring experience were highlighted. Additionally, audio diary representing a participatory approach was identified as a mechanism in making sense of the mentoring experience. Mentors and mentees found audio diaries equally motivating for conscious and targeted consideration of their roles in ITE that could support them in their professional development/learning. Participants compared audio diaries against more traditional methods of assessing reflection and evaluated their applicability to different mentoring contexts and incidents. This study supports the existing evidence that audio diaries can provide advantages above and beyond those provided by written diaries because the fluidity in speech enables an immediate response. Participants, however, mentioned certain limitations of the approach that are mainly related to the contextualization of the recording process.

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### Negotiating professional identity: Challenges for early career casual teachers

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Early career teachers, in Australia, are increasingly beginning their career employed as casual teachers (Jenkins, Smith et al. 2009, Bita 2015). Since early 2000, there have been significant policy changes for the teaching profession in Australia regarding teacher registration, professional standards and professional learning. Whilst these policies impact all teachers, there is a greater effect on early career casual teachers (ECCTs) particularly in relation to the negotiation of professional identity. Research related to identity development highlights the fluid nature of identity formation (Day and Gu 2007) and the role of social interactions and experiences in developing a strong or tenuous identity (Lave and Wenger 1991). As newcomers within school and professional communities, early career casual teachers face a number of challenges due to their multiple teaching contexts. The aim of this paper is to show how the variety of experiences within school and professional communities either promotes or constrains professional identity development.

The experiences of both primary and secondary ECCTs in Western Australia were investigated utilising a qualitative approach. Initially focus groups were used to explore ECCTs encounters in schools during Phase 1. In Phase 2 a longitudinal approach was used and the experiences of six ECCTs were investigated through a series of three interviews and eight reflective tasks. Results were analysed using a model adapted from Wenger's (1998) theory of Community of Practice (Wenger 1998). The model highlighted personal, school and professional communities and the interactions at the boundaries of these communities to present a holistic process of identity construction. Trajectories of belonging were incorporated to show possible identities of participation or non-participation within the communities.

Early career casual teachers' professional identity development was impacted by experiences within the three communities. Financial concerns and personal context emerged as important components in the personal sphere. School communities provided experiences interacting with students, colleagues and parents. Although entry to professional communities occurred through provisionally teacher registration, further interactions with professional communities required assistance from school or personal communities. Gathering evidence of competencies in all standards, access to professional learning, mentors and induction proved to be challenging for many ECCTs, potentially leading to de-registration and 'non-teacher' professional identity.

The significance of this research incorporates suggestions for universities, schools and regulatory bodies. Implications for teacher preparation courses include preparing pre-service teachers for the reality of casual employment. Implications for

schools and employment bodies include providing ECCTs explicit access to professional learning opportunities. Additionally, early career induction should be available for early career casual teachers to assist them in brokering entry into school and professional communities. Implication for the regulatory body, include providing flexibility in time frames for the process of ongoing registration documentation.

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### **Narrative Pedagogy and teacher professional development**

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In the last few years, many traditional professions are in crisis and in need of major alteration. These changes have had an impact on professional education, especially in human professions (nursing, psychology, medicine, social work, education etc.). Theories, knowledge, skills and training methods are being revised, and the necessary for performing these jobs are being reevaluated. This "professional turn" has promoted new pedagogies, based on constructivist and hermeneutic approaches which can reflect the new and innovative perceptions of what professional education should be. Narrative Pedagogy is one of those new pedagogies.

During the 1980s, researchers in the human sciences developed a growing interest in narrative pedagogy and methods for professional education. Narrative pedagogy is based on sharing and interpreting stories and the act of storytelling. Sense – making of human experience the world is the central of the teaching – learning process. Narrative Pedagogy is gradually gaining prominence in the professional education curricula of various vocations, including the field of education (Kelchtermans, 2016; Ironside, 2015).

This study describes and examines the characteristics of Narrative Pedagogical approach, as well as its implementation and potential contribution to teachers' professional development. Specifically, it assesses the pedagogy's implementation in a workshop for novice teachers, which have been taught by the authors of this paper for the past several years.

In this study, the narrative investigation of life stories serves as both the method and the object of the research. Life stories are a type of narrative, but they are also a tool for examining narrative reality and understanding the identity of the one who tells them (Bruner, 1987)

The data was collected from 43 final papers submitted, over the past three years, by novice teachers who participated in a profession development course. These papers included a written account of the students' life stories, a reflection on the learning process the students had experienced during the course, and any insights they had gained about themselves (as learners and teachers), about their peers, about the learning process, and about various issues associated with teaching and education.

Narrative analysis and interpretation, was based on the interpretive-hermeneutic approach (Josselson, 2004) and a thematic, holistic and categorical examination of content (Lieblich, Tuval-Mashiach, & Zilber 1998).

Results show that narrative pedagogy exposed four knowledge types:

- (1) Personal knowledge, as motivations for choosing teaching as a career
- (2) Pedagogical knowledge as perceptions regarding learners diversity, norms' behavioral, values
- (3) Content knowledge in their field as academic achievement, text analyzing
- (4) Knowledge of narrative research in education.

To summarize we claim that the various types of professional knowledge are constructed by personal and interpersonal processes. Integration with theoretical knowledge is an assent process that can give response to the dramatic changes in professional development.

### **Teachers' expertise development through professional learning activities at the workplace; the case of lower vocational education in the Netherlands**

**Henny P. A. Boshuizen<sup>1,2</sup>, Jantje Wolters-Mepschen<sup>1</sup>**

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One of the complaints of Dutch schools is that they are in a continuous flux of changes. Some recent legal changes, e.g., inclusive education, especially affect lower vocational education. The successful implementation of such changes requires that schools and teachers reflect on their experiences and competence and take action to further develop their expertise.

Dutch lower vocational education encompasses a wide range of 4-year study programmes. That prepare for secondary vocational education. In addition, there are (associated) practice schools, which aim at preparing 12-18-year-olds for work and daily life. This study investigated expertise development of teachers in such schools by undertaking professional learning activities at the workplace. More specifically we wanted to know whether there are differences in kind and level of expertise between the teachers in the different programmes, whether they learn through different experiences, and whether level of self-initiative plays a role in the effectiveness of workplace learning.

Method: 120 respondents participated, of whom 41 worked as teachers in practice schools, and 79 in preparatory secondary vocational education, aged 23 - 64 years, 59% female. Respondents were online recruited and questioned in an online survey, on their expertise, professional learning activities they undertake in the workplace, and initiator. Three questionnaires were developed to collect information about background, professional learning activities and level of expertise. The items were derived from other questionnaires and literature on teacher expertise and learning in the workplace. Factor analyses were performed to derive a limited number of expertise (5) and learning (5) factors/(sub)scales.

Results and Discussion: multiple regression models of three of the five expertise factors appeared significant: 1) (R<sup>2</sup>=0.45) 'adapting to the learning needs of the students' (predicted by educational track and level of self-initiative); 2) (R<sup>2</sup>=0.38) 'creating

an optimal learning climate' (predicted by level of self-initiative); and 3) ( $R^2=0.46$ ) 'applying theory to teaching practice' (predicted by learning activity 'exchange knowledge with colleagues', and level of self-initiative). Knowledge exchange also significantly contributed to 'creating an optimal pedagogical climate', but this model was not significant. The model for 'Developing (new) teaching' was not significant and included no significant beta-values.

Teachers in practice schools and practice programmes showed more expertise on adapting their instruction to the learning needs of students than teachers in theoretical tracks. The level of self-initiative systematically contributed to expertise development. Only one learning activity, 'exchange of knowledge', seemed to play some role in expertise development. In regard of preparedness for change: we conjecture that this requires 'developing (new) teaching', 'applying theory to teaching practice' and in the specific case of inclusive education 'adapting to the learning needs of students'. Mean scores were highest on 'developing (new) teaching' but contrary to 'applying theory to teaching practice' there were no indications that teachers actively improved themselves. Finally, teachers in the theoretical programmes may learn from/with their more practical colleagues regarding inclusive education. Whereas self-initiated or jointly with colleagues undertaken learning activities are more effective than employer-initiated learning activities, employers should be very careful in finding ways to stimulate cooperation between programmes.

## E09 - Paper session: Training transfer in organisational contexts

Time: Thursday, 13/Sep/2018: 1:30pm - 3:30pm · Location: M1170  
Session Chair: Nathalie Delobbe

### Decoding training transfer through the lens of the social exchange and psychological contract theories

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In spite of decades of research on training transfer, impacts of training in the workplace remains a matter of concern for companies who continue to question the return on their investments. Drawing on social exchange theory, this contribution sheds a new light on the factors and outcomes of training transfer. Employees' engagement to train and to transfer what they have learned as well as support that their employer provides to training are conceptualized as obligations that compose the psychological contract underlying the employment relationship (Rousseau, 1989). In accordance with the norm of reciprocity, when trainees perceive that their employer fulfills its obligations, they are prone to reciprocate this favorable treatment by transferring their newly acquired competences and/or knowledge in their current workplace (Tian, Cordey & Gamble, 2016). On the contrary, employer's failure to support and value the training effort of employees would result in a reduced transfer and impact of training in the workplace.

In order to explore the perceived employer's obligations and practices in terms of support to training as well as the various ways by which employees respond to the support they receive when returning to work, we used a qualitative and longitudinal methodological approach. Eighteen working adults undertaking a continuing education programme in HR management were interviewed in a semi-directive way at two points in time, with approx. 6 months in between. Content analysis focused on the nature of employers' perceived obligations and actual practices and on reactions of employees according they feel supported, or not.

Results highlighted two distinct dynamics of training transfer that are related to the type of overarching psychological contract underlying the employment relationship. On the one hand, the employer's support may be mainly material and take place within an economic exchange relationship and a transactional psychological contract. When this type of support is in line with the perceived obligations, it favours a narrow reciprocity, with a very short-term, targeted form of transfer, aiming at improving the in-role performance. On the other hand, the provided support may include socio-affective components and take place within a relational psychological contract. In such cases, training efforts lead to more generalized forms of reciprocity from employees, which includes enhanced work engagement, initiatives taking and innovative behaviors, extra-role performance and a long-term contribution to the firm's development.

By decoding the phenomenon of training transfer through a theoretical frame, social exchange theory, which is not usual in this field, this study helps to enlarge our vision of training outcomes that have to be considered when evaluating training transfer. It also provides a new and more socio-constructivist understanding of the process leading to transfer and emphasizes the key role of the overall employment relationship in which the training takes place.

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### The relationship between approaches to teaching and training outcome in professional training

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Within the context of training research and especially within the context of occupational and organizational psychology there is a broad empirical body on different influential factors for training transfer (e.g. Aguinis & Kraiger, 2009; Baldwin & Ford, 1988; Salas et al., 2012). However, the trainer person and their approaches to teaching within the training as a factor for the training outcome have been widely neglected. Research on approaches to teaching and the very similar construct of teacher's beliefs in the school or higher education context has shown that a student-focused or constructivist orientation in contrast to a teacher-focused or transmissive orientation is for example associated with a higher perception of increased competence (Braun & Hannover, 2008), a higher learning outcome in math classes (Staub & Stern, 2002; Dubberke et al. 2008), and increased use of activating methods (Dubberke et al. 2008). From this research it can be inferred, that approaches to teaching might also be an important construct for the outcome of trainings in professional training. Therefore, the aim of our research was to analyze the relation between transmissive and constructivist approaches to teaching and training outcome.

We analyzed data from 24 trainings, consisting of soft-skill as well as hard-skill trainings. The 135 trainees were asked about the perceived approaches to teaching which were measured on two scales: transmissive and constructivist approaches to teaching. To measure training outcome we used the Q4TE (Grohmann & Kauffeld, 2013) which is oriented on the four stages of transfer according to the model by Kirkpatrick (1967). After the training, participants were asked about their satisfaction with the training, the perceived utility of the training, and their acquired knowledge. In a post-survey several weeks after the training we asked them about the transfer of the training content into their workplace setting and the perceived organizational results.

The results of the study show that both approaches are positively correlated with satisfaction and perceived utility. However, knowledge at the end of the training was positively correlated with a transmissive approach and not correlated with a constructivist approach. Contrarily, for training transfer the constructivist approach was predictive while the transmissive approach showed no predictive power. The same effect could be shown for perceived organizational results.

Despite the limitation of a small sample size, the study shows that approaches to teaching are an important factor for training outcome. Especially constructivist approaches to teaching are predictive for training transfer which is of great importance within the context of professional training. Implications for the use of the various approaches to teaching within professional training are discussed.

## Effects of work factors on the three stages of post-training transfer: An empirical investigation within the Dutch Police

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Transfer of training can be defined as the productive use of training at the workplace and can be considered the Achilles heel of the training process. When trainees fail to use their new knowledge and skills on the job, training resources are wasted, and business results go unrealized. Research has addressed various factors that explain the success of the transfer. The influencing variables are traditionally divided into three broad categories: trainee characteristics, the design and content of the training programme, and the work environment (Baldwin & Ford, 1988). Although many factors influence transfer, the period after training seems to be most important in facilitating transfer (Hawley & Barnard, 2005). However, the lack of empirical research on full-stage transfer models leads to an incomplete view of the post-training transfer process and makes it difficult to intervene if transfer fails. In our earlier literature review paper on the post-training transfer of soft skills training we identified four post-training transfer stages: motivation to transfer, use of trained skills at the workplace, individual performance improvement and improved organizational performance (Botke, Jansen, Khapova & Tims, in preparation). We found that different work factors are important in each post-training transfer stage. The current study aims to test the post-training stage model empirically, focusing on work factors that explain the transfer results per stage. Three waves of data were collected (before, directly after and three months after the training) from 155 crime scene investigators working for the Dutch Police Force who participated in a two-day training on Mental Strength Skills. In the first-wave and third-wave survey, trainees were asked to provide information on their performance in three critical work situations. The third-wave survey also measured use of new skills. In the second-wave survey, motivation to transfer was measured. All surveys also measured work factors (autonomy, workload, content validity, supervisor support and learning culture). Initial analysis showed that content validity explains most of the variance in motivation to transfer. In addition, our findings showed that post-training supervisor support is related to motivation to transfer, to the use of new skills and to improved performance. More results will be available during the presentation. Our findings are in line with the studies of Govaerts aimed at providing further clarity on supervisor behaviour during transfer (Govaerts, 2017). Yet, our study is original in its focus on a complete transfer process model with a set of work factors that impact the post-training transfer. Our findings are relevant to design training strategies to develop competent and motivated participants who can apply what they have learned, as well as to continue to learn, after the program is over.

## Learning to be a practitioner-researcher: the processes, practices, products and profiles of research engagement in international non-governmental organisations

Jude Fransman

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With a renewed approach to international development embedded in the Sustainable Development Goals (SDGs) and renewed appreciation of the complexities of global (environmental and social) challenges, the knowledge-for-development ecosystem is changing. While research is gaining traction as an important resource to address global challenges, these challenges also require new research approaches that embrace inter/transdisciplinarity (Lang et al 2012; Mauser et al 2013), make better connections between research, policy and practice (Leach et al 2016; Georgalakis et al 2017) and improve accessibility and adaptability of findings (Smith and Reilly 2013). This has implications for researcher development: what types of new knowledge and skills are needed? And are academic systems and the types of researchers they generate best placed to respond to these new approaches to research? There is evidence to suggest that policy makers are increasingly favouring evidence generated by more practice-based organisations (e.g. Hayman et al 2016; Shucksmith 2016). But how do such organisations learn to 'do' research and what does that mean for the emerging professional identity of practitioner-researcher?

This paper draws on the findings from a 4-year Leverhulme-funded study into how international NGOs in the UK's international development sector engage with research (including: accessing, adapting and using existing research; commissioning, collaborating in, conducting and evaluating original research; and contributing to broader research agenda-setting and governance systems). The study adopted a case study approach involving institutional ethnography in two INGOs who were in the process of developing research portfolios. This was supplemented by participatory journaling with 8 practitioner-researchers over a 6-month period and key informant interviews with a range of 'knowledge actors' in the international development sector (including academics).

After discussing the findings in relation to three levels of learning (i. how INGOs learn to be research organisations; ii. how INGO practitioners learn to be researchers; and iii. how the broader knowledge-for-development sector can learn from INGO engagement with research) the paper concludes by highlighting lessons for research development in the domains of policy processes (research systems), practices (research approaches); products (research outputs); and profiles (researchers) which extend beyond the INGO sector with relevance to higher education and other sectors of professional development.

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## E10 - Paper session: Agency and identity in vocational training

Time: Thursday, 13/Sep/2018: 1:30pm - 3:30pm · Location: M2150

Session Chair: Ray Smith

### Occupational prestige as challenge for occupational identities: comparing retail and bricklaying apprentices\*

**Kerstin Duemmler, Alexandra Felder, Isabelle Caprani**

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During vocational education and training (VET), apprentices do not only acquire professional knowledge and skills, they also transform their personal and social identities on their way to developing occupational identities. As apprentices construct these identities in relation to others (Dubar, 1998), they also deal with the occupational prestige accorded to their apprenticeship (Moret et al., 2017; Duemmler & Caprani, 2017); that is the valuation based on, among other aspects, required education, future rewards and authority. The presentation examines an important challenge that apprentices face during the transition from school to work. They have to construct valuable occupational identities which are a necessary precondition for engaging in their apprenticeship.

The analysis is based on a qualitative, comparative study with retail and bricklaying apprentices conducted in five Swiss VET schools in 2013/14 and 2018. In order to examine their occupational identity work, observations during courses and pauses, group discussions and semi-structured interviews with apprentices (20 to 25 per apprenticeship) have been conducted. Transcribed data was analyzed by the Grounded Theory Methodology.

Results show that the question of occupational prestige is raised differently in the two work contexts. During interactions with various others, retail apprentices are faced with the judgement that their work is perceived as a job for everyone and that it would not require specific skills. Bricklaying apprentices experience less devaluation, at the most in regard to the manual, physical nature of their work (compared to intellectual) and the related working conditions (e.g. dirtiness, insecurity).

However, both groups of apprentices develop identity strategies that value their apprenticeship, in particular the skills necessary for the work while they distance at the same time from other workers in the sector (unqualified retail workers or workers involved in construction planning). Both also interpret their apprenticeship as a stepping stone to more prestigious positions within or outside the construction and retail sector while career possibilities for bricklaying apprentices are indeed quite positive. Finally, retail apprentices develop consumer identities and identify with the types of products they sell or the shop they work while bricklaying apprentices, who are nearly without exception young men, construct honorable masculine identities based on physical strength.

The paper reveals how the two groups of apprentices construct valuable occupational identities under completely different conditions that are related to the prestige of their occupation. Retail apprentices develop strategies to reinterpret their low status. Bricklaying apprentices can build instead on a respectable collective occupational identity based on technical skills, manliness, higher rewards and career possibilities.

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\*The study is financed by the Swiss National Science Foundation.

### Teacher's professional identity: configurations of personal and contextual factors.

**Gonny Schellings, Douwe Beijaard, Maaike Koopman, Janine Mommers**

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#### Aim

In the present study, beginning teachers joined identity workshops to support their development of a positive, realistic professional identity. For constructing such an identity entails reconciling processes of the personal and contextual side of becoming and being a teacher (Beijaard & Meijer, 2017; Day et al., 2007). Beginning teachers should find a satisfying balance between what they personally find important for their teaching and the professional demands set by their schools. Much research is already done on teacher's professional identity, yet more insight is needed into what configurations of personal and contextual factors make a teacher identity, the aim of this study.

#### Methodology

During four professional development meetings, 46 beginning teachers from 13 secondary schools received several exercises to discuss their professional identity. Afterwards they noted their answers to reflective questions in a personal notebook. Their notes resulted in diverse data. To get grip on these data, per teacher one overall description of personal and contextual factors was constructed. Further analysis of these descriptions resulted in overarching themes. Within some descriptions more themes were found, whereas in other descriptions one theme was deduced. Finally, the themes were visualised in terms of configuration of personal and contextual factors underlying the themes. Although the configurations are a comprehensive image of more teachers, the individual teacher can still be located.

#### Findings

Five overarching themes were formulated: 1) Classroom management, 2) Students learning, 3) Workload, 4) Collaboration 5), and Standing up for oneself. The number and type of personal and contextual factors discerned within each configuration differed, although there was overlap. For example, the personal factor 'being a perfectionist' was found within four configurations, except for Student learning. The contextual factor 'impact of team/organization' was present in the configurations of Student learning, Workload, and Standing up for oneself. Although each configuration included a number of factors, not all factors were present in the individual teacher's descriptions used to construct the configuration. Consequently, a

specific combination of personal and contextual factors is related to each teacher's theme, indicating that reconciling personal and contextual factors is an idiosyncratic process. In the SIG presentation, examples of specific combinations will be presented.

#### Significance

By establishing configurations of personal and contextual factors that coincide within different themes, this study presents a tool to examine unique reconciling processes in professional identity development. Unravelling this interplay matches the experienced and complex reality of being a teacher. The results lead to new insights in ways individual teachers construct their professional identity and in ways to personalise the support needed within these processes.

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### **Experienced "Protein Engineering" lecturer changing identity through enabling dialogue: from a knowledge transmitter to a learning facilitator**

**Yael Furman Shaharabani, Hana Faiger**

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Calls for active learning in higher education are widespread and supported by extensive research. Nevertheless, traditional lectures are still prevalent at the undergraduate science and engineering level. Lecturers' previous experiences with traditional lectures and established habits as well as situational factors were reported as the main barriers to adoption of active learning strategies.

In this research, we retrospectively explored the professional identity of an experienced and appreciated lecturer. The emergent process took place during an intentional modification of instructional methods of an academic course "Protein Engineering" that combined Engaging Lectures strategy with Teaching for Understanding (TfU) approach. The research was carried out by the course lecturer, (the second author), who has ten years of experience using traditional teacher-centered lectures, and a science education specialist (the first author) who served as the advisor.

This retrospective case study aims to characterize the significant change in the professional identity of the course lecturer, focusing on the attributes that contributed to effective enabling dialogue and the major constraints. Data sources were the lecturer weekly notes and reflections and advisor's weekly notes, collected during the process, and retrospective narratives and discussions collected two years after the initiation. Categories emerged from several cycles of content analysis and discussed to achieve agreement.

In this presentation, we will describe the individual attributes of the lecturer and the shared attributes of the lecturer - advisor team that contributed to the instructional change successful process from a retrospective viewpoint, two years after the initiation of the change. For example, open communication was perceived as a shared attribute that was a significant contributor to the identity change process through effective dialogue. The two major constraints to the process were the lecturer traditional lecturing habits and her insecurity in using active learning methods and strategies due to lack of knowledge and skills.

The lecturer identity changed gradually from a knowledge transmitter to a learning facilitator. Adopting a new role during the lectures, meant leaving the appreciated identity of a lecturer, which was not anticipated. The process required a supportive dialogue with the advisor and measured ongoing experiences with the new engaging lectures for understanding methods and strategies. We will describe the connections between the individual and shared attributes, constraints and effective dialogue that enabled the development of skills and gradual identity change.

Faculty pedagogy was determined as an important factor in students' satisfaction and retention. Pedagogy that promotes learning leads to less traditional lectures, meaning a massive change for experienced faculty habits role and identity. This research will contribute to the knowledge of the process that supports a change in experienced faculty professional identity towards a learning facilitator that focus on students' learning.

### **Forms of work-learning negotiation and professional identity development**

**Ray Smith**

Griffith University, Australia; [raymond.smith@griffith.edu.au](mailto:raymond.smith@griffith.edu.au)

Professional identity formation and development is a significant aspect of work and the learning on which it is premised. In and through work, we not only learn how to do what work entails and requires (i.e., skill and competence development), we also learn how to be and become the professional, who embodies, personifies and literally holds the position a job defines. Because of this, professional identity formation has become a key consideration within entry level training and subsequent practice accreditation requirements. Many workers are enculturated into the social and skill domains of their work through their qualifying studies and are required to hold certain licences and belong to certain specialist bodies before they are able to engage in their work. Further, identity practices of remaining qualified and belonging to appropriate organisations are ongoing through occupational practice and the constant transformations that characterise contemporary work – they must be sustained. It is important to continuously learn and know how to do the work as well as explicitly learn and know what it means to do that work, how that doing impacts self and others, how the work and its doing can be adapted, evaluated and improved and thereby how we can be reflective and develop as people, as professionals who can sustain a livelihood through changing work and continue to positively impact those for whom we work. Professional identity development is based in the ongoing interactions and negotiations that constitute these numerous learning practices. Questions of how professional identity is conceptualised and how it is enacted and accomplished remain central to issues and understandings of learning in and through work.

This paper reports and discusses findings of a small scale research project that deployed specific understandings of negotiation to investigate professional identity development. Those understandings (see Smith 2014) enable the differentiation and analysis of a range of personal work-learning practices and interactions as negotiations that are enacted in work. They are based on a matrix that counterposes the goal realisation and intentional purpose aspects of work - work is purposeful and goal directed activity. Using these understandings of negotiation and drawing on data generated through focus group interviews and written

responses from a group of eight new employee, early-career research academics (ECRs), this paper proposes that, for these workers, professional identity development may be viewed as individuals' seeking to construe their actions and circumstances as the purposeful resolution of personal intentions. That is, within the range of negotiations that comprise their work-learning and professional identity development, these ECRs develop and justify ways of interpreting the outcomes of these negotiations as realised successes through which they secure their goals. In this way, professional identity development can come to be seen as a personal success management practice based in the conflation of disparate but related work-learning negotiations. These findings assist better understanding how professional identity is enacted in work.

Smith, R. (2014) Conceptualising the socio-personal practice of learning in work as negotiation. *Vocations and Learning*. 7(2), 127-143.

## **F01 - Symposium: Learning to work in the margins: interactional and discourse analytical perspectives**

*Time:* Thursday, 13/Sep/2018: 4:00pm - 5:30pm · *Location:* MR160

*Session Chair:* Ingrid de Saint-Georges

### **Learning to work in the margins: interactional and discourse analytical perspectives**

*Chair(s):* **Ingrid de Saint-Georges** (University of Luxembourg, Luxembourg)

*Discussant(s):* **Stefano Losa** (SUPSI)

Recent years have seen two important developments in the field of vocational education and learning. On the one hand, an increasing number of researchers have focused on the fine-grained analysis of training situations. These studies have been critical in shedding light on the complexities of learning and training in and for work (Mayen 2000; Filliettaz, et al. 2008; Veillard & Lambert 2015). On the other hand, methods drawn from discourse analysis, multimodal discourse analysis or critical sociolinguistics have started to be considered useful to address dilemmas of learning to work (Filliettaz 2010; de Saint-Georges et al. 2017). These studies have contributed to (1) describe situations hitherto little researched and understood, (2) explicate the role of language and interactions in learning to work. Likewise, they have often played a role in (3) transforming training situations (Markaki-Lothe 2016; Morrisette et al. 2016; Alcade 2018).

In this symposium, we follow this interactional and discourse analytical tradition focusing on three blindspots in the currently available research. The first blindspot concerns the lack of more general, macro-level contextualizations of vocational education and training in the face of the already well-developed interactional approaches to learning: how are VET programmes discussed in public space and policy documents? What sorts of subjective positioning do these discourses articulate for pupils in these systems? Such a focus on broader discourses surrounding vocational education is still in need of being developed. The paper by Tress takes up this topic focusing especially on the study of policy-documents in the context of Luxembourg. The second blindspot concerns the sorts of learning environment that are typically examined in scholarship on vocational education and learning. While the focus has been on vocational schools and contexts of apprenticeship, little is known about how one learns in relative isolation as a result of migration or self-employment, where there is not always a collective to support learning and professional development. Which obstacles do language skills constitute for conducting work? What sorts of professional development strategies do migrant business owners put in place? Serwe's paper proposes that attention to this marginal group of workers is important to understand in particular the challenges that language skills might constitute for learning to work. The third blindspot concerns the sorts of skills that are significant across workplaces but usually not the focus of attention of learning programmes: while most of the research on vocational education and training focuses on technical skills relevant to a trade, more transversal skills remain usually invisible and are less often explicitly discussed. However, such skills often have equally important interactional and social dimensions with respect to learning and professional development. de Saint-Georges's paper suggests that a focus on interactions is promising to name, recognize and value transversal competencies, often marginal to certification systems.

From a conceptual standpoint, the symposium contributes to modeling what it means to learn to work in the margins. From a methodological perspective, it shows how different discourse analytical perspectives forward differently our understanding of the relations between interaction, learning and professional development.

#### *Presentations of the Symposium*

### **Discursive constructions of Luxembourgish Vocational Education and Training and its learners in policy-related documents**

**Constanze Tress**

University of Luxembourg

Since 2008, Luxembourg's Vocational Education and Training (VET) has been in the focus of an ongoing reform, aiming at identifying and tackling problems that are framed as pressing by political actors (MENFP 2008). In order to acquire a better understanding of current processes in Luxembourg's under-researched vocational regimes, this contribution investigates the policy discourse on VET and its learners, giving rise to and legitimating such reform efforts.

More specifically, 15 key policy-related documents on Luxembourg's VET since the draft law of the reform in 2006 (MENFP 2006) have been selected, including reports and statements by the then acting Ministry of Education, professional chambers and external organisations. This corpus has been submitted to a discourse analysis with linguistic-textual focus (Fairclough 2003; Spitzmüller & Warnke 2011) in conjunction with a discursive approach to policy analysis (Taylor 2004). A discourse-analytical toolbox has been compiled in order to mine the documents. For the purposes of this paper, I specifically look at three elements in this toolbox: underpinning presuppositions, tropes and argumentation lines.

From the analysis, Luxembourg's VET emerges as an internally stratified educational space that allocates specific problematizations (Bacchi 2009) and positions to its learners given a particular understanding of the key tropes 'competence', 'skills' and 'employability'. On the one hand, policy discourse on the Luxembourgish VET docks onto present EU discourse around professional formation. On the other hand, there are also argumentations related to Luxembourg's unique language and educational situation. The hypothesis is made that broader discourses, or Discourses with a Capital D (Gee 2015), contribute to shaping the learning experiences of VET learners and that their reconstruction can assist understanding how learners position and imagine themselves within Luxembourg's educational space. In conclusion, I discuss in addition how, from a methodological point of view, discourse-analytical approaches might be a useful means to focus fieldwork research and critical assessment of workplace and learning interactions.

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Spitzmüller, Jürgen & Ingo H. Warnke (2011): Diskurslinguistik. Eine Einführung in Theorien und Methoden der transtextuellen Sprachanalyse. Berlin: de Gruyter.

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### **Exploring workplace practices as a mediational space for professional development in self-employment at the margins**

**Stefan Karl Serwe**

University of Osnäbruck

Labour market statistics indicate that members of immigrant communities are more likely to become self-employed as compared to those without migration experience. Their businesses tend to be small in scale and often appear in markets with low institutional access barriers. Moreover, support structures for budding immigrant business owners are often few and far between and their low competence levels in the official language of the economy tend to hamper much needed access to legal expertise or advice on business management (Leicht, 2005; Volery, 2007; Hillmann & Sommer, 2011; Leicht et al., 2012). Consequently, developing professionally is largely up to the agency of the individual entrepreneurs (Smith, 2012; Goller & Billett, 2014). Research on small-business operators suggests that in situations of (geographical) isolation and faced with the need to acquire new routines, these individuals resort to highly pragmatic, selective and conscious learning strategies based on the requirements of their business, their personal interests and networks, and the scope of their existing knowledge (Billett et al., 2003; Billett, 2011). Workplace practice is arguably interspersed with such contextualized, interactive, personal and informal 'learning moments' (Rogers, 2014), which are non-intentional but framed by prior experience, future trajectories (Block, 2007) and the learners' ability to reflect on the learning process (Barton & Lee, 2013). By examining the core workplace practice of 'selling vouchers' at an immigrant-owned and run traditional Thai Massage salon in Germany, I intend to explore and understand the mediational space (Golombek & Johnson, 2004; Erstad, 2013) that affords an informal learning moment for the immigrant entrepreneur. By doing so, I attempt to make visible the conditions that afford learning as well as the various mediational means that the immigrant business owner draws on in the process of transforming her workplace practice. The data presented spring from a 6-month long ethnographic investigation of the core workplace actions of three Thai immigrant entrepreneurs in Germany with different levels of language competence in German. Using Mediated Discourse Analysis (Scollon 2001), a sociocultural and social practice approach to social action, the core work practices were examined through participant observation and documented in field notes, audio recordings, photographs, as well as the participants' reflective anecdotes. The analysis of the exemplary core workplace practice 'selling vouchers' in this presentation suggests that the mediational spaces at the workplaces of immigrant entrepreneurs are largely task-conscious and accidental and by reconfiguring the workplace practices the individuals make creative use of the material and symbolic cultural tools at their disposal while building on their professional past and future, imagined, trajectories. The results suggest that workplace learning at the margins of the labour market can be effectively supported if the type and scope of the learning processes are recognised and valued in their professional context.

### **Recognizing transversal competencies in situations of professional development: challenges and stakes**

**Ingrid de Saint-Georges**

University of Luxembourg

Recent international reports (Dell Technologies & Institute of the Future 2017) forecast deep changes in the way work and the workforce will be organized in the near future (Delage & Solve 2017). Digital evolution means that many of the jobs that will be accessible in 2030 do not exist yet and thus one cannot prepare directly for them. Massive waves of retirements due to an ageing workforce mean also that the younger generation will have to be mobile. They will need to compensate for the loss of skills by upgrading their own. Finally, these reports also predict very mobile careers for workers. They estimate that a student graduating from higher education today will have navigated an average of eight different employers by the end of their professional life. In such a context, diplomas and certifications are bound to weigh less than the ability to traverse and adapt to multiple job contexts over short-time spans. Such abilities that are not specifically bound to the technical aspects of a job but are necessary for the navigation of different workspaces are sometimes called 'transversal competencies'. Notoriously hard to define, and perhaps even just 'views of the mind' (Tardif & Dubois 2013), recognizing and valuing them has nevertheless become an increasing area of focus on European and national agendas (Lainé 2018).

In 2017, we have accepted to critically evaluate a framework for recognizing and visibilizing transversal competencies in the context of employability and certification funded by the Erasmus+ agency ([rectec.ac-versailles.fr](http://rectec.ac-versailles.fr)). For this evaluation, one of our tasks is to observe different sites where the framework is put into action, in order to examine 1) how the framework is implemented, and 2) what the challenges are and what the added value is to recognizing transversal competencies in different contexts (employability, training, certification, validation of prior experience)

For this paper, I focus on situations of vocational training in the care-giving field. More specifically, I examine how verbalization changes and learning occurs by using this framework for a group of low-skilled and low-educated women training to become care-givers in the health field. Applying an interaction analytical lens, I examine three video-recorded sequences of exchanges between trainers and trainees prior to and after a work placement integral to their training scheme. The analysis shows that the transversal competencies framework contributes to recognizing and valuing experiences which remain usually invisible, including for the trainees themselves. In addition, the framework affects both the nature of the verbal exchange between trainers and trainees and the positioning they have towards each other. In conclusion, I reflect on the limits of such a frame in contributing to weaken or strengthen actors that are considered particularly vulnerable for the market place (Giuliani et al. 2015). I examine some of the risks associated with going beyond the mere recognition and appraisal of those skills, towards formal assessment and certification.

## F02 - Round Table: Measuring and developing professional expertise

Time: Thursday, 13/Sep/2018: 4:00pm - 5:30pm · Location: MR170

Session Chair: Andreas Rausch

### A critical appraisal of Boshuizen & Wolters-Mepschen (2018)

Henny P. A. Boshuizen<sup>1,2</sup>, Monique M. Bijker<sup>3</sup>, Jantje Wolters-Mepschen<sup>1</sup>

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To study teacher expertise development in times of change an instrument is required that is able to measure consistently across personal levels, educational strata, and country-bound systems and cultures. One of the aims of our projects is to develop such an instrument but we recognize that the road to that goal is complex and full of problems. In this round table we take the example of the Boshuizen & Wolters-Mepschen (2018) study presented in this conference to investigate the quality of the instruments developed so far, and the implications for a) further development of the scales and b) a research strategy that allows us to draw valid conclusions about teacher expertise development and learning.

The study we'll scrutinize in this round table has a couple of features that are quite common in this domain: it includes two questionnaires (expertise and learning activities) using self-reports; these are factor analyzed to develop scales, which is followed by multiple regression analyses. Furthermore, the questionnaires focus on one stratum of education in one country, in this case Dutch pre-vocational education.

We have reanalyzed the questionnaires using Rasch methods to see whether the same factors can be discerned. Only one general expertise factor and two professional learning activities factors (sharing knowledge and designing education) turned out to fit the Rasch model sufficiently; also an instructiveness (of the learning activities) factor was found. Expertise measured by this new scale did not correlate with teaching experience in this educational stratum. Both professional learning activities factors contributed to perceived instructiveness, but only sharing knowledge contributed to expertise.

At the round table results will be discussed in terms of methodological requirements and of the specific features of Dutch prevocational education. Especially the option that the work conditions in these schools may be not conducive for learning should be considered. The new scales will be compared with the original. Furthermore we will jointly analyze the questionnaire items to discuss the stratum- and country-specific features of the questionnaires to see which additions and/or adaptations should be made to cover skills and domains that are not or minimally asked for in the educational stratum covered in this study but are required in higher or pre-university education or in primary and preschool. We'll also discuss strategies to further validate the scales.

Goal of the meeting is to develop a detailed research agenda on the investigation of teacher expertise development in times of change across personal levels, educational strata, and country-bound systems and cultures.

### A practice based research on the value of higher education teacher externships as a professional development initiative

Ele Holvoet<sup>1,2</sup>, Delphine Wante<sup>1</sup>, Joke Coens<sup>1</sup>, Jan Elen<sup>2</sup>

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Teacher externships have been argued to have a positive impact on teachers' subject matter knowledge (Gibson & Gray, 2010; Saddler, Toth, & Bybee, 2000). This, in turn, may stimulate teachers to (re)design their learning environments and turn them into more authentic ones (Fleckenstein, 2002; Foncault, 2002; Luft & Vidoni, 2000; Saddler et al., 2000). However, research on the actual effect of teacher externships is limited. In this proposal a practice based study is presented that tests whether teachers who do an externship are indeed strengthened in designing authentic learning environments. The study is carried out at VIVES University of Applied Sciences that aims at creating connected curricula. Connected curricula forge a link between thinking and learning in such a way that what is learned is presented in a meaningful, authentic manner (Perkins, 1993). In order to support and stimulate teachers to connect with the workplace VIVES launches a teacher externship project. During one month educators are exempted from their teaching assignments and employed at a company or organisation within their field of expertise. Through this experience teachers can deepen and/or broaden their subject-matter knowledge, interact with the work field and put their expertise at disposal of the workplace. At the end of the externship the teacher shares his learning experiences with the teacher team and the workplace. The ultimate goal is to develop more authentic learning environments. The project will be piloted in 2018 with 6 higher education teachers in various fields of expertise. Based on the pilot the actual study will be designed. The pilot study entails mapping (1) the extent to which teachers are focused on the development of knowledge (a.o. subject-matter knowledge) and (2) the influential personal, professional and contextual factors during this process. In-depth interviews before, immediately after and 3 months after the teacher externship are conducted in order to answer these questions. Based on the findings the design of the externship program will be adapted and the design of the actual study will be finalized. The actual study focuses on the assumption that teacher externships will influence teachers' teaching practice (more specifically in terms of designing authentic learning environments). At the roundtable intermediate results of the pilot research are presented. Implications for (re-)designing the intervention and the design of the research are discussed. References: Fleckenstein, P. (2002, April 15). Reality based teaching in technology education. *Opgeroepen op* October 10, 2017, van Fisher Digital Publications: [https://fisherpub.sjfc.edu/mathcs\\_etd\\_masters/69](https://fisherpub.sjfc.edu/mathcs_etd_masters/69). Foncault, P. (2002). Linking school to business. *Clearing House*, 75(3), 163-165. Gibson, L., & Gray, G. (2010). Knowledge and understanding of 21st century skills through educator externships: programs in Southern New-England. Ed. D. Dissertation, Johnson & Wales University. Luft, V., & Vidoni, K. (2000). Educator externships: how classroom teachers can acquire business and industry experience. *The Clearing House*, 74(2), 81-83. Perkins, D. (1993). The connected curriculum. *Educational Leadership*, 51(2), pp.90-91. Saddler, S., Toth, G., & Bybee, L. (2000). A new model for workforce development: UNLV educator externship program. Partnership for Vocational Education and Training. Paper presentations.

### Networks of musicians at different expert levels

Manuel Längler<sup>1</sup>, Markus Nivala<sup>2</sup>, Hans Gruber<sup>1,3</sup>

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Expertise research has shaped our understanding of individual performance differences and skill acquisition of musicians during their professional careers. Deliberate practice as a goal orientated practice method enables individuals to reach an expert level within their domain. Research has shown that – besides other factors – deliberate practice needs to be planned and supported by a knowledgeable environment (e.g. teachers, mentors etc.). It can be stated that actors in a musician's network are crucial for persevering and planning the extensive process of deliberate practice. Surprisingly, there is little research in music expertise about which actors are crucial for the support of deliberate practice and how musicians are supported by these actors for deliberate practice during their musical career.

The objective of this study is to examine how musicians at two different skill levels (expert/amateur) were supported by actors within networks for deliberate practice during their whole musical career. The research questions are 1) how are networks of musicians structured regarding the support of deliberate practice?, 2) how does the composition of actors within the networks supporting deliberate practice change during the individuals' musical career?, 3) how do network actors support the quality of deliberate practice of the individual musician during their musical career?, 4) how does the quality of the relations between the actors within the network and the individual musician support deliberate practice?, 5) what are the differences between experts and amateur regarding the network structure and the quality of support for deliberate practice?

Semi-structured interviews with 20 musicians at different skill levels (ten experts/ten amateurs) were conducted. The experts were selected based on a theory-driven catalogue with five factors. To be assigned to the expert group all five factors were required to be fulfilled. The duration of the musical activity was not a sufficient criterion for musical expertise. During the interview the participants had to answer questions about three different career stages regarding who are the actors in their network and how these actors support deliberate practice. Additionally, data about the degree of expertise (based on participants' perception) and the duration of the relation to the actor was collected.

An ego-centric network analysis is used to analyse the size, composition and structure of the networks. To describe the relations between actors and individual regarding deliberate practice in depth the interview data is analysed deductively. A Mann-Whitney-U-Test is used to compare the different networks of experts and amateurs. Currently, the data collection is still running. Preliminary results based on the data of 15 participants indicate that especially single keypersons (e.g. peers) and teachers from master classes are the most important support for deliberate practice of experts during their whole career. In contrast, actors in amateur networks are an important source for knowledge creation, but not for supporting deliberate practice. Challenges that should be discussed during the session are 1) how to analyse the data of the three different career stages and 2) how to relate the qualitative data to the SNA data for publication.

## F03 - Data session: Observing and measuring complex research objects

Time: Thursday, 13/Sep/2018: 4:00pm - 5:30pm · Location: M1160

Session Chair: Juergen Seifried

Session Chair: Michael Goller

### The Contribution of Mental Simulation to the Development of Intuition

**Bianca Steffen, Christian Harteis**

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#### 1. Theoretical Background

Intuition is an important quality of knowledge because it is one of three constituents of expertise (Harteis, 2017). It enables experts to distinguish patterns by small and opaque differences and helps them to act fast and successful (Dreyfus, 2004). Intuition can be used to solve uncertain and insecure situations with the invention of new solutions and pattern recognition without the need to employ conscious effort or reflection. Evidence suggests that mental simulation influences the development of intuition (Harteis, 2017).

#### 2. Research Questions and Aims

It is unclear how exactly intuition is learned and developed. This project aims to close this research gap. A particular focus will be laid on the contribution of mental simulation to the development of intuition. The following research question will be answered: How does mental simulation affect the development of intuition?

#### 3. Methodological Approach

There are two appropriate ways of analyzing this process both gathering qualitative data about the influence of mental simulation on intuition. First, narrative interviews about patterns perceived during intuitive action and how this perception is formed by mental simulation could be conducted. Klein (2010) describes an interview method with two phases. At first the interviewee describes situations with intuitive actions from beginning to end. In the second phase the interviewer could ask clarifying questions about the situation as well as former mental simulation. This could be supported by a structuring technique using paper cards.

Second, the influence of mental simulations on intuitive action could be examined. Two groups of intermediates within one domain could be distinguished. One group could be taught and trained in the usage of mental simulation whereas the other group could be the reference group. Then the members of each group could be confronted with a situation that requires pattern recognition and invention of novelties (=intuitive action). Data would be gathered about how intuitive and how successful people act. These situations could be videotaped and used as a basis for think-aloud interviews.

#### 4. Open Questions

This study is in an early conceptual phase. This presentation, therefore, aims to discuss the research question as well as the two possible methods. Possible challenges are: First, a measurable construct of mental simulation needs to be defined. Second, the current research question is too broad and needs to be specified. Third, a decision for a methodological approach has to be made. Fourth, it could be difficult for interviewees to remember situations in detail and to explicate patterns and unconscious sensual perceptions. This challenge could be met with the usage of paper cards to structure the interviewees' explanations. Fifth, an adequate method of analyzing data from observations needs to be found. Fifth, for the experimental study one group would have to be trained in the usage of mental simulation. A specific training program would have to be developed. Last, it would have to be ensured that the reference group uses as less mental simulation as possible.

### Developing an on-line application, Emotion Circle (EC) for the self-assessment of emotions in agentic learning at work

**Anneli Eteläpelto, Päivi Hökkä, Susanna Paloniemi, Katja Vähäsantanen**

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Studies on work-related professional learning have shown that learning outcomes and processes are strongly influenced by the emotional aspects of learning. Our own studies on learning in education and health care work have demonstrated that agentic learning taken place in the negotiation and crafting of professional identities was imbued with multiple and mixed emotions, including joy, love, anger, shame, fear, anxiety, happiness, and sadness. However, questions remain concerning how to capture process data on emotions and learning, applying valid indicators and reliable methods of data collection and analysis. Previous studies on emotions have noted the limitations of subsequent self-reported data, and the lack of user-friendly and valid tools to capture changing emotions during learning processes. It has thus been suggested that user-friendly on-line tools for concurrent self-reporting of emotions are needed, and should thus be developed. In the rigorous development of such tools, self-reports should be cross-validated in relation to the observational and psycho-physiological data. In our REAL research project (The Role of Emotions in Agentic Learning at Work), we are developing an on-line application called Emotion Circle (EC) for adults' self-assessment and reporting of their shifting emotions in the settings of professional learning. In this paper we will describe how the development of the first prototype version of the EC has taken place in the laboratory conditions, and what are major outcomes and developmental challenges found so far. In developing EC within a laboratory setting, we play the recordings of the selected moments, perceived by the subjects as most and least influential for their learning. Self-reports using EC are thus collected from subjects who watch the selected critical episodes. Subjects are asked to evaluate the nature and quality of their emotions using EC which utilizes a colorful graphic interface containing 12 written emotion-related words. EC makes it possible to collect subjects' self-assessments of their situation-specific emotions. It transforms and displays the process data into a format which can be synchronized with other kind of (psychophysiological and behavioral) process data collected at the same time. In using EC, we seek to avoid the memory bias of retrospective interviews. Using EC we collect situation-specific data on the quality of perceived emotions plus their dynamic continuity. In addition to the self-reports, we measure the emotions using psychophysiological indicators of the autonomous nervous system, and behavioral data on attention-focusing and facial expressions. In the development of EC, we use automatic facial expression recognition to validate self-reported data. From eye-tracking data we can gain insight into what subjects fixate on when they watch videotaped critical episodes from learning situations. In addition, eye-tracking data shows how subjects fixate on EC, providing an important indicator for assessing the user-friendliness of the application. In the first phase, we are developing the EC application for

research purposes. In the long run, we have the purpose to develop EC as an ecologically valid innovative application for the reflection and promotion of learning processes in authentic work-related learning contexts.

### **Employee Perspective on Well-Being at Work – An Interview Study**

**Stefanie Zutavern, Juergen Seifried**

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Strong growth rates and shortage of skilled professionals have led to an excess demand for trained and experienced specialists in the IT sector. In order to prevent the emergence of a competence gap, and thereby, to ensure the organisations long-term competitiveness, two strategies seem to be promising: Fostering employees' well-being at work can reduce turnover intention and simultaneously improves job satisfaction (Wright & Bonett, 2016). In addition, communicating the organisation's benefits through an attractive employer brand could help to promote recruiting success and retention of employees (Wilden, Gudergan, & Lings, 2010). Over the long term, both strategies could increase employees' job satisfaction and organisational commitment. Against this background, our research project aims to identify employees' feel-good factors at work (RQ 1). Furthermore, it will be investigated whether personal constructs influence employees' individual relevance for personal well-being in the workplace (RQ 2).

The research project is currently being carried out in cooperation with a SME operating in the IT sector. We are going to carry out expert interviews (N = 60), and the use of an interview guideline ensures standardisation of the process. In order to cover crucial factors relevant for job satisfaction and organizational commitment (RQ 1), comprehensive research led to three categories: organizational characteristics, job characteristics, and social relationships (Hackman & Oldham, 1974; Herzberg, Mausner, & Snyderman, 1959; Koopmans et al., 2012). By asking open questions, participants should be encouraged to name various aspects of each of the three categories. Afterwards, an individual ranking of the before-mentioned aspects serves to gain insights about their personal relevance.

To investigate RQ 2, we asked for different facets of agency, psychological capital and psychological safety, since they correlate positively with well-being, job satisfaction and organisational commitment (Frazier, Fainshmidt, Klinger, Pezeshkan, & Vacheva, 2017; Goller, 2017; Gruman & Saks, 2013). Finally, the interview ends with a global assessment of organizational commitment (Klein, Cooper, Molloy, & Swanson, 2014). The instrument's comprehensibility and practicability was tested in a pre-test.

Data analysis is based on a standardized coding system, which covers the three categories from the interview guideline. Furthermore, it includes codes to encode the above-mentioned relevant personal constructs. Since the interviews are going to be conducted from the end of February until the end of March 2018, findings are not available at submission date but are expected by the end of May 2018.

This provides the opportunity to discuss data analysis on individual-level on the one hand as well as further analyses on group-level. This could be followed by discussing the correlation of leadership and industry-specific aspects on employees' well-being, since empirical evidence of these issues is lacking (Frazier et al., 2017). Apart from that, the findings can serve to develop individual onboarding strategies and work designs as well as to create a meaningful employer brand, in order to recruit and retain organisations' employees as a decisive competitive factor.

## F04 - Paper session Fr: Apprentissage et formation des adultes

Time: Thursday, 13/Sep/2018: 4:00pm - 5:30pm · Location: M1130

Session Chair: Christine Vidal-Gomel

### L'engagement du sujet adulte apprenant en formation continue obligatoire : un paradoxe de l'apprenance ?

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De nombreuses formations suivies par les salariés sont obligatoires. Or, imposer une formation c'est considérer qu'une motivation durable peut se construire sur une injonction, ce que démentent différentes théories de la motivation, en particulier la théorie de l'autodétermination (Deci et Ryan, 2000). Ces mêmes théories indiquent que, pour autant, certains sujets s'engagent. Nous nous intéressons donc aux facteurs dispositionnels, situationnels et contextuels susceptibles de soutenir ou d'entraver le processus d'engagement en situation de formation continue obligatoire. Notre cadre théorique est celui de la psychologie sociocognitive (Bandura, 1986).

Trois processus nous intéressent : l'engagement effectif, le désengagement, de type adaptatif, et le sous-engagement où le sujet est envahi pas les aspects négatifs liés au fait de s'engager (Brault-Labbé et Dubé, 2012). Selon ces auteurs, le processus d'engagement a trois composantes : affective, comportementale, liée à la persévérance, et cognitive où le sujet réalise un arbitrage entre les aspects positifs et négatifs liés au fait de s'engager.

La recherche s'articule autour d'une étude qualitative par entretiens, auprès de personnes participant à des formations obligatoires et d'une étude quantitative par questionnaire auprès des mêmes publics. Les verbatim des entretiens font l'objet d'une analyse thématique manuelle de contenu (L'Écuyer, 1990). Le questionnaire est traité par une analyse factorielle des correspondances.

Deux facteurs semblent influencer l'engagement.

D'une part, les sujets évoquent massivement la valeur perçue (Eccles et Wigfield, 2002) de la formation et la relient à leur engagement. La valeur perçue comprend l'utilité, l'importance, c'est-à-dire l'adéquation de la formation avec les traits centraux qui soutiennent l'image de soi, et l'intérêt de la personne pour les thèmes ou pour la situation de formation. Elle associe donc les niveaux contextuel, situationnel et les processus identitaires (Dubar, 2000). Lorsque la valeur perçue est au rendez-vous, le sujet s'engage. Dans le cas contraire, il se désengage, voire se sous-engage. Quoi qu'il en soit, le processus d'engagement est fluctuant à la faveur de la réactualisation de la valeur perçue.

D'autre part, l'apprenance, disposition favorable à l'apprentissage (Carré, 2005), se reflète dans les composantes de l'engagement sans orienter le processus de façon univoque. Parmi les personnes se disant disposées favorablement à l'apprentissage, les unes affirment s'engager au motif que toute occasion d'apprendre est bonne à saisir, même en cas de faible valeur perçue, et les autres justifient leur désengagement ou leur sous-engagement au nom de la liberté de choisir l'objet de leur apprentissage. C'est donc la composante cognitive du processus d'engagement qui affleure. Quant aux sujets qui rapportent des dispositions moins favorables à l'apprentissage, la composante comportementale de leur engagement est saillante, qu'ils parviennent ou non à surmonter leurs difficultés, souvent présentées comme des répliques d'un vécu scolaire jalonné d'échecs.

L'analyse factorielle des correspondances sur les questionnaires confirme que le sujet s'engage lorsque la valeur perçue est manifeste et qu'une apprenance élevée n'est pas nécessairement une ressource pour s'engager.

Ces résultats remettent en perspective certaines théories de la motivation et intéressent les organisations de travail qui englobent des sommes conséquentes dans ces formations, sans garantie d'effet.

### Organisation du travail et apprentissage

**Christèle Billing**

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Cette communication est un extrait de notre thèse qui portait sur les interactions tutorales en situation dynamique. Nous avons effectué notre recherche auprès d'infirmiers anesthésistes encadrant des élèves infirmiers anesthésistes. L'anesthésie d'après Xiao est une situation dynamique « surtout dans les conditions particulières générées par l'anesthésie et la chirurgie. » (Thuilliez, 2005, p. 227). De plus, « il s'agit d'activité où la résolution de problèmes est centrale, où le rôle du temps est crucial, pour l'anticipation la coordination de temporalités multiples. » (P. Pastré, 2005, p. 75).

Notre objectif était d'explorer les interactions tutorales entre les tuteurs et leurs élèves. Nous avons dans un premier temps étudié l'activité de l'IADE à travers les travaux de Pierre Pastré : structure conceptuelle d'une situation. D'après Pierre Pastré, Vidal Gomel et Rogalski, « La structure conceptuelle des situations est une schématisation, donc une réduction de la situation dans son ensemble. » (Pierre Pastré, 2009, p. 284). Puis nous avons défini les différents indicateurs qui permettaient de poser un diagnostic des niveaux d'analgésie, de curarisation ou de sédation. L'une des hypothèses posée est : « l'organisation du travail influe sur le mode de transmission ».

Notre support de recherche se compose de huit films de trois heures chacun où nous avons enregistré les échanges de l'équipe d'anesthésie afin d'analyser les interactions entre les membres de l'équipe et les modes de transmission. Le facteur invariant était la chirurgie (prothèse totale de hanche). Les films ont été réalisés dans deux centres hospitaliers. Chacun a sa propre organisation de travail. Dans l'un les IADE sont polyvalents et interviennent pour toutes les spécialités chirurgicales. Dans l'autre, ils sont spécialisés et ne changent que très rarement de spécialité.

Cette étude démontre l'influence de ce facteur sur la formation des élèves. Si tous les IADE transmettent des indicateurs de suivi d'analgésie, de curarisation ou de sédation instrumentés identiques. Seuls les IADE spécialisés transmettent des notions de temporalité liées à la chirurgie. Cela est important pour la conduite de l'anesthésie. En effet, ceci permet l'anticipation, incontournable en situation dynamique. Ainsi, l'expérience des IADE modifie de façon significative la transmission concernant les indicateurs à utiliser pour la surveillance d'une anesthésie. La transmission est donc modifiée par l'expérience de l'acteur mais également par l'organisation du travail des acteurs.

Actuellement, nous observons une tendance au renforcement de la polyvalence afin d'améliorer la performance lors des astreintes ou gardes. Cependant, notre étude démontre une modification du contenu des interactions tutorales. L'organisation du travail influe donc sur le tutorat des professionnels.

Thuilliez, H. (2005). Rôle de l'opérateur et du statut fonctionnel des informations lors de la prise d'informations en anesthésie. *Le travail humain*, Vol. 68(3), 225-252. doi:10.3917/th.683.0225

Pastré, P. (2009). La conceptualisation dans l'action : bilan et nouvelle perspective. *Éducation permanente*, (180), 269-292.

Pastré, P. (2005). Pastré, Dynamique et métamorphose des compétences professionnelles. *Psychologie du travail et des organisations*, 11(2), 73-87.

## **Élucidation d'une structure conceptuelle de situation professionnelle et élucidation des savoirs experts**

**Géraldine Body, Christine Vidal-Gomel, Isabelle Vinatier**

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L'Institut Français du Cheval et de l'Équitation emploie des selliers pour produire selles, matériels de harnachement, et maroquinerie haut de gamme et pour former à ce métier. Les responsables de la formation nous ont adressé une demande visant la transmission des compétences d'un de leurs experts proche de la retraite tout en renouvelant les outils et les situations de formation par des vidéos ciblées sur les savoirs significatifs du métier.

Nous nous appuyons sur la didactique professionnelle (Pastré, 2011) pour concevoir ces outils et le dispositif de formation. Dans ce cadre, à partir des composants du schème (Vergnaud, 2011), le chercheur peut reconstruire la structure conceptuelle (Pastré, 2011) d'une situation. Elle rassemble l'ensemble des concepts permettant à l'acteur d'orienter et de guider son action, les indicateurs auxquels il se réfère pour leur donner une valeur, les classes de situation auxquelles ces concepts s'appliquent et les stratégies attendues pour être efficace. Dans cette communication, nous nous appuyerons sur l'exemple du « plan de coupe du cuir pour l'optimiser » afin de répondre à la question suivante : En quoi et comment la structure conceptuelle de cette situation peut constituer une ressource au service de l'élucidation des savoirs d'expérience des experts ?

Les données recueillies portent sur l'activité de trois selliers de niveaux d'expérience et d'expertise différents. À partir de trois types de films : ceux de l'activité en situation et ceux des auto- et allo-confrontations de ces situations (Mollo et Falzon, 2004) et de leur retranscription intégrale, le chercheur produit une première ébauche de la structure conceptuelle. Elle est alors mise en débat entre deux experts. Ces échanges sont également filmés, transcrits et analysés pour permettre au chercheur de l'affiner et de produire une seconde version de celle-ci.

C'est dans le cadre du débat entre les deux experts et le chercheur que nous montrerons comment « le plan de coupe du cuir pour l'optimiser » permet l'élucidation collective des savoirs experts des professionnels du domaine. La structure conceptuelle ne constitue alors pas seulement un résultat de l'analyse ; elle est un objet intermédiaire (Vinck, 2009) de conception, support des débats entre les professionnels et le chercheur mais aussi entre les professionnels eux-mêmes. D'une part, le chercheur anime et réoriente les propos grâce à l'analyse conceptuelle de la situation de travail « plan de coupe » et d'autre part, en s'appuyant sur cette première version, les professionnels précisent leurs propres conceptualisations, les confrontent et les enrichissent pour in fine aider le chercheur à produire une version plus précise de la structure conceptuelle de la situation.

Mollo, V., & Falzon, P. (2004). Auto-and allo-confrontation as tools for reflective activities. *Applied ergonomics*, 35(6), 531-540.

Pastré, P. (2011). La didactique professionnelle. Approche anthropologique du développement chez les adultes. Paris : Presse Universitaire de France.

Vergnaud, G. (2011). La pensée est un geste. *Enfance* 1/2011.

Vinck, D. (2009). De l'objet intermédiaire à l'objet frontière. Vers la prise en compte du travail d'équipement. *Revue d'anthropologie des connaissances*, 3(1), p.27-51.

## **F05 - Paper session: Learning from collaboration and interprofessional experiences at work**

*Time:* Thursday, 13/Sep/2018: 4:00pm - 5:30pm · *Location:* M2170

*Session Chair:* Joanne Stephens

### **Teacher Orientations towards Learning and Self-Perceived Participation: A Cross Case Analysis of In-School Teacher Collaboration**

**Loes de Jong, Jacobiene Meirink, Wilfried Admiraal**

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#### **Aims**

Teacher collaboration is an important aspect of teachers' professional lives, as a means to continuously reflect on and improve the practice of teaching. A clear picture on the learning potential of different forms of teacher collaboration (e.g., sharing knowledge or collegial observation) is however lacking in current research (e.g., Van Gasse et al., 2017; Van Waes et al., 2016). For teacher learning to occur and change to be sustainable, the type of collaborative activity should be aligned with the learning orientations of the teachers and schools that are involved (Opfer & Pedder, 2011). The aim of the current study is to investigate teacher participation in collaborative learning activities in school, while taking into account their orientations towards learning.

#### **Methodology**

In this multiple case study, five teacher groups in three pre-vocational schools (N=20) have been examined. The teachers in the groups met to further develop their differentiated teaching. Teacher self-reports of the orientations and their participation in collaborative learning activities were collected using pre and post questionnaires and individual interviews. Cross teacher and cross group analyses were conducted.

#### **Findings**

Overall, teacher orientations and participation varied, even among teachers from the same teacher group. On the individual level, teachers with a more negative attitude were associated with low self-perceptions of their current practice of differentiated teaching. Furthermore, the relatively young and inexperienced teachers perceived themselves as open and active in the meetings.

The cross group analysis pointed out that the groups in which relatively more intense forms of collaboration took place during the meetings, were associated with an already existing culture of collaboration, shared responsibility, and differentiation imbedded in the school curriculum.

#### **Significance of the research**

The findings of the study match results of other studies on teacher collaboration. Short-term collaboration initiatives are dependent on the prior existence of deeper learning cultures and processes (Hargreaves & O'Connor, 2017). However, regardless of the already existing culture of collaboration, collaboration served as a tool to reflect on the teaching practice in all groups. This is important to foster a professional culture of enquiry in the workplace, and to promote innovative practices into everyday school practices (e.g., Westheimer, 2008; Ioannidou-Koutselini & Patsalidou, 2015).

Given that schools are characterized by a heterogeneous group of teachers in terms of motivation and practice, implications point out to effective alignment between learning orientations and intended learning activities. One general implication for in-school teacher groups is discussing their differences and similarities in orientations. As shown in our study, teacher self-reflection however is challenging which stresses the need for support in this process of reflection. Recognizing the diversity in teachers' learning goals by school leaders and other facilitators of teacher learning helps to motivate teachers to continuously develop their teaching practice (Louws, Meirink, Van Veen, & Van Driel, 2018).

### **Professional learning on assessment design through teacher collaboration**

**Ivy Lau, Susan Bridges, Dennis Fung**

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**Background:** Using assessment to support instructional planning is a substantial focus on professional learning (Carless, 2017). The growing interest in assessment design suggests its functional significance in shaping opportunities to learn.

**Aims:** This study explored how teacher collaboration influenced professional learning experiences on assessment design in the context of educational innovation. It was part of a bigger project aimed to examine the professional learning process for development of 21st-century competencies.

**Methodology:** Guided by an interactional ethnographic approach (Bridges et. al., 2012; Green et. al., 2003), this study investigated the 42 collaborative meetings from a team of five teachers in Hong Kong. From a situated discourse perspective, the two workgroups of this team were compared and analyzed on how teachers collectively interpreted their original assessment design. The multiple sources of evidence for data triangulation included video records, interviews, and textual materials. The actual course of teacher collaboration on assessment design was used to formulate causal inference within and across time and events.

**Results:** The two workgroups adopted different assessment design approaches. Teachers from the first workgroup applied the designers' perspective and demonstrated their situatedness towards students by coordinating three aspects of assessment, i.e., cognition, observation, and interpretation. On another hand, teachers from the second workgroup applied the performance-based assessment in the pursuit of a more profound meaning through curriculum alignment which supported the instructional practice. Although the two workgroups belonged to the same school and implemented the same subject, they adopted different logics in assessment design based on their corresponding institutional boundaries. Overall, their routine of work produced and confined the opportunities for professional learning.

**Theoretical and practical significance:** The comparison of their assessment design process in considering students' need extends the assessment triangle and curriculum alignment model. This study provides a better understanding of professional learning in the alignment process between classroom assessment and instructional practice through teacher collaboration. It

highlights the interpretation of assessment supporting learners through teacher collaboration for curriculum development (Fung, 2016). In conclusion, assessment design with flexibility relies on teachers' professional noticing, understanding, and acting. Implications for cultivating teachers' assessment literacy to support instructional improvement are derived, which provided a space to explore the issue of assessment equity for professional learning.

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### **Meeting the needs of children with autism: What paramedics and parents of children with autism can contribute to the interprofessional health team**

**Joanne Stephens**

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This paper presents findings from a PhD study that examined the lived experiences of children with autism, their parents and paramedics during out of hospital interactions. Little is known about the experiences, yet over their lifespan it is likely that children with autism will require the care of paramedics at one or multiple points in time. A review of the literature highlights that children with autism are more likely to experience comorbid medical conditions, an increased incidence of accidental injury and complex behavioural challenges (Bauman, 2010; Kannabiran & McCarthy, 2009). These challenges may occur due to the child's social communication ability, sensory sensitivity and emotional regulation, which are common amongst this population. Despite the challenges, this presents an opportunity to examine the experiences and 'voices' of participants, to understand their perspective and to share findings in order to empower families, the paramedic community and the wider health team. This study posits that when the lived experience of consumers of services are understood and shared, it is likely that patient outcomes will improve and professional synergies can align.

A qualitative research approach was used in this study, employing Interpretative Phenomenological Analysis (IPA) as the method of analysis. The central question posed in the study asked: 'What are the needs of children with autism and their parents during out of hospital interactions with paramedics'? One semi-structured interview was undertaken with a twenty participants. Ten participants were parents of children with autism and ten participants were paramedics. Each participant was involved in at least one clinical interaction with a child on the autism spectrum. Demographic information was collected and analysed. NVIVO11 was used to manage the data.

#### Findings

The superordinate themes generated by the participants included: a need for emergency and general support for the family in the home, key interactional and communication options to empower all stakeholders, and developing pathways for care requiring inter-professional collaboration. Paramedics understood their role was important, where they could become a conduit between the child and longer term care accessed through referral pathways.

#### Significance

It is evident that parents of children with autism and paramedics can contribute to the wider health community. As an emerging profession, Australian paramedics are increasingly research minded, seeking pragmatic resolution to problems they encounter in their clinical practice. Many parents are becoming progressively health literate in order to communicate the needs of their child to a plethora of professionals in the health, education and disability network. Therefore parents and paramedics should be considered as worthwhile collaborators in the wider health conversation, to empower consumers and to influence policy decisions.

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## F06 - Paper session: Reflexivity and professional development

Time: Thursday, 13/Sep/2018: 4:00pm - 5:30pm · Location: M1140  
Session Chair: Bärbel Fürstenau

### REFLECTION-IN-ACTION vs. REFLECTION-ON-ACTION The Benefits of Reflection for Improving Professional Judgments

**Therese Grohnert, Roger H. G. Meuwissen, Wim H. Gijssels**

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Professionals e.g. in medicine and auditing often rely on checklists when making complex judgments. However, checklist use does not always lead to accurate, well-supported judgments; several studies related checklist use to susceptibility to cognitive biases (e.g. Wheeler & Arunachalam, 2008). Based on debiasing literature (e.g. Croskerry et al., 2013), this study explores (a) whether a simple auditing checklist is effective for improving inaccurate judgments, and whether (b) stimulating auditors reflection-in-action or (c) reflection-on-action at the same time improves effectiveness of the decision aid. 213 early-career auditors completed a representative task in a repeated-measures design, asking for information search and judgments in two phases. 75 participants advanced from the baseline to the experimental phase (32.8% female, 13.0 months of average task experience, from 11 firms), and were randomly assigned into the three conditions (checklist only / checklist + reflection-in-action / checklist + reflection-on-action). Case information in both phases is designed to vary in quality and in suitability for forming an accurate judgment. We measure changes in judgment accuracy and confidence between phases, and participants' information search behavior in the experimental phase. Paired-sample t-tests reveal that only participants in the reflection-in-action condition improved their judgment accuracy, while those in the checklist-only condition became more confident without improving accuracy. Post-hoc analyses of information search behavior reveal that participants in the reflection-in-action condition expanded more effort and distinguished significantly between superficial and factual information. Participants in the reflection-on-action condition did so to a smaller degree; the checklist-only condition was associated with a lack of effective behaviors. The results of this study show that using a checklist may not be sufficient for improving professionals' judgment quality: its use was associated with medium effort of information processing and ineffective distinction between information of differing quality. When fostering reflection(-in-action), along with using the decision aid, judgment accuracy improved, more effort was expanded and this effort focused on high-quality information. Building on existing research on checklist use and debiasing (Croskerry et al., 2013; Wheeler & Arunachalam, 2008), this study shows that reflection-in-action is an effective means of supporting professionals in forming accurate judgments based on factual information. As a consequence, training professionals in using checklists as a means of increasing and focusing cognitive effort (rather than as a legal buffer or busywork) creates new opportunities to improve professional judgment quality. Additionally, training supervisors in fostering reflection(-in-action) in their supervisees affords a non-disruptive improvement of complex decisions within existing structures.

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### Facilitating professional development through (self-)reflection and interaction. Findings of an evaluation study.

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Professionalism and professionalization of teaching professionals are becoming increasingly important issues in the course of the necessity of high quality education formulated by society and education policy. This applies to adult educators as well as to school teachers. Both have to cope with a high degree of inner dynamics, insecurity and a growing diversity in their respective professional fields. Therefore, continuous professional development is essential (cf. Schön, 1983; Terhart, 2011; Lipowsky, 2010). The scientific discourse on professionalization raises the question of how professional teaching can be supported and promoted "close-to-the-job" (cf. Lipowsky, 2010) and which basic competences have to be acquired to deal with new challenges (cf. Schön, 1983). The present paper will focus on the role of reflexivity, teachers' beliefs and the social interaction between practitioners for professional development.

Accordingly Gruber and Wiesner (2012, p. 14) define: (adult) educational professionalism "is based – in addition to a theory-based and action-oriented knowledge base – on diagnoses and interpretations, it is not something completed, but it must rather be proved and developed as a competence again and again [...]. Thus, in addition to basic scientific knowledge it requires especially practical experience and a high degree of reflexivity." Apart from the ability to reflect, teachers' beliefs play a significant role in situation-oriented and innovative – as opposed to merely routinized – teaching (cf. Wahl, 2013; Reusser et al., 2011; McAlpine & Weston, 2000; Schön, 1983). (Self-)reflection is regarded as an important condition for "coping with complex, divergent situations" (Pachner, 2013, p. 06-5). At the same time (self-)reflection is essential for the further development of teachers' beliefs (cf. Wahl, 2013; Reusser et al., 2011; McAlpine & Weston, 2000). Teachers' beliefs in turn influence and control "the selection of goals and action plans, the perception and interpretation of situations as well as the didactic and communicative actions and problem solving in the classroom" (Reusser et al., 2011, p. 478).

Based on these theoretical foundations, the empirical paper is aimed at investigating how the professional competence of teaching professionals can be promoted and further developed with regard to their professional beliefs through stimuli for (self-)reflection and the exchange of experiences. To answer this question, an evaluation study is currently carried out on a teacher training series developed and realized by an interdisciplinary team of adult education scientists and educationalists specialized in inclusion, heterogeneity and diversity within a project financed by the German Ministry of Education (BMBF). Using the method of qualitative content analysis (Mayring, 2015), the assignments concerning reflection as well as the exchanges between the participants will be systematically analyzed. The assignments developed in order to encourage reflexivity are written down by the participants in so-called reflection logbooks (n = 18). Unpublished results of this evaluation study will be presented. The findings are expected to provide information about the learning process of the participating teachers. Thus,

recommendations for the future design of further education courses for teaching professionals can be derived, which are aiming at the development of professional competence through reflection and interaction.

### **[CANCELLED] Reflection in professional contexts – Views of teachers in vocational education**

**Bärbel Fürstenau<sup>1</sup>, Mandy Hommel<sup>1</sup>, Regina Mulder<sup>2</sup>**

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#### **Aims**

Reflection contributes to the professional development of teachers, which is necessary in light of several challenges and changes teachers face. Reflection is a specific form of thinking which is closely connected with action. Reflection can help to get insight into actions, as well as to control, modify, and develop actions. Thus, reflection is a prerequisite for innovative work behavior (IWB) (e.g. Messmann & Mulder, 2015). Therefore, aim of this study was to analyze teachers' views on their own reflection. The analysis is based on the reflection cycle and on the idea that reflection is an interaction between person and environment. The results reveal points of reference to promote teacher reflection, and thus IWB.

#### **Methodology**

In this explorative study we gathered data about teachers' views on their own reflection in the context of teaching. For that purpose, we conducted semi-structured interviews with eight teachers (7 f, 1 m, age M = 50, SD = 8, years of teaching experience M = 20, SD = 7.4) working for vocational colleges in Germany. The interviews were audiotaped and transcribed afterwards. Data was analysed using a qualitative content analysis (e.g. Mayring, 2015). We identified statements named commonly and most frequently by the teachers. The statements were subsumed under the following main categories: 'situations and conditions', 'content', 'causes and effects', 'aims', 'emotions', 'measures'. Except 'content', all categories were derived from the literature.

#### **Findings**

The results reveal that teachers in general judge reflection very important for their professional development. Specifically, the following can be stated: Situations and conditions: The majority of teachers reflect after or before a lesson, that is to say in close temporal relation with instruction. Teachers reflect on their own, or together with colleagues. Important obstacles to reflection are time restrictions. Content: Reflection concerns mainly sequencing of instruction (order of topics, time on topics) and problematic situations, e.g. student behavior. Causes and effects: Above all, deviations between planned and real instruction trigger reflection. Effects of reflection relate to changing content and teaching methods. Aims: By reflection, teachers mainly aim to improve the quality of instruction and to foster student achievement. Emotions: Both positive (joy) and negative emotions (disappointment) are associated with reflection. Measures: Most teachers will more often request written or oral feedback from students or colleagues.

#### **Significance of research**

The analysis of subjective views on reflection is important because those views guide reflective actions. Furthermore, subjective views reveal deep insight into reflection and thus provide a rich and ecologically valid database to understand and improve reflection, and consequently IWB. In our presentation, we will elaborate on the theoretical framework, the development of the categories and the value of the results in the light of other empirical research findings.

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## F07 - Paper session: Integrating learning experiences in higher education

Time: Thursday, 13/Sep/2018: 4:00pm - 5:30pm · Location: M1150

Session Chair: Stephen Richard Billett

### Articulate different levels of analysis of activity in training environment

**Benjamin Watteau, Jérôme Guérin**

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The ambition to understand the complexity of human activity in training environments at different levels of analysis has led to the development of a research methodology based on a theoretical framework combining the socio-technical approach (Albero, 2010a, b, c) and the theoretical framework of the course of action (Theureau, 2006) and called "ecological approach of the activity in formation". The method was constructed according to the epistemological requirements of the theoretical framework relating to the study of the individual and collective activity of apprentices and trainers and the specificity of the training environment. Five main principles guide the ordering of the different stages of the method: 1) to analyze the individual activities of apprentices and trainers over time to capture and reconstruct the collective dynamics; 2) systematically collect the views of participants; 3) identify the functions of the objects in this dynamics; 4) situate the training environment analyzed in its institutional context; 5) articulate the analysis of lower levels of activity (micro) with that of higher levels (macro). This method is presented based on a survey conducted in the field of architecture training. It has thus made it possible to access an intelligibility of the phenomena relating to the individual and collective activity of apprentices and trainers and its transformations within the training environments and then to identify praxeological tracks and to put into perspective their axiological stakes.

In the specific context of French national schools of architecture. The methodology presented has been implemented to describe the training in architectural design by the exercise of project in workshop. In the form of case studies, the survey was conducted in three movements. The prime movement, the heuristic with the aim to focus, used the modalities of ethnology and relied on the proposals of the grounded theory (Glasser, Straus, 1967, 2010) to understand the issues related to a specific Workshop of the Ecole Nationale Supérieure de Bretagne (ENSAB). The second movement, analytic, allowed the identification of phenomena related to the process of transformation of individual learning activity in relation to collective activity and the introduction of artifacts (Theureau, 2006) in this workshop. The third movement of generalization and specification of the results obtained during the first two movements drove to the extension of the survey to other fields (ENSAB and Autonomous University of the State of Morelos) in order to identify the invariants, but also to highlight the originality of the processes observed.

The implementation of these three movements organized according to the five principles outlined allowed to account of the apprenticeship of architectural apprentices and in particular the process of transformation of their activity of creation during a semester of training.

### Boundaries between education and working life in vocational education organized by a company. A case study KONE Elevators Ltd.

**Kaisa Hytönen, Anne Kovalainen**

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#### Introduction

Future working life requires new kinds of competencies. In addition to profession specific skills, the abilities to learn, apply knowledge and adapt to changing environments are crucial. Is educational system flexible enough to swiftly respond to changes in working life and to adapt to new individual competence needs (Sundararajan, 2016)? Deeper cooperation between educational institutions and working life is needed (Field et.al., 2009; Billett&Henderson, 2011). This study examines boundaries between working life and education in the context of vocational education and training organised by a company. It aims to examine 1) what kinds of field specific skills and general working life competencies vocational education organised by a company develops and 2) how the interaction between education and working life is constructed in vocational education organised by a company.

#### Method

The study was conducted in the context of a two-year-long vocational training programme organised by Kone Elevators Ltd. KONE is a global leader in the elevator and escalator industry. Elevator installers are educated at KONE Industrial School. The elevator engineering training programme includes theoretical studies (30%) and practical training (70%) that takes place in the building sites of KONE. Each student is assigned a mentor.

The data were collected by interviewing ten employees who had studied in the elevator engineering training programme and after that progressed in their careers in KONE. In addition, two employees working in a managerial capacity of the company were interviewed. Interviews were analysed according to qualitative content analysis.

#### Findings

The results show that vocational education organised by a company supported both learning of field-specific skills and general working life capabilities and created a strong basis for further professional learning and career advancement. General working life capabilities were especially related to the business of the company, such as knowledge in languages, customer service skills and adaptability to change, which in this field are often related to technology developments and digitalization.

There is a close and multilevel connection between the training programme and the company. Participants are engaged in the company from an early stage, e.g. even before the programme begins, as the future workforce needs determine the number of study places. Changes and developments taking place in business activities are quickly translated in to teaching contents and practices, and vice versa. Theoretical knowledge and practical training are effectively linked by a modular structure of studies and in real working environments.

#### Significance of the research

This study indicates that vocational education organized by a company can provide flexible ways to educate workers. For workers it provides competencies to build sustainable careers. Theoretically, this study contributes to literature on boundaries between educational institutions and companies. In practice, the results can be utilised in the current reform of Finnish

vocational upper secondary education. Three elements for the scalability of the vocational training organized by a company to other fields are discussed: content elements (closeness to operations), structural elements (modular structure, job security and career possibilities also outside of the company) and flexibility elements (quick adaption to technological developments).

### **Augmenting tertiary education students' work experiences through post-practicum interventions: Preferred purposes and processes**

**Stephen Richard Billett**

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Increasingly higher and tertiary education students are engaging in work experiences, much of it directed towards the purposes of enriching their programs of study and promoting employability on graduation. Often, the educational purpose is stated as make these graduates job ready. Considerable institutional and personal resources are directed towards providing and engaging in these work experiences. Therefore, it is important to identify how to best to utilise them to achieve those educational purposes. An earlier study (Billett, 2015) indicated an optimum point for educational interventions is after students have completed work experiences. At this time, they have the capacity to share, compare and engage critically in considering their experiences and those of others as directed towards understanding and being able to practice their selected occupation. Yet, as these educational interventions are premised on student engagement, it is important to understand: i) the reasons why and ii) means by which students prefer to engage in such interventions so they can be designed, enacted and evaluated effectively. That is, there needs to be clear educational purposes and process aligned with achieving those outcomes, which includes knowing how students are likely to engage with what is afforded them through these experiences and how they might be integrated into their programs of study.

This paper reports on and discusses the findings of a survey of higher education students in healthcare disciplines that sought to address those two issues. The survey was responded to by over 300 hundred students from a range of disciplines (e.g. medicine, nursing, dietetics) and from different levels of completion (i.e. from 1st to 5th years). It found that students had clear preferences for the kinds of outcomes they wanted to achieve through such interventions and the form of those interventions. Students reported a preference for processes that assisted them gauge and further develop their occupational capacities and readiness to secure employment and practice effectively once employed (Billett, Cain and Le, 2017 in press). These concerns predominated in the kinds of purposes they wanted to achieve, which extended to critiques of how their experiences were currently being provided. In terms of preferred processes, those that were led, facilitated or guided by teachers or experts (i.e. clinicians) were preferred over student-organised and led processes. So, there was considerable alignment between the purposes and preferred processes of these alignments. Yet, these students place low value on peer assistance and feedback. This finding contradicts recent literature on peer assessment that indicates that those being assessed by their peers greatly value their advice and find it helpful. It is these findings and discussions that are elaborated here and the implications for organising, enacting and evaluating educational experiences entertained.

Billett, S. (2015) Integrating practice-based learning experiences into higher education programs, Springer; Dordrecht, The Netherlands ISBN 978-94-017-7229-7

Billett, S., Cain, M. & Le, L (2017 in press) Augmenting higher education students' work experiences: Preferred purposes and processes, *Studies in Higher Education* (accepted 5th October 2016) doi.org/10.1080/03075079.2016.1250073

## **F08 - Paper session: Learning and professional development of primary school teachers**

*Time:* Thursday, 13/Sep/2018: 4:00pm - 5:30pm · *Location:* M1170

*Session Chair:* Bev Fluckiger

### **Multimodal interactions between teacher and pupils during free play at preschool: tools for vocational training as a lever for pupil's learnings?**

**Marie-Laure Michel**

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The object of this communication is to start answering the question of how to develop teachers' guiding competencies during free play at preschool in order to enhance pupil's learning, as well in initial training and in continuing education.

To answer this question, we followed two steps. First, we documented teachers' interactions with their pupils during free play. As a matter of fact, a lot of work has been done about the importance of play (see for example Golinkof & Hirsh-Pasek, 2006), but very few on the teachers' guidance which can help immature play develop into a more mature play. The latter clearly shows a higher degree of complexity, building crucial competencies for further learning achievements such as abstract thinking, imagination and self-regulation (Pramling Samuelsson & Asplund Carlsson, 2008). Secondly, we started the elaboration of guidelines that will help teachers have a better understanding of their role during free play to make this time a learning time and, thus, enhance vocational training, as we pointed out at the very beginning.

Based on the historico-cultural paradigm, we argue that free play is essential for the child's development between ages 4 and 7, particularly in parallel with more structured learning at school, yet is often not present outside of school anymore (Bodrova & Leong, 2009).

We implemented a research design in 3 Swiss schools. In each of them, pupils were filmed in the classroom during 3 weeks. 9 interviews were conducted with the teachers and extensive notes were taken throughout all aspects of the research. A multimodal analysis is being conducted on the main data : the films (Filliettaz, de Saint Georges & Duc, 2008).

In spite of the different settings, our first results allow us to state that the 3 teachers we shadowed, all of whom are experts in guiding free play, may have different guiding types but all have a common underlying postulate: use this time as a learning time. This communication will enable us to illustrate this statement and show our first analysis of fine multimodal interaction. In terms of language, they show that the words the teacher uses have a clear impact on the course of interaction and inversely. The pupils' verbalizations also constitute key elements allowing the teacher to evaluate their progression and to understand their project and reasons of action (Balslev, Saada-Robert & Tominska, 2009). In terms of other semiotic modes, we will illustrate how gesture, mimics and physical as well as symbolical posture also clearly influence the mechanism of construction of meaning (Filliettaz, 2009).

Our final results will benefit both the scientific community as well as our students at the Higher School of Education in Lausanne who express a clear need in this area. And ultimately, if a dialogue sets in, the Teacher Education as a whole will be enriched by better knowing how to guide free play so that it can be what it is: a real opportunity for fundamental learnings, rather than a simple reward after "serious work" is finished (Clerc-Georgy & Truffer Moreau, 2016).

### **21st Century Leadership Skills for Learning Networks in Primary Education**

**Floor Basten<sup>1</sup>, Arnoud Evers<sup>1</sup>, Femke Geijssel<sup>2</sup>, Marjan Vermeulen<sup>1</sup>**

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#### **Aims**

In a three-year research project, 4 researchers, 13 school principals and 2 board chairmen are investigating how learning networks of teachers can be supported by 21st century leadership skills. The research question is: How do school leaders conceptualize and frame their experiences in learning 21st century skills and developing practices with learning networks to lead their schools towards 21st century elementary education? Theoretically it is mainly based upon 21st century education (Voogt & Roblin, 2017), network learning (De Laat, 2012), transformational leadership (Geijssel, Meijers & Wardekker, 2007) and distributed leadership (Harris & DeFlaminis, 2016).

#### **Methodology**

The school leaders work on their own questions about how to lead network learning with support of a leadership coach and researchers. Retrospective interviews (1 to 1,5 hour) were conducted with respect to executing these new practices. The interview guide had these themes: 'Wishes/future perspectives about 21st century skills/education', 'leadership', 'network learning', and 'support in developing leadership'. Interviews were transcribed and analyzed thematically, based on these and new sensitizing concepts (like decision making and dialogue).

#### **Results**

First, all 13 interviews were fragmented and copied into a database, which allowed for coding using the sensitizing concepts.

The resulting Table demonstrated amongst others that four school leaders were in general more outspoken about the themes. They had more statements about the conception of the school (the 'vision'), internal collective dialogue, learning according to 21st century skills, and well-being.

In addition, most school leaders would like practical support in how to communicate about learning with their teachers and in how to ask questions that provoke more critical thinking, in-depth learning and an inquiring attitude.

#### **Theoretical and practical significance**

Little is known about leadership skills for developing and fostering learning networks at schools (Townsend, 2015). Even less is known about how to lead these networks for actual change towards 21st century skills and education for pupils. This research contributes to insights about these issues. It appeared that school leaders with pronounced school visions (individual or collective) talked more about learning according to 21st century skills, paid more attention to a collective internal dialogue and put more emphasis on well-being (about learning experiences). Thus, the question might be how school leaders in practice can

be triggered to develop a pronounced vision and to discuss (collective) learning in their schools, which is a prerequisites for framing learning networks as relevant and acting accordingly.

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### **A research-informed and research-led approach to supporting the professional learning of teachers**

**Bev Fluckiger, Madonna Stinson, Julie Dunn**

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The aim of this research study was to challenge and support teachers to adapt their classroom behaviours and broaden their repertoire of pedagogies in order to enhance children's learning in the early years of school. It demonstrates the potential positive effects that professional learning can have on teachers and their teaching, as well as learners and their learning.

This paper presents a model of professional learning that was designed and implemented as part of Age Appropriate Pedagogies, a research project initiated and funded by the Department of Education and Training (DET) in Queensland, Australia. The project involved preparatory year teachers in 106 schools, in urban, rural and remote settings in Queensland. Using a mixed methods research design, data were comprised of 200 teacher survey responses, 100 school action research plans, reports from each school, as well as field notes from professional learning discussions and reflective practice.

The model is based on adult learning principles and incorporates many of the features of effective professional learning found in current research (e.g. Jensen, Sonnemann, Roberts-Hull, & Hunter (2016)). The model had coherence with many teachers' informing beliefs, and with current research on how best to support young children's learning. It engaged teachers in professional learning communities; working collaboratively with external researchers to support new ideas and practice and critique and challenge existing ones; incorporated professional reading and discussion along with teaching-focused mentoring and coaching over an extended period of time. School-based action research was undertaken to guide and evaluate teachers' professional learning and the effectiveness of their changing practices on children's learning which was communicated to an audience of peers.

Results indicated that teachers were highly positive about opportunities to engage with current research and valued the contribution an increased understanding made to their practice. They reported that it invigorated their work and improved their confidence in articulating their practice. Teachers also responded positively to the opportunities to engage in professional discussions with colleagues and academic researchers within their communities of practice, claiming that these opportunities led to increased empowerment, enjoyment and well-being in the workplace. Teachers also indicated that their changing pedagogical practices had a positive influence on children's motivation and engagement in learning, particularly when children had opportunities to exercise agency. In addition, there was a noticeable increase in children's attendance at school and a decrease in behaviour incidents.

This project contributes both theoretically and practically. Of particular significance is the contribution of an effective, workable model of collaborative, research-informed, research-led professional learning that can be implemented large-scale. The model is particularly useful for jurisdictions that are challenged by distance and remotely located schools.

#### Reference

- Jensen, B., Sonnemann, J., Roberts-Hull, K. & Hunter, A. (2016). *Beyond PD: Teacher Professional Learning in High-Performing Systems*. Washington, DC: National Center on Education and the Economy.

## **F09 - Paper session: Theories and methodologies for the study of professional learning and development**

*Time:* Thursday, 13/Sep/2018: 4:00pm - 5:30pm · *Location:* M2150

*Session Chair:* Mariana Orozco

### **The mother or the child: theorising simulation through double stimulation**

**Madeleine Abrandt Dahlgren<sup>1</sup>, Nick Hopwood<sup>2</sup>, Johanna Dahlberg<sup>1</sup>, Marie Blomberg<sup>1</sup>**

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A key challenge for health professionals delivering babies is to avoid injury to the mother and child, especially in complex births such as shoulder dystocia. This when a baby's head is delivered through the vagina, but the shoulders get stuck inside the mother's body. Shoulder dystocia, involves risk factors such as injuries to the brachial nerves, fracture of the clavicle and arm and even death for the baby, as well as heavy bleeding and tearing of the uterus for the mother.

This paper reports findings from a study at a birthing suite in Sweden where injuries due to shoulder births have decreased significantly over a ten year period, along with reduced maternal haemorrhage, and evidence of increased practitioner confidence in dealing with such complex cases. This has been achieved through a combination of introducing a new protocol and embedded the use of this in regular practice through re-occurring simulation exercises for the team, comprising professionals from multiple health fields.

The analysis draws on cultural-historical theory, specifically focusing on concepts of double stimulation. The idea of double stimulation originates in the work of Vygotsky, who referred broadly to the presentation of a problem (first stimulus) and special use of a mediating tool or sign in order to address that problem (second stimulus). Double stimulation is particularly associated with moments of conflict where people are faced with a dilemma, torn in opposing directions. Recently, Sannino (2015b) has developed a Vygotskian model that articulates double stimulation as a principle of volitional action. While Sannino's model was developed with reference to controlled experimental situations, subsequent research has shown that it functions as a conceptual framework to explain how double stimulation operates 'in the wild' of work practices (eg. Hopwood & Gottschalk 2017).

In the context of shoulder births delivered through traditional methods, the conflict of motives centres on choosing between approaches that are either likely to cause injury to the baby, or likely to cause injury to the mother. The paper uses the conceptual framework of double stimulation to show how the protocol functions as a secondary stimulus. It finds that the protocol resolves the dilemma of choosing approach and reconfigured not only individual psychological function, but arrangements in the activity system, including rules, division of labour, and use of (other) mediating artefacts. It is argued that the reduction in injuries can be attributed to the combination of the second stimulus and the simulation-based professional learning.

The paper offers novel insights specifically into professional learning and advances new understandings in relation to double stimulation with collectives (specifically, multi-professional health teams), and connections between double stimulation in practice and associated practices of ongoing professional learning.

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Sannino, A. (2015b). The principle of double stimulation: a path to volitional action. *Learning, Culture and Social Interaction*, 6, 1-15. doi:10.1016/j.lcsi.2015.01.001

### **Work Expertise and Shared Moral Values: an Exploration through Transmission in Cross Self-Confrontation.**

**Laure Kloetzer**

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This paper will present findings from a 2 years-long intervention, recently completed, in a Swiss factory, which implemented innovative ways to support transmission of technical knowledge. The research was conducted in tight collaboration with the Human Resources Director and Production Director, and with a group of expert workers, volunteering to explore and discuss their highly embodied expertise.

This research is grounded in the theoretical framework of historico-cultural psychology, activity theory and work analysis. Three main ideas support it: (a) Vygotsky's research focus on provoking development in order to study it (Vygotsky, 1934/1986); (b) Oddone's ideas on close collaboration with professionals in 'associated research groups' to understand and develop work experience (Oddone et al., 1981); (c) Clot's psychological concept of activity (Clot, 1999), which includes both 'realised activity' and 'real activity.'

The methodology of Cross Self Confrontations (Clot, Faïta, Fernandez & Scheller, 2001 ; Kloetzer, Clot & Quillerou-Grivot, 2015) was used in this research. It is based on collective work analysis, thanks to the interplay of two activities – observation and dialogue – within various contexts and for different addressees. Carefully edited video recordings, which we call here 'dialogical artefacts' (Kloetzer, 2017), support this activity of analysis and transformation. This methodology aims at triggering individual thinking, collective elaboration, institutional discussions, and organisational change. The data collected include group discussions (6), interviews in simple and cross self confrontations (20), observations and video-recordings of the work activity, and discussions within the Steering Committee (4).

Our research questions are the following : how to support transmission of embodied knowledge in a factory using work analysis? What is the expertise of these highly qualified workers? How can we engage all participants into negotiated organizational transformation ?

We will highlight the multidimensional character of expertise, including technical expertise, organizational expertise, and shared moral values or « virtues » (MacIntyre, 1997 ; Daston & Galison, 1997). The paper will focus on the latest and discuss how shared moral values are constructed in everyday interactions, discussed in the research framework, and how they ground personal and collective action in the workplace.

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## **Empirical conceptualisation of integrative learning. A focus on theory-practice integration.**

**Mariana Orozco, David Gijbels, Christiane Timmerman**

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Integrative learning has been widely recognised as a cornerstone of today's technical vocational education and training (TVET). However, whereas prior research has focused on what facilitates integrative learning, little is known about how such learning is constructed, let alone how it proceeds or should proceed (Barber, 2012). The main reason for this still limited understanding resides on epistemologically divergent rationales (Hiim, 2017), e.g.: dichotomist thinking about theory and practice (T&P) and, at the opposite extreme, their false equivalence.

Certainly, while dualistic views on T&P are not conducive to a reconciliation of these kinds of knowing, neither are perspectives that tend to gloss over the theoretical component of professional knowledge (Guile, 2006). Furthermore, too often has 'mind' been equated to school, theory and concepts, while 'world' has roughly been equated to workplace, practice and experience. Nevertheless, theory cannot be confined to school-based learning, such as practice is not to be reduced to the work-based learning environment (Sloane, 2014).

All in all, there is a lack of knowledge about the very concept of integration, about what is to be integrated, and about what it takes to integrate apparently different worlds. The present investigation represents an effort to bridge this gap, as it aims to postulate what constitutes the integrative learning of theory and practice (ILTP), and what this exactly entails in the context of TVET in dual-learning environments.

This piece of research consists of an in-depth qualitative study, designed to further current understanding of ILTP at a micro-level of analysis. In pursuing this aim, our investigation proceeds in the context of dual-learning at post-secondary and higher education levels and, more specifically, in the field of chemical process technology (CPT).

Thirty-eight key actors in dual-TVET (students, tutors and mentors) participated in serial focus groups and interactive class observations. The constant comparison method is being used to theorise the ILTP-construct.

The initial analyses generated an eight-factor definition of ILTP which, together, are expected to account for the profundity of the theory-practice integration into vocational or professional knowledge. Such profundity is presumed to mirror varying levels of expertise, i.e. the extent to which T&P are integrated (from superficial to deep integration) is proposed to act as a proxy of the level of professional expertise (from initial to advanced).

The research findings are expected to have implications both for practitioners and for future research.

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## F10 - Paper session: Learning medical practices

Time: Thursday, 13/Sep/2018: 4:00pm - 5:30pm · Location: M2160  
Session Chair: Judith Warren Little

### Self-regulation of professional learning in the medical practice: which processes are actually happening?

Katrien Cuyvers<sup>1</sup>, Van den Bossche Piet<sup>1,2</sup>, Donche Vincent<sup>1</sup>

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#### Aims

A growing need has emerged for insights on how employees engage in self-regulation of professional learning to attend to continuously changing demands and to solve complex work problems (Sitzmann & Ely, 2011). Notwithstanding this growing interest, empirical research is still scarce and most often, offline cross-sectional self-report techniques are used to measure retrospectively self-regulation of professional learning (Cuyvers, Van den Bossche, & Donche, 2017). This study aims to explore which overt and metacognitive self-regulation strategies medical specialists actually undertake in everyday work experiences.

#### Methodology

**Design and Sample.** A longitudinal multiple case-study design was used including 13 physicians of different medical specialties and hospitals in Flanders (Dutch speaking part of Belgium). Ethical approval was obtained from all Ethics Committees in hospitals of participating physicians.

**Data collection.** A multi-method approach was applied, using long term observations and stimulated recall interviews during practice. The observations offer evidence on overt self-regulatory strategies and enable to use observable behaviors as cues for in loco stimulated recall interviews, asking about metacognitive strategies and the content of thoughts regarding a situation at hand. Depending on the specialty and circumstances also a think aloud protocol was used to make metacognitive strategies more explicit. The methodological approach was piloted and refined. Field notes and audiotaped stimulated recall interviews were transcribed and integrated in a longitudinal database to map self-regulatory learning processes and events as they actually unfold moment-by-moment.

**Data analysis.** The qualitative approach, using content analysis and grounded theory, started with reading the verbatim transcribed data comprehensively to obtain an overall impression. Subsequently, transcripts were coded using the qualitative software package Nvivo 11.

#### Findings

**Metacognitive strategies before potential learning.** A constant need for alertness for possible challenges during job-performance is reported by medical specialists. They mention to always be cautious, even in routine activities. Also, analysis yielded recognizing learning affordances aligned with awareness of learning needs. Planning is most often mentioned with a focus on performance. Goal-oriented self-regulation of learning appears in situations where physicians experience a lack of competences.

**Self-regulative strategies during learning.** Different overt strategies are used to tackle difficulties during job-performance such as consulting colleagues, consulting guidelines and the internet. Metacognitive awareness and monitoring are difficult to extract and medical specialists often report not to know how to monitor their learning.

**Metacognitive strategies after learning.** Reflection and evaluation can hardly be deduced from the data.

#### Significance of research

This study contributes empirically to the fields understanding by measuring self-regulation of professional learning in action during everyday experiences.

#### References

Cuyvers, K., Van den Bossche, P., & Donche, V. (2017). Self-regulation of professional learning in the workplace: a state of the art and future perspectives. Paper presented at the 17th Biennial Conference for Research on Learning and Instruction (EARLI), Tampere, Finland.

Sitzmann, T., & Ely, K. (2011). A meta-analysis of self-regulated learning in work-related training and educational attainment: what we know and where we need to go. *Psychological Bulletin*, 137 (3), 421-442.

### Complex clinical practice: different sources for trainees' motivation during postgraduate medical education

Wieke van der Goot<sup>1</sup>, Sayra Cristancho<sup>2</sup>, Marco de Carvalho Filho<sup>3</sup>, Debbie Jaarsma<sup>1</sup>, Esther Helmich<sup>1</sup>

<sup>1</sup>University of Groningen / University Medical Center Groningen, Netherlands, The; <sup>2</sup>Schulich School of Medicine and Dentistry, University of Western Ontario, London, Ontario, Canada; <sup>3</sup>Department of Emergency Medicine, School of Medical Sciences, University of Campinas, Brazil; [w.e.van.der.goot@rug.nl](mailto:w.e.van.der.goot@rug.nl)

Postgraduate medical education trainees work and learn in complex clinical contexts. To learn effectively and provide good patient care in these contexts, trainees need to be motivated. While it is known that the social environment influences individuals who work in it, little is known about how the complex clinical context influences motivation of trainees. It is important to understand how context and trainee are intertwined, because trainees need motivation to grow and develop into lifelong learners. Therefore, our research question was: how do complex clinical contexts influence trainees' motivation and how are both intertwined?

As a methodology we used constructivist grounded theory. Fifteen trainees participated in this study. They drew a rich picture, which is a visual representation of a complex setting, about a motivating situation in their training and were interviewed afterwards. This allowed us to gather rich data about trainees' experiences during training. Data collection and data analysis were performed iteratively, using open, focused, and selective coding strategies, as well as memo writing.

Results showed that trainees had different foci of motivation. First, trainees drew situations in which they were learning their future profession. These drawings, focussing on their motivation as a learner, showed trainees carrying out various tasks such

as performing a surgery, physical examination, or patient interview. Second, trainees drew situations that really mattered to them, clinically or interpersonally. These drawings were about trainees' intrinsic values of being a doctor. These trainees needed to feel connected to patients and their families, for example, when breaking bad news, checking on patients after surgery, and being reflective about their role in patient care. Trainees as learners needed support, learning opportunities, and feedback to stay motivated, especially from supervisors. Trainees as doctors visualised collaboration with a team, to provide good patient care, as an important source for their motivation. In general, trainees flourished when the complexity of clinical practice matched their stage of development, so they could focus on their learning or practice. Social interactions with peers, patients, and healthcare professionals were important for trainees' motivation. Moreover, trainees described strategies to influence their context to improve their development, independent of their motivational focus. Nevertheless, the results also showed a tension between the reality of complex clinical practice, which also includes demotivating tasks that are perceived as tedious and boring, such as administration, and those tasks that motivate trainees' learning and development to become a consultant.

In conclusion, this study showed that the clinical context matters in facilitating trainees' motivation for learning and practice. Clinical contexts are complex, not only because learning and practice are intertwined, but also because different people and structures in these contexts influence each other. This interconnectedness between individual, social and contextual aspects provides a starting point to optimise trainees' motivation and support them to become lifelong learners. Clinical contexts may need to become more aware of trainees' focus of motivation and associated needs for support, while trainees may influence their context to establish optimal opportunities for them to work and learn.

### **Perspectives on the Patient in Simulation-Based Education of Interprofessional Health Care Teams**

**Judith Warren Little<sup>1</sup>, Bridget O'Brien<sup>2</sup>, Joe Cook<sup>2</sup>**

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#### **Purpose**

The purpose of this paper is to examine how student health professionals in medicine, nursing, pharmacy, physical therapy, and dentistry represent and orient to the patient in a simulated experience of inter-professional team care. Patient-centeredness has emerged as a priority in health professions education, and a common element in the research lexicon (Fix et al., 2017), but is often conceived and studied in terms of dyadic patient-provider communication (Gachoud et al. 2012). Inter-professional communication in team-based decision making presents a significant but under-examined context for establishing and studying patient-centeredness.

#### **Methods**

Interprofessional (IP) groups of medical, nursing, dental, pharmacy, physical therapy, and dentistry students were videotaped in two 15-minute "huddles" focused on the case of a 75 year-old woman who had experienced a fall and who also had multiple chronic conditions and a complex medication regimen. In Huddle 1, groups reviewed case materials and planned an interview with a standardized patient. Following the interview, Huddle 2 focused on preparing a plan of care. Analysis of ten IP groups employed concepts from socio-material theory and methods of interaction analysis to examine how the groups represented and oriented to the patient. Analysis combined inductive coding with deductive attention to dimensions of patient-centeredness identified in the literature, among them: a biopsychosocial perspective; patient involvement in decision making; patient as whole person; integration of medical and non-medical care; and relations of respect and trust.

#### **Findings**

1. All groups treated the patient case as medically authentic and as sufficiently complex to benefit from team-based care. However, groups varied in the extent to which they drew on available information to construct a holistic view of the patient's health and to move beyond a narrowly constructed disease- and provider-centered perspective. Only three groups explicitly conveyed interest in the "big picture" of the patient's health, beyond the problems and treatments represented on the case sheet.
2. All groups positioned the patient as a source of information that would address specific questions or help assess initial diagnostic judgments. However, only four groups also positioned the patient as a meaningful source of additional information and insight about her presenting problems, overall health, or life-world circumstances.
3. All but two of the ten groups displayed sensitivity to the patient's needs and concerns (pain, falling, costs, home assistance) but only four groups envisioned the patient as someone with her own goals, interests, preferences, and capacity, or as an active agent in her own health decision making. Overall, the more the dimensions of patient-centeredness reached to notions of patient insight, initiative, agency, and autonomy, the fewer instances were evident in the videos.

#### **Significance**

Despite growing bodies of research on interprofessional communication and on patient-centered care, relatively few studies join the two strands of work by focusing on patient-centeredness in the context interprofessional deliberation, or on the preparation of novice professionals for patient-centered interprofessional work. This study responds to those gaps, and suggests the potential for IP case simulations to reveal health professionals' understanding and enactment of patient-centeredness.

## **G01 - Symposium: Transformer l'expérience en apprentissage par l'accessibilité cognitive, conative et socio-affective**

*Time:* Friday, 14/Sep/2018: 8:30am - 10:30am · *Location:* MR160

*Session Chair:* Laurence Durat

### **Transformer l'expérience en apprentissage par l'accessibilité cognitive, conative et socio-affective**

*Chair(s):* **Laurence Durat** (Université de Haute-Alsace, France)

*Discussant(s):* **Vivien Braccini** (PSI)

Dans ce symposium, nous souhaitons mettre en discussion l'éducabilité par la prise en compte de toutes les dimensions de l'apprentissage : cognitive, conative, affective et sociale.

Bien souvent la dimension cognitive est prioritaire dans les préoccupations des institutions de formation, alors même qu'il s'agit de former à des métiers qui consistent à agir sur autrui (secteur de la santé ou de l'enseignement) dont la dimension relationnelle est cruciale. On suppose que les mises en situation proposées seront d'emblée des sources d'inspiration. Mais lorsqu'il s'agit d'une activité de diagnostic et d'intervention sur un processus (Leplat, 1985) et sur autrui, en grande partie fondée sur la singularité des cas et des personnes, cela nourrit bien des difficultés pour un apprenant. Les situations apparaissent incertaines, instables, peu répétitives, difficiles à catégoriser et la capacité à mobiliser des ressources théoriques ou praxéologiques des apprenants est mise à l'épreuve.

L'expérience est multivoque, ambiguë, elle semble constituer parfois un évènement isolé dans une suite de situations sans cohérence apparente, son sens ne se donne pas immédiatement. Plus encore, prise dans des enjeux multiples (notamment socio-affectifs) elle donne lieu soit à des apprentissages, soit à des désapprentissages (Durat, 2014) allant de l'inhibition de l'action à des représentations de l'action dysfonctionnelles.

Dans les différents dispositifs de formation présentés (d'enseignants, de managers, école de sages-femmes, d'ostéopathes) la recherche montre que le processus d'acquisition des compétences est freiné lorsque certaines ressources sont inaccessibles aux apprenants. L'analyse portera selon les situations sur une condition ou plusieurs d'entre elles simultanément : sur l'accessibilité cognitive en identifiant les obstacles à l'apprentissage, sur l'accessibilité conative en éclairant ce qui oriente l'action, sur l'accessibilité sociale en interrogeant les représentations partagées et le système symbolique des tâches, enfin sur l'accessibilité affective en comprenant la place de l'apprenant et son besoin de reconnaissance.

Prendre au sérieux l'ensemble de ces dimensions engage à explorer les obstacles, les empêchements, les incompréhensions, les freins qui révèlent les ressources manquantes à l'apprentissage. Depuis l'identification de ces moments critiques par une investigation outillée, jusqu'à la détermination des représentations de l'action par une interprétation croisée faite par des pairs et la proposition de séquences d'action alternatives et leur test, toutes les étapes de la démarche sont collectives : « on apprend seul, mais jamais sans les autres ».

Puisque l'expérience est prise dans des situations relationnelles, alors la conceptualisation de l'action doit aussi être collective : c'est la méthodologie commune aux recherches présentées. Retravailler collectivement les situations de travail pour en faire les fondements d'une remédiation visant à l'ouverture d'un espace éducatif permettant de développer la puissance d'agir des professionnels en formation.

Albero, B. (2010). De l'idéal au vécu : le dispositif confronté à ses pratiques. Dans B. Albero et N. Poteaux (dir.), Enjeux et dilemmes de l'autonomie. Une expérience d'autoformation à l'université (p. 67-94). Paris : Les éditions de la maison des sciences de l'Homme.

Durat, L. (2014). Les expériences épisodiques d'incidents critiques, des ressources pour le développement des compétences, *Activités*, vol 11 n°2

Leplat, J. (1985). Les représentations fonctionnelles dans le travail, *Psychologie française*, n°30-314, pp. 269-275.

#### *Presentations of the Symposium*

### **L'examen clinique du nouveau-né par les étudiants sages-femmes**

**Catherine Burgy**

Ecole de sages-femmes Strasbourg

Les formations dans le domaine des sciences de la santé sont toutes des formations professionnalisantes avec des parcours en alternance combinant un lieu où est dispensée le socle théorique et d'autres lieux où sont effectués les stages pratiques. Les étudiants sont tous confrontés à la nécessité de s'adapter à ces deux environnements. Cette alternance est, souvent, très peu préparée, peu accompagnée. Durant leurs stages cliniques hospitaliers à temps plein, l'apprentissage pratique repose essentiellement sur l'immersion en situation réelle et le compagnonnage. Ce travail aborde la question de l'articulation entre la formation théorique et la mise en pratique pour des actes médicaux complexes, nécessitant la combinaison de multiples compétences, chez des étudiants sages-femmes de l'Ecole de Sages-Femmes de Strasbourg. Suffit-il qu'il y ait une alternance entre les cours théoriques et les terrains de stage pour atteindre les objectifs d'acquisition de savoirs, savoir-faire et savoir-être ? Quelle transformation de soi est à l'oeuvre (Bourgeois, 2009) et comment la favoriser ? L'expérience des professionnelles est-elle transmissible (Beaujouan, 2011) ? Les stages sont-ils mis à profit comme des espaces favorables au développement des compétences cliniques des étudiant-e-s sages-femmes ?

Les objectifs de ce travail sont d'identifier les ressources d'apprentissage à la disposition des étudiants, les modalités mise en place pour favoriser celui-ci en milieu clinique au sein des stages et de l'Ecole de Sages-Femmes. La démarche de recherche procède d'une investigation qualitative, longitudinale avec un suivi d'une promotion d'étudiant-e-s Sages-Femmes de l'Ecole de Sages-Femmes de Strasbourg sur deux ans, entre la 3ème et la 5ème et dernière année d'étude. Les promotions sont en moyenne d'une trentaine d'étudiant-e-s.

L'examen clinique du nouveau-né par les étudiants sages-femmes lors de leurs stages en hôpital est pris ici comme situation d'évaluation des compétences acquises. Cette situation a été analysée dans un protocole associant vidéos d'examen clinique et entretiens de retour sur activité avec les étudiants. Les difficultés et les freins rencontrés par des étudiants sages-

femmes à mobiliser les savoirs théoriques en situation réelle, à repérer les points d'attention appris, à se positionner comme professionnels face aux parents sont identifiés.

Les premiers résultats montrent que :

- Les étudiant-e-s mobilisent ou exploitent peu de ressources antérieures afin de développer leurs stratégies d'apprentissage en milieu clinique ;
- L'environnement socio-affectif des étudiant-e-s en stage clinique est déstabilisant et difficile compte tenu du contact direct avec les patientes et les couples, et l'encadrement par les sages-femmes ou d'autres professionnel-le-s de santé ;
- Les professionnelles assurant l'encadrement en stage clinique, ne mettent pas à disposition suffisamment de ressources cognitives ni un espace éducatif stabilisant au plan relationnel (manque de formation, de temps, etc.)

Pour finir nous proposerons des mises en activité enrichies pour améliorer le dispositif tant du point de vue des étudiant-e-s que des professionnel-le-s durant cet accompagnement.

Beaujouan, J. (2011). Contributions des récits professionnels à l'apprentissage d'un métier. Le cas d'une formation d'ergonomes (Thèse en Psychologie). Université Victor Segalen, Bordeaux.

Bourgeois, É. (2009). Apprentissage et transformation du sujet en formation (p. 31-69). Paris : Presses Universitaires de France.

### **Professionalisation des formateurs en ostéopathie**

**Franck Garnier**

Collège Européen d'ostéopathie Strasbourg

Dans un contexte de professionnalisation des formateurs, notre recherche vise à identifier les difficultés d'acquisition des compétences par les étudiants ostéopathes en s'appuyant notamment sur leur pratique clinique. L'identification des obstacles cognitifs, conatifs, affectifs et relationnels qui retardent voire empêchent les apprentissages indispensables sont documentés par une enquête, des séquences filmées d'enseignement, suivies d'entretiens d'auto-confrontation croisée avec les principaux acteurs enseignants, coordinateurs et étudiants. Cette analyse et ses résultats sont utilisés dans une perspective de redéfinition du rôle des formateurs et une évolution des pratiques pédagogiques.

Par l'approche de l'analyse de l'activité professionnelle nous documentons simultanément les problématiques : de préparation à la prise de fonction de formateurs ; de réflexion sur les pratiques les plus adaptées dans des situations particulières ; de co-construction de répertoires d'action et de conceptualisation des savoirs d'action. Elle aboutit à reconnaître et à stabiliser l'émergence de compétences ainsi qu'à mettre en lumière des signaux faibles pour ancrer des pratiques adaptées, voire à transformer les usages inadaptés. Elle permet une réingénierie pédagogique de la formation et aboutit également par effet collatéral à développer le partage des représentations et renforcer les collectifs des formateurs et l'esprit d'équipe.

Au plan méthodologique, notre démarche nécessite :

- de procéder à l'identification de certaines compétences critiques en situation réelle, nous fondant sur une enquête exploratoire auprès de l'ensemble des formateurs, coordinateurs et des élèves de 4ème et 5ème année ;
- de recueillir avec les professionnels volontaires, des traces filmées de leur agir professionnel, en situation réelle d'enseignement classique (cours, travaux dirigés) et dans les travaux pratiques (des séquences typiques et atypiques) notamment la clinique d'ostéopathie ;
- d'accéder à des informations sur les éléments organisateurs de leur pratique (par la méthode des entretiens de retour sur activité), ces matériaux permettent d'analyser les intentions d'enseignement mises en œuvre par les formateurs et les conditions d'apprentissage des étudiants, de même que sont répertoriées les compétences méthodologiques et relationnelles utilisables ;
- d'utiliser ces séquences dans une démarche réflexive collective, afin de déceler la conceptualisation de l'action. On accède ainsi à plusieurs concepts pragmatiques essentiels dans la pratique d'ostéopathie mais souvent du domaine de l'implicite ou du non-formalisé ;
- de constituer un répertoire de séquences permettant la formation professionnelle et notamment la conception de situations potentielles de développement au sens de Mayen (1999) ; ce qui nous permet d'envisager à la fois de nouvelles situations de mise en œuvre clinique (observation des gestes professionnels faits par un professionnel expérimenté, mise en œuvre accompagnée, prise en charge autonome des patients) des points de focalisation des formateurs sur la pratique et les éléments d'évaluation diagnostique et pronostique de ces compétences dans le cursus d'études.

La réflexion concertée avec le milieu professionnel est primordiale dans la mesure où la description des compétences suppose une élaboration normative impliquant différentes parties prenantes, puisque la compétence est socialement reconnue (Wittorski, 2007). Ce qui suppose un travail collectif d'une équipe d'enseignants, de conseillers, d'encadrants.

Mayen, P. (1999). Des situations potentielles de développement. Education Permanente, 139, 65-86.

Wittorski R. (2007). Professionnalisation et développement professionnel. Paris : L'Harmattan.

### **La prise en compte des émotions dans le cadre de la formation professionnelle des managers**

**Simon Mallard**

CREAD Université de Rennes

Alors que l'appel à mobiliser la subjectivité est croissant pour les responsables et dirigeants d'entreprise, et que l'on sait que la dimension émotionnelle et socio-affective influe à la fois sur le climat de travail des équipes et sur la prise de décision, l'expression des émotions dans le travail comme dans la formation reste délicate.

Les dimensions émotionnelles et socioaffectives constituent des indices d'un vivre ensemble et d'une façon d'habiter le monde socioprofessionnel (Clot, 2008 ; Linhart, 2008) et contribuent ainsi à une dynamique constructive de l'individu dans son rapport à soi et au monde. En ce qui concerne la vie en entreprise, et plus largement dans les contextes organisationnels, les émotions reviennent sur le devant de la scène. Elles sont autorisées et désormais « obligées ». Le passage d'une interdiction à une obligation d'exprimer des émotions, des affects, des passions ou des sentiments peut désormais perturber les membres de

l'organisation. Comment pour les managers se saisir de telles injonctions afin de maintenir son poste, sa fonction et définir sa posture ? Dans le cas des managers à La Poste, la question se pose puisqu'ils sont à la fois managers et managés et rencontrent des situations professionnelles variées, sensibles et délicates. Les managers, plus que quiconque dans l'entreprise, sont amenés à s'impliquer, participer et en même temps impliquer et faire participer. Ils doivent coopérer et en même temps être le plus performants possible. Les managers se trouvent donc en compétition, les uns contre les autres, afin d'atteindre leurs objectifs. Participer, c'est aussi être responsable de ses actes dans un contexte de doubles contraintes. Pour cela, les managers exigent de leur hiérarchie plus d'autonomie pour exercer leur fonction. L'autonomie signifie plus de responsabilité dans les pratiques managériales et une injonction à se former soi-même. Ils sont doublement responsabilisés vis-à-vis de leur propre professionnalisation et de celle de leurs équipes.

En ce qui concerne leur engagement en formation, les managers doivent se professionnaliser pour répondre aux nouveaux enjeux affichés par l'entreprise. Les dispositifs de formation proposés par l'université d'entreprise s'appuient sur la longue expérience des managers. Elles souhaitent faciliter la confrontation des pratiques managériales et exposent potentiellement les managers à des situations sensibles et délicates par ce partage. Dans les formations à La Poste, les managers se regroupent par fonction et se retrouvent entre pairs avec des collègues dans un contexte différent de celui du travail quotidien.

Nous présenterons ici les résultats issus des observations lors de formations et des entretiens menés auprès des apprenants et des acteurs en charge de la formation (formateurs et ingénieurs formation). Il apparaît que les dispositifs de formation institués peinent à intégrer les ressources émotionnelles dans les pratiques pédagogiques. L'analyse du cas de l'université d'entreprise de la Poste en France montre ce contexte d'empêchement et nous discuterons d'un dispositif de co-élaboration pour rendre l'expérience des managers constructive.

Clot, Y. (2008). Travail et pouvoir d'agir (vol. 1–1). Paris : Presses universitaires de France. Linhart, D. (2008). Pourquoi travaillons-nous : une approche sociologique de la subjectivité au travail. Toulouse : Erès.

### **Transformer les pratiques pédagogiques des enseignants**

**Badya Lage**

Education Nationale du Maroc

Le système éducatif marocain connaît depuis des années des réformes générales afin de combattre le dysfonctionnement de l'école qui apparaît au niveau de la qualité de ses prestations et de son rendement. Selon le rapport analytique du conseil supérieur de l'enseignement, plusieurs facteurs contribuent à la dégradation du rendement de l'École marocaine. Les acteurs éducatifs n'adhèrent pas aux changements préconisés par la charte nationale et ne s'approprient pas les réformes du système éducatif.

Les réformes connues par le système éducatif, ne concernent pas seulement les curriculums d'enseignement, elles touchent aussi les modalités de recrutement des enseignants et de leur formation initiale.

Actuellement, dans nos classes de l'enseignement secondaire, nous avons des enseignants de différents niveaux universitaires, de différents profils de formation initiale (universitaire et professionnalisante) et une majorité sans formation continue institutionnalisée. Les novices ont pour ressources principalement les enseignants qui sont plus anciens qu'eux, considérés comme des experts. Certains de ces derniers ont eu la responsabilité d'être des accompagnateurs des novices.

Dans l'objectif d'accompagner ces enseignants (novices et experts) dans leur développement professionnel, nous tenterons, par le biais de cette étude, de mieux comprendre l'activité réelle de ces enseignants et de déterminer comment ils apprennent de leurs différents types d'expériences.

Il est important de savoir comment ces enseignants développent leurs compétences au cours de leur expérience professionnelle ? Comment vivent-ils et interprètent-ils les réussites et les difficultés rencontrées dans leurs pratiques au fil du temps ? Existe-t-il une relation entre la variation dans la formation initiale et les interprétations apportées aux situations critiques dans leurs pratiques de classes ? Quel impact aura cette hétérogénéité dans la formation de base sur le développement et l'apprentissage au cours de l'expérience professionnelle ? Quelles sont leurs représentations fonctionnelles (Leplat, 1985) ? Existeraient-il des mésapprentissage (Durat, 2014) chez certains qui sont devenus des conseils pour d'autres ?

Notre intention est de participer aux changements de pratiques des acteurs éducatifs par le développement de compétences à partir de l'analyse réflexive d'expériences vécues, plus précisément l'analyse d'incidents critiques rencontrés. S'intéresser aux incidents critiques permettrait de mettre en valeur la singularité de certaines situations de travail de l'enseignant. A partir de l'analyse réflexive d'expériences vécues par les enseignants, de situations problématiques difficiles à anticiper et sans stratégie prédéfinie, on se propose d'accéder aux détours, difficultés, aux ratés de l'activité réelle afin d'explicitier les savoirs produits dans l'action, les représentations de l'action mais aussi d'en analyser les dimensions oubliées. Retravaillés de manière réflexive les incidents étudiés donnent l'occasion d'une réinterprétation et peuvent ainsi devenir une ressource dans la conception de séquences d'activité des enseignants avec leurs élèves afin d'agir sur leur développement professionnel.

Durat, L. (2014). Les expériences épisodiques d'incidents critiques, des ressources pour le développement des compétences, Activités, vol 11 n°2

Leplat, J. (1985). Les représentations fonctionnelles dans le travail, Psychologie française, n°30-314, pp. 269-275.

## **G02 - Symposium: Learning and developing 'professional vision' at work**

*Time:* Friday, 14/Sep/2018: 8:30am - 10:30am · *Location:* MR170

*Session Chair:* Barbara Pentimalli

*Session Chair:* Vanessa Rémerly

### **Learning and developing 'professional vision' at work**

*Chair(s):* **Barbara Pentimalli** (University Sapienza Roma, Italia, Department of Sociology), **Vanessa Rémerly** (University of Geneva, Switzerland, Department of Adult training)

*Discussant(s):* **Laurent Fillietaz** (University of Geneva, Switzerland, Department of Adult training)

Many work activities rely on the visual abilities of practitioners to see relevant details of their work environment to act appropriately. Each profession is characterized by a way of seeing some pertinent phenomena to make diagnosis, take decisions and produce a judgment (Latour, 1986). The notion of 'professional vision' proposed by Goodwin (1994) is then useful for emphasizing the importance of visual practices and describing abilities that members of a professional community use and share in interpreting central dimensions of their work activity.

The thematic symposium aims at exploring how 'practices of seeing' (Goodwin, 2001) are learnt, shared and transmitted within a professional community. Belonging to a professional community also means knowing how to see. We focus more specifically on the social and situated aspects of learning to see as well as on the role of instruments and body in educating the 'expert eye/gaze'. Learning and developing the ability of seeing significant phenomena or events – but also to interpret what is seen, to understand why it is important to look at one event rather than another and to know how to use the artifacts and technologies handled during the activity – is a challenge for novices involved in major training issues in professional fields.

Focusing on ethnographic and video-ethnographic research (Knoblauch & al., 2015), our thematic symposium aims at exploring the question of "how to see" in specific professions by studying learning processes of visual abilities in the development of expert professional knowledge. These methodological approaches have been prioritized because they allow researchers to immerse themselves in the heart of the work activity to understand its complexity.

We are particularly interested in analyzing how to learn to see the details relevant to the purpose at hand. Instead of being a cognitive, mental or individual process, we consider the activity of seeing rather as a situated and social practice, locally accomplished by sharing a space of action and interaction with participants and members of the professional or epistemic community. We focus on learning visual skills in order to become able to notice things and phenomena that a novice could not see at first sight as the expert. This apprenticeship involves a body learning and is deeply interwoven with practices of speaking and hearing together, dexterity of hands and fingers, the use of pointing gestures and body mimics, and the manipulation of heterogeneous artifacts. We do not isolate sight/vision from other senses and activities of the body. Practices of seeing "are hybrid, mediated, instrumented, and distributed over various material entities" (Styhre, 2010). They imply the simultaneous use of multimodal semiotic resources for the organization of the current action, underpinned by a sociotechnical arrangement allowing the construction of a way of seeing the space and the situation and notice relevant clues for the work activity.

The symposium offers four presentations. These talks follow the daily activities carried out in situ by practitioners and show the importance of learning and using visual abilities to become an expert member of professional community.

#### *Presentations of the Symposium*

### **Ways of Seeing. The Formation and Circulation of a Synesthetic Expert Eye in Swiss and Hong Kong Vocational Training Practices**

**Hervé Munz**

University of Geneva, Switzerland, Department of Geography and Environment

This paper explores the issues of sight, visibility and eye/gaze in the learning process of vocational knowledge. Specifically, the links between senses and knowledge will be explored in considering the activity of watch-repairer, its synesthetic dimension and the ways in which its transnational mobility transforms itself. On the basis of two fieldworks conducted in vocational schools and training centers in Switzerland and Hong Kong, this talk questions sensoriality and technique transfers related to the servicing of Swiss watches in Greater China. The paper is organized around three core questions: how are the eyes of watch-makers and watch-repairers trained in the Swiss vocational learning system? How is this gaze appropriated in Hong Kong after having been transferred from Switzerland? Which methodological tools can anthropology make use of to study vocational knowledge in the making?

### **'The Diagnostic Eye'. Seeing and Learning to See in an Hemodynamic Laboratory.**

**Barbara Pentimalli**

University Sapienza Roma, Italia, Department of Sociology

The increasing use of new imaging technologies in biomedical field – as a support for diagnostic and therapeutic work – allows to make visible and explore inside human body. This requires practitioners (surgeons, radiology technicians and nurses) to develop visual abilities in order to see and notice in the images what is relevant and pertinent for their activity. Images are not transparent and do not talk by themselves if you don't participate to the everyday work practices or share knowledge of a particular epistemic community. This talk analyses the practical activity consisting in seeing and learning to see the invisibility of the heart ramifications within an hemodynamic laboratory exploiting imaging technologies and x-rays. The ethnographic observation shows that the visibility of images is socially constructed and negotiated among laboratory members who talk together, make comments, indicate or touch some significant details on the screen and refer to heterogeneous artifacts (clinical records, blood tests, ECG, electrocardiogram...) to carry out their diagnostic work. Becoming able to see relevant signals and cues of an heart pathology implies a practical and situated learning in order to develop the ability to make sense of talk and body gestures performed by colleagues within the space of action and interaction shared and created in front of the screen. Then, the reading and the interpretation of images involves the use of multimodal semiotic resources making mutually visible and intelligible the significant details of heart ramifications appearing on the screen. The formation of a 'diagnostic eye' does not concern only the vision but also involves the other senses of the body and the learning of professional language and gesture. The ethnographer herself, like a novice, learns step by step to see what was for her initially invisible and confused, by

succeeding to notice the pertinent elements – progressively standing out on the screen's background– for the purpose of activities, while some practitioners perform the role of instructors guiding her through pointing gesture, verbal instructions and gazes orientation, in the vision of the heart ramifications.

### **Learning to see : An exploratory study on practical training in obstetrical and fetal ultrasound.**

**Nelly Duret<sup>1</sup>, Vanessa Rémy<sup>2</sup>**

<sup>1</sup>Geneva University Hospital, Switzerland, Fetal Medicine Department, <sup>2</sup>University of Geneva, Switzerland, Department of Adult training

In just a few years, fetal ultrasound has become an essential examination for prenatal screening and diagnosis of malformations. It is practiced in a particular medical setting because the health issues are major (the late discovery of an anomaly impacts the family but also society) and the legal risks for professionals are increasingly present (proof or not of an ethical fault for the court). The conditions under which midwives practice this activity have given rise to discussions. In the same way as doctors, certification has become necessary. It is built on two bases: one theoretical and the other practical. Within the Geneva University Hospital, practical training is provided as a part of long-term professional internships. These internships are based on a trainee's companionship with an experienced professional during consultations with real patients. Our oral communication presents exploratory phase of a Research&Development program aimed at designing a training system for fetal and obstetric ultrasound practice integrated into the workplace. Using a video-ethnographic approach of consultations in a fetal medicine department based on observations, videotapes and self-confrontation interviews, the study examines how training is accomplished between experts and novices, and more specifically how experienced midwives in fetal and obstetrical ultrasound practices teach trainees how to produce, see and read images based on the extremely fine manipulation of a central artefact, the probe. We seek to explore instruction practices of obstetrical and fetal ultrasound, especially learning use technical and technological artefacts. We highlight various aspects of ultrasound midwifery practice and learning issues around the articulation of visual and gestural skills. Learning to see and use technologies imaging for prenatal diagnosis or screening requires a continuous iterative process between image production, interpretation and the instruments allowing it. In our study of this situated learning practice, we found that the 'seeing' of images is an embodied process achieved through a coordination of visual information about the patient's body and explorative actions with instruments on his body.

### **'Visual repairs' : Managing the visual organization of courtroom hearings with video links.**

**Christian Licoppe**

Télécom ParisTech, Université Paris-Saclay, France

The introduction of video links in courtroom settings to allow various forms of remote testimony raises new issues regarding the proper visual organization for such a judicial activity. We have studied and recorded such hearings in the first year of introduction of the system. In this communication we analyze the way the different participants signal visual trouble and request corrections. The detailed study of the design and placement of trouble initiation and requests shows that:

- lay and professional participants both display their orientation towards a similar visual organization for 'proper' hearings (and particularly the maxim that speakers and 'main' recipients should be on screen);
- lay and professional participants display very different rights and obligations regarding such 'visual repairs', which become visible in the way they initiate and recognize trouble and/or produce differently designed requests for video reframing;
- the technology was deployed without any training or guidance regarding the way to use it for hearings. The fact that magistrates were able to learn these new audio-visual skills, without any training, displays the relevance of everyday skills and commonsense reasoning in the development of the kind of audio-visual competence to manage hearings with video links as judicial professionals, and was a crucial feature in the acceptance of the technology.

## **G03 - Symposium: Francophone perspectives on the articulation between learning at work and learning through work**

*Time:* Friday, 14/Sep/2018: 8:30am - 10:30am · *Location:* M2150

*Session Chair:* Lionel Roche

*Session Chair:* Florian Meyer

### **Francophone perspectives on the articulation between learning at work and learning through work**

*Chair(s):* **Lionel Roche** (Laboratoire Acté, UCA, France, France), **Florian Meyer** (Université de Sherbrooke, Canada), **Cathy Rolland** (Laboratoire Acté, UCA, France, France)

*Discussant(s):* **Stephen Billett** (Griffith University, Brisbane, Australia)

Understanding the nature of work and the resources that are expressed in it is a delicate exercise. The recognized gap between the activity as prescribed or described in the formalized repositories, and the activity carried out in the work situations leads to a scientific interest in understanding the hidden dimensions of work. In the francophone context, various approaches are concerned with the analysis of activity in work situations (Filliettaz & Billett, 2015) for the design of professional development. These approaches, which share a primacy granted from the point of view of the actors on their own actions, address the analysis of their activity according to various epistemologies (disciplinary fields and different theoretical hypotheses): professional didactic (Pastré & al., 2006), course of action (Theureau, 2009), ergonomics (Falzon, 2005), and clinic of the activity (Clot, 2008).

The understanding of the adaptive processes of the actors in their workspaces thus leans towards a goal of designing professional training environment. This work of design is underpinned by the strong concern to increase the capacity of the trainees to act in a concrete work situation and to fit into communities of professional practice. Research then links comprehensive and transformative aims, seeking access to dimensions of professional activity whose analysis is promising for the training design. It is about understanding how individuals learn in interaction with others and with the materiality of work situations, to grasp the skills necessary to act in contemporary work situations, characterized in particular by an increase in the use of technologies. The challenge of this work for training is to make a comparison between the characteristics and requirements of work situations and those given to experience by learners in training situations. Thus, the use of simulation situations reveals a possible articulation between understanding the workplace learning and designing a potential learning situation based on the analysis of the activity deployed at work.

The aim of this symposium will be to consider the link between analysis of work activity of professionals and the design of learning and development situations for professional training. It will be a question of showing how this articulation can be conceived, based on empirical research rooted in various approaches and fields of professional intervention (teacher training,...). These approaches lead to design work and/or training situations as encouraged action spaces (Durand, 2008), enabling environments (Falzon, 2005) or crossed self-confrontation interview, sources of professional controversy (Clot, 2008).

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#### *Presentations of the Symposium*

### **Learning at work or developing work activity?**

**Yannick Lemonie**

Conservatoire National des Arts et Métiers, Paris, France

Francophone approaches to work-based learning have been particularly interested in developing the competence needed to carry out the work activity. In this context, they have mobilized the methods developed over the last 50 years in the tradition of French-speaking ergonomics (Daniellou, 2005). Thus, both the approaches in vocational didactics (Pastré, 2013) and those rooted in the theoretical and methodological framework of course of action (Theureau, 2004) have sought to design training on the basis of the real work and not on the basis of the prescribed work.

Beyond the objectification of learning in the workplace or the design of more effective vocational training, it seems to us that, more and more, the ergonomics of the activity is being questioned by developmental issues (Falzon, 2013). Therefore, it is necessary to understand the formative dimension of the ergonomic intervention. In this context, the ergonomic intervention is not simply the place of learning but is a potential context for the development of activity (Engeström, 1987), understood as a qualitative reorganization of the activity (Roth, 2016).

We will draw on a study conducted in the context of digital table design for physics education to objectify the development of teacher activity associated with design (Knibbe, 2016). The participatory design method involved 4 experienced teachers. All meetings were transcribed and filmed. An analysis of the arguments used by the teachers in their design choices was made using a TCPK coding. The analysis was intended to reflect not only the gradual appropriation of technological knowledges as part of the design process, but also the total reorganization of the whole knowledges.

The results show that more than learning the features of new technologies, the participation of teachers in the design process requires them to rethink all of their work activity. The discussion will focus on the links between learning and development of the activity and on methodological features about the ways how ergonomics intervention could open proximal zone of development of activity.

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## The intervention as training of ESPE trainers

**Pierre-Alain Filippi**

Aix-Marseille Université – ESPÉ- EA 4671-ADEF

As part of the refoundation's law initial training of teachers and education personnel of July 2013, the ESPE of Aix-Marseille prescribed a new plan called "TD délocalisé" (delocalized directed work) to reconfigure the ESPE trainers' school work. This change will be accompanied by the injunction to wipe a clean sweep of previously devices, will cause a feeling of unease among trainers individually and collectively (Filippi & al, for publication).

It is in this context and at the request of ESPE trainers that an intervention-research is put in place in September 2016 with volunteers' trainers from different disciplines. This group will try to give themselves new rules to cope with this new injunction. One of them was to confront their singular interpretations within this new shared space. Collectively, and with artifacts, they gave themselves the means to reclaim this prescription.

We analyzed, in a work situation, the activity of these trainers. Especially, their activity of individual and collective interpretation and redefinition as they strive to reorganize their shared work environment with the help of the theoretical framework of the ergonomics of the activity of the professionals of education (Amigues & al, 2003) according to a clinical approach to the activity (Clot & Leplat, 2005).

Based on some results produced from extracts from our corpus, we will highlight the way in which this collective work tries to constitute a workspace in which the comparison of their redesign activity helps to constitute an instrument of exchange. This comparison is not a natural, spontaneous process, but the result of the development of their dialogical activity in different successive contexts ("TD délocalisé", self-confrontation interview – single and crossed-, group meetings, restitution phase,...) methodologically based on the methodological framework of self-confrontation interview (Bonnemain & al, 2015).

At the same time, or in the time of research which succeed the intervention's one, these materials, from the co-analysis in the service of transformative and formative aims within the group of professionals involved in the intervention, change their status. They become resources in the service of training addressed to other trainers of the ESPE as part of the schooling of trainers (Félix, 2014) thus illustrating the way in which we articulate research and training in the service of continuing education

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## Designing online platforms for professional development : the case of PE teachers and gymnastics coaches

**Lionel Roche, Cathy Rolland, Nathalie Gal-Petitfaux**

Laboratoire ACTé, Université Clermont Auvergne, France

Our communication present the design of training programme for supporting professional development of workers in the field of physical education (PE) and sport's training (PE teachers and gymnastics coaches). These programmes are based on online training platforms. Two platforms have been developed (Former à l'intervention en EPS ; Observation et Régulation en EPS) and one is being designed (in partnership with French Gymnastics Federation). In line with the principles of training design that organize the technological programme "course of action" (Theureau, 2006), professional activity's is considered as an object and a training resource. Training resources used for designing platforms, are thus centered on activity's in real situation of work. Platforms are envisaged as "spaces of action encouraged" (Durand, 2008), insofar as they are designed in the expectation of provoking some learning experiences for the trainees. Indeed, our scientific work, inscribed in the theoretical framework of cognitive anthropology, and based on enaction's hypothesis (Varela, Rosch & Thompson, 1991).

Workers' activity (at work or during training) is considered to be based on asymmetric interactions with the environment and each workers give a specific signification for each situation. Platform design is thus based on a search for linking training experiences and experiences in work situations.

Platform design process took place in three steps. The first step is based on an understanding aim of the activity : understanding teacher and students interactions during a PE's lesson and between expert coaches and gymnast for learning gymnastic skills (Rolland, 2016). The activity deployed (concerns, tacit knowledge,...) is studied using descriptive data : a) data from video describing observable behaviors in ecologic context of work and b) data from self-confrontation interview with the researchers constitute data used in the second phase. The aim is to transform this data (audio, video, interview,...) in multimodal training resources (Kress, 2009).

Third step focuses on the analysis of the activity deployed by the trainees during the use of platform (with trainee in PE) in order to design a new version of the programme. Our results showed that the platform allow them the possibility to live "mimetic experiences" and help them to connect their own practice in the classroom and the practice viewed online. These experiences allow them discovering in depth some dimensions of teaching practice, and help them to engaged in transforming their own practice.

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### **Analyzing activities of pedagogical engineers in unusual situations of distance work to design trainings**

**Marie Hoarau<sup>1</sup>, Geneviève Lameul<sup>1</sup>, Florian Meyer<sup>2</sup>**

<sup>1</sup>Université Rennes 2, <sup>2</sup>Université de Sherbrooke, Canada

More and more institutions of higher education, whether in France or in Quebec, have videoconferencing equipment and immersive telepresence rooms giving users the feeling of being together around the same table. However, these facilities are not specifically adapted to the needs of the teaching profession, and teachers, pedagogical engineers and researchers need to understand how to improve the quality of teaching in such contexts (Lameul & Loisy, 2014).

As part of a partnership between France and Québec, a study of the educational uses of these rooms for distance learning has begun. This design-based research project (Sanchez & Monod-Ansaldi, 2015, Wang & Hannafin, 2005) is called TOPIC (Telepresence as an Opportunity for Pedagogical Innovation and Conception). Based on a close collaboration between researchers and trainers, a first training has been designed and offered in 2017 (Meyer, Barré, Lefebvre & Gandon, 2018) and two others are being designed.

The first observations highlight the gap between the activity as envisioned and the activity carried out in distance learning situations. To better understand these unusual dimensions of trainers' work and to design training situations, we are engaged in the study of the two current courses. The adopted approach focuses on the point of view of the actors on their own actions: a protocol of analysis of the activity aiming to reach the observable and the unobservable (Flandin, 2017) was put in place (observation participant and filmed, simple or crossed self-confrontation interviews) and will be rolled out in the coming months.

Understanding the adaptive processes of actors in their workspaces aims at designing training environments for teachers. It is also a question of appreciating the effects of these new practices on the learners: to understand how people learn in the remote interaction; seize the skills and knowledge mobilized (Bachy, 2014) to act in these digital work.

This communication will provide concrete material in relation to the objective of this symposium that is to study the articulation between the analysis of work activity of professionals and the design of training situations.

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## **G04 - Paper session Fr: Formation et développement professionnel des enseignants**

*Time:* Friday, 14/Sep/2018: 8:30am - 10:30am · *Location:* M1130

*Session Chair:* Annie Malo

### **Produire un scénario de formation pour développer le savoir-improviser en classe de stagiaires en enseignement**

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Nous présentons les résultats finaux de notre thèse doctorale dont l'objectif visait à produire un scénario pédagogique de formation composé d'exercices d'improvisation pour développer des habiletés de gestion de classe. Cette recherche développement s'inscrit dans une perspective de prévention du décrochage enseignant en insertion professionnelle. Dans les résultats, nous relevons des indications du potentiel de développement de l'habileté d'hyperperception chez les participants, nous indiquons la nécessité d'assurer la progression des apprentissages en hiérarchisant les exercices et en créant des variantes ainsi que des pistes d'intervention pour chacun d'entre eux. Ensuite, nous insistons sur la nécessité de l'intégration d'une activité réflexive comme prolongement aux exercices afin de soutenir l'ancrage du développement des stagiaires, sur l'identification des compétences requises chez les formateurs et sur la qualité de l'environnement de formation. Enfin, ce scénario pédagogique est construit de façon à être intégré dans les stages en enseignement en tant qu'activité de formation complémentaire ou autonome. Cette thèse s'inscrit dans le sillage des travaux de Gagnon (2010) et Azema (2015) qui ont établi des liens étroits entre l'improvisation et l'enseignement, ainsi que de ceux de Lobman (2005) et Pelletier et Jutras (2008) qui ont fait ressortir la contribution d'un entraînement ou d'une formation en improvisation au développement d'habiletés de gestion de classe. Les travaux de Schön (1983, 1987) sur la réflexion dans l'action et de Doyle (1986, 2006) sur le contexte interactif de la classe sont également à l'origine de cet intérêt pour l'étude de la formation pratique active-réflexive.

### **Débriefier en contexte de vidéoformation : Comprendre l'activité du conseiller pédagogique par l'étude de ses préoccupations et de sa représentation du partenaire**

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Notre communication rapporte et commente les résultats d'une analyse de dialogues entre des enseignants du supérieur et des conseillers pédagogiques dans le cadre d'un dispositif vidéoformation. Trois binômes conseiller/enseignant font l'expérience d'un protocole de recherche structuré en quatre temps :

- Temps 1 : rencontre conseiller/enseignant débouchant sur des intentions de changement (vécu une fois pour chaque binôme).
- Temps 2 : Enregistrement audiovisuel (T2 vécu 3 fois par chaque binôme) des situations professionnelles définies par le conseiller et l'enseignant au T1.
- Temps 3 : Débriefing entre conseiller et enseignant (T3 vécu 3 fois par chaque binôme) sur base des enregistrements de classe (1 à 8 min) (T2) mis à leur disposition par le chercheur. Chacune des trois itérations du débriefing sont enregistrées dans leur intégralité.
- Temps 4 : Le chercheur conduit systématiquement, après chacun des trois débriefings réalisés, une auto-confrontation simple avec l'accompagnateur et l'accompagné individuellement (T4 vécu 3 fois par chaque binôme). Les entretiens avec le chercheur sur base de la trace de l'activité de débriefing sont caractérisés par leur semi directivité et l'utilisation de techniques issues de la méthode de l'entretien d'explicitation (Vermersch, 2012).

Au centre de cette recherche se trouvent les pratiques de questionnement du conseiller. Très présentes en T3, elles ne s'orientent cependant que très rarement ou alors de manière superficielle vers l'analyse de l'activité, telle que vécue par l'enseignant bénéficiaire du débriefing. Il s'agit là d'un premier résultat important. L'étude prolonge celui-ci par l'analyse des entretiens conseiller-chercheur (T4) dans le but de comprendre, du point de vue du conseiller, les points d'attention qui animent sa pratique de débriefing en contexte de vidéoformation. Pour cela, le chercheur confronte le conseiller pédagogique aux traces audiovisuelles de son activité en vidéoformation et interroge sa pratique de questionnement afin de définir, d'une part, l'orientation de ses préoccupations (Chenu, 2016) et, d'autre part, sa représentation fine de l'existence du partenaire (Mayen, 2008).

Les résultats mettent en évidence :

- La dominance, chez le conseiller, de préoccupations fondées sur un bénéfice pour les destinataires du travail de l'enseignant : les étudiants ;
- La place primordiale jouée, chez le conseiller, par la représentation qu'il construit de l'enseignant et des étudiants impliqués dans la situation d'apprentissage discutée.

Notre contribution s'appuie sur le matériel de terrain collecté dans le cadre d'une thèse qui étudie, les interactions entre conseiller pédagogique et enseignant en contexte de vidéoformation. Cette recherche capitalise sur une caractérisation et une indexation préalables des pratiques de questionnement des conseillers pédagogiques en contexte de vidéoformation (Alonso Vilches et al., déposé), et approfondit le phénomène de questionnement dit « réductionniste », c'est-à-dire fondé sur une analyse en extériorité (Flandin, 2017) ou une analyse de l'activité en troisième personne (Vermersch, 2012) en dépit de la présence de l'acteur principal de l'activité discutée. Sur le plan méthodologique, l'option choisie est celle d'une démarche de recherche itérative instrumentée par le recours à Cassandre (Lejeune, 2014) (plateforme libre d'analyse qualitative et collaborative fondée sur le journal de bord). Le matériau est entièrement retranscrit et codé grâce au logiciel d'assistance à la recherche qualitative Nvivo.

## **Pour un enseignement apprentissage du français par l'évaluation dynamique : cas des étudiants de première année de licence F.L.E**

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Nous nous intéressons de près à la problématique de la médiation et de l'impact des outils d'évaluation sur l'activité de ceux qui évaluent. Le choix de travailler sur celles-ci émane du constat que les étudiants et futurs enseignants, qui arrivent à l'université en première année sont loin de réaliser dans toutes les situations d'écriture une production « correcte » en français. En effet, nombreuses sont les erreurs ou plus objectivement les dysfonctionnements qui se manifestent dans les productions écrites de ces apprenants et qui attestent de leur non-compétence scripturale. Ces erreurs touchent aussi bien les règles formelles et sémantiques de la langue que les règles de cohérence et de cohésion textuelles.

Nous considérons que l'évaluation dynamique intégrée dans une séquence didactique de l'écrit peut non seulement améliorer considérablement la compétence de l'oral de ces étudiants mais surtout leur compétence à l'écrit. Selon le professeur FEUERSTEIN (1979), c'est la médiation efficace qui entraîne le changement et atténue les dysfonctionnements. La médiation n'est rien d'autre qu'une qualité d'interaction entre le médiateur et l'apprenant. Cette interaction pour qu'elle soit de qualité et puisse produire des changements doit répondre à des critères bien précis comme l'intentionnalité, la transcendance et la signification. Le médiateur explique, identifie, et formule les difficultés de l'apprenant, l'approuve et l'encourage pour l'aider à surmonter ses dysfonctionnements. C'est la médiation de la signification.

La méthode d'évaluation dynamique du potentiel de l'apprentissage tire sa révérence des principes de la théorie de la modifiabilité et de l'éducabilité cognitive. LOARER (1998, p.121) donne de l'éducation cognitive la définition suivante : pour lui, « on parle d'éducation cognitive lorsque l'on cherche explicitement, par la mise en œuvre d'une démarche de formation, à améliorer le fonctionnement intellectuel des personnes ». Il s'agit, en effet, de mesurer par une utilisation de tests, l'ampleur et la qualité des potentialités d'apprentissage. C'est une méthode d'appréciation des processus de pensée, de perception et de résolution de problème. Elle met en évidence la faculté du sujet à développer son efficacité à réaliser une tâche lorsqu'il accepte une médiation. Le médiateur « pédago-didacticien » fait prendre conscience à l'apprenant des erreurs qu'il a pu faire en répondant à la consigne dans la matrice proposée notamment à l'écrit. Cette complicité à diagnostiquer les insuffisances permet à l'apprenant d'évaluer par lui-même, de se valoriser et de s'améliorer. De façon générale, le processus d'évaluation mise en œuvre par l'enseignant (l'expert) et la participation responsable, effective et signifiante des formés (les pairs) dans ce processus assure cette prise de conscience et permet de réels apprentissages. Selon Laurier, Tousignat et Morissette (2005, p.37), « l'évaluation est une démarche collective. De la même manière que l'apprentissage est un processus qui se nourrit des échanges à l'intérieur du groupe, l'évaluation devrait aussi faire appel au groupe ».

L'expérimentation a duré toute une année. Nous avons d'abord soumis notre public témoin à un pré-test puis, nous avons installé les ateliers formatifs pour l'évaluation dynamique et enfin, nous avons clôturé la démarche par un test final de mesure et d'évaluation. Deux questionnaires ont été utilisés.

## **La complexité de "converser avec la situation" : le cas des stagiaires de fin de formation en enseignement au secondaire**

**Annie Malo, Joëlle Morissette**

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La pratique réflexive est devenue une dimension importante des formations professionnalisantes (Tardif, Borges et Malo, 2012). Elle est inspirée notamment des travaux de Schön (1983) qui s'est intéressé à l'épistémologie de l'agir professionnel et aux critères de rigueur sous-jacents au fait d'avoir à composer avec des situations complexes, incertaines, floues. L'auteur montre comment un praticien peut apprendre des situations problématiques rencontrées. Transposée dans un programme de formation initiale, l'analyse réflexive passe toutefois de la description de l'agir du praticien à la prescription de ce que le novice doit développer. Ainsi, de façon à pouvoir former à l'analyse réflexive et en évaluer le développement, certains auteurs ont proposé des approches développementales comportant différents stades, lesquelles font l'objet de critiques (Correa Molina, Collin, Chaubet et Gervais, 2010). Cette façon d'aborder la pratique réflexive, centrée sur l'individu, fait fi des interactions sociales qui l'influencent. En outre, Schön a proposé la voie du mentorat pour initier le novice à l'agir professionnel et, par conséquent, à la pratique réflexive (Desgagné, 1995). Toutefois, il évacue de ce type d'accompagnement la dimension sociale propre à toute interaction humaine, comme si le novice s'imprégnait passivement et instantanément de l'agir de l'expérimenté (Malo, 2008). Dans le cadre de cette communication, nous souhaitons aborder la question de la pratique réflexive de stagiaires en fin de formation initiale et apporter une contribution à la compréhension de cette pratique complexe, tant en ce qui concerne les "étapes" de ce processus que sa dimension sociale, en examinant comment les interactions vécues, notamment avec l'enseignant associé, y participent. Pour ce faire, nous convoquons le concept de conversation réflexive de Schön (1983) s'appuyant sur les processus de problématisation et de résolution de la situation, auquel nous avons ajouté le processus d'appréciation (Malo, 2005, 2010). Ces processus sous l'angle du problème global d'insertion de toute personne dans le monde social selon une perspective interactionniste stratégique (Le Bossé, 2011 ; Pépin, 1994, 2004). Dans le cadre de deux entrevues individuelles semi-dirigées, trois stagiaires de 4<sup>e</sup> année en formation à l'enseignement secondaire ont pu aborder des apprentissages significatifs, dont certains renvoient à leurs tentatives de résoudre des situations problématiques rencontrées en contexte de stage. Une étude de cas interprétative a été utilisée pour construire les données (Albarelo, 2011 ; Karsenti et Demers, 2000 ; Merriam, 1988). L'analyse des trois cas permet d'éclairer en quoi la "conversation réflexive" menée par les stagiaires est marquée par des redéfinitions successives de ce qui fait problème au fur et à mesure que des tentatives d'interventions sont envisagées ou posées. Par ailleurs, elle permet également de prendre en compte comment les interactions sociales vécues avec l'enseignant associé, mais aussi avec les élèves, influencent et participent au processus de la conversation réflexive. En outre, ce que les stagiaires apprennent de leur expérience au fil de l'analyse de leur pratique consiste à s'adapter aux situations problématiques rencontrées sur deux plans : pour faire le travail enseignant ou pour réussir leur stage.

## G05 - Paper session: The development of skills and expertise

Time: Friday, 14/Sep/2018: 8:30am - 10:30am · Location: M1140

Session Chair: Åsa Mäkitalo

### Development and Evaluation of a Teacher Training Concept in the Field of Automation Technology

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We are facing the fact that different studies have shown that apprentices of different occupations have a low analytical problem-solving ability (APSA). Walker et al. (2016) carried out a study with a sample of apprentices in the occupation of electronics technicians for automation technology. The study revealed that they don't meet the curricular requirements for analytical problem-solving ability at the end of their apprenticeship.

Some studies (Rowold, Hochholdinger & Schaper, 2008) have shown the effects of the approach cognitive-apprenticeship (Brown, Collins & Duguid, 1989) to counteract the lack of APSA. Based on this studies we developed a teacher training. The vocational teachers were instructed how to teach the subject troubleshooting to improve the APSA of the apprentices. We used also the interactive tutoring feedback (ITF) (Narciss, 2006, 2008) in troubleshooting tasks. We used the TPACK-approach according to Mishra und Koehler (2006) as theoretical framework for the professional knowledge of the teachers.

We examine whether a developed teacher training is able to improve the APSA in the field of automation technology. We assume that there is a difference in the development of the PCK between the test persons with additional instruction to the use of ITF (experimental group) and the test persons without additional instruction (control group).

The core question of our study is which development can be found in PCK (H1). The second aim of the study is to answer the question whether the theoretical assumed relationships of the TPACK-model between the individual dimensions of professional knowledge can be replicated (H2).

We created two groups to assess the efficacy of the teacher training. All participants went through the individual phases of the cognitive-apprenticeship during the fault diagnosis on an automation system. The experimental group received an explanation of the use and the benefits of the ITF in troubleshooting, while the control group got no explanation of the ITF.

We used TPACK for the evaluation of the teacher training and especially the development of the PCK. The acquisition of the professional knowledge is based on an instrument from Schmidt et al. (2009) which was translated into German, adapted to the subject troubleshooting and tested by Walker et al. (2017). The instrument was used in a longitudinal analysis, before and after the treatment, in the form of a paper-pencil-test (H1). Correlation analyzes between the individual knowledge dimensions are calculated to answer the second research question (H2).

The presentation focuses the introduction of the theoretical concept of the teacher training, the introduced instrument and the first results of the pilot phase. The pilot phase will be concluded when the conference takes place. However, first analyses seem to confirm our hypothesis.

The positive feedback of the participants of the first trainings emphasize the acceptance of the teacher training. The concept of the teacher training has already found its way into school education. This makes the project an important contribution to teacher education by closing the gap between educational science and practice and allowing statements to be made about the effectiveness of teacher training.

### Trainers' knowledge and skills from the perspective of trainers, trainees, and human resource development practitioners

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#### Aims of the study

The study had two aims: The first one was to develop a research-based, comprehensive list of professional knowledge and skills that are relevant for training personnel. The second aim was to have the contents of this list rated by the important stakeholders within the training process, namely the trainers, the trainees and the Human Resource Development (HRD) practitioners who organize trainings within their companies.

#### Methodology

First, 41 aspects of trainers' knowledge and skills were derived from the extensive research on training effectiveness and transfer (e.g. Salas, Tannenbaum, Kraiger & Smith-Jentsch, 2012), as well as from studies about trainer competence and trainer characteristics (e.g. Gauld & Miller, 2004; Hodge & Harvey, 2015). The 41 aspects of trainers' knowledge and skills were then grouped into 10 theory-based categories. We then presented the 41 aspects to the participants and asked them to assess on a six-point Likert scale to what degree they think the respective knowledge-facet or skill is relevant for successfully working as a trainer.

#### Findings

We could use the answers of 202 trainers, 253 trainees and 93 HRD practitioners. The participants predominantly approved of the research-based facets of trainers' knowledge and skills. Only 7 facets have a mean approval under  $M = 4$ . On the level of the 41 facets, knowledge of the subject matter, providing clarity and structure and knowing communication techniques received the highest ratings. Content-specific training methods were also perceived as important, as well as building relationships with trainees and creating a constructive and supportive learning climate. On the level of the 10 theory-based categories, content knowledge was rated as most important ( $M = 5.27$ ), followed by knowledge of group management ( $M = 5.26$ ) and knowledge of the methodological implementation of training ( $M = 5.24$ ). To investigate potential group differences between the 3 stakeholder groups, a MANOVA and corresponding ANOVAS were calculated. Group differences in the assessment of the 10 categories were only found between trainees and trainers as well as between trainees and HRD professionals. Trainers and HRD professionals showed no significant differences in their assessments. Content knowledge was rated higher by trainees, whereas trainers and HRD practitioners placed greater emphasis on pedagogical and psychological aspects of trainer knowledge.

## Significance of the study

One aim of the study was to develop a comprehensive list of knowledge and skills that trainers need in order to provide effective training. The research-based knowledge facets received high acceptance from the 548 participants of the study. Findings about what knowledge and skills are necessary for training personnel can help to improve the qualification of trainers. It can also be used by HRD professionals to specify recruiting criteria for their training personnel. Grounded on this study further research should investigate the effects of particular knowledge facets on the training quality and the reactions, learning and transfer outcomes of the trainees as well as the organizational impact such as productivity.

## The Creation Process in Sculpting – An Observation Study

Isabell Stein<sup>1</sup>, Helen Jossberger<sup>1</sup>, Linda Puppe<sup>1</sup>, Birgit Eiglsperger<sup>2</sup>, Hans Gruber<sup>1,3</sup>

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The professional development in creative domains is not yet well understood and empirically studied. The aim of the present exploratory study was to identify and analyse micro processes during the sculptural creation. The following research question was addressed: How do sculptors of different expertise levels create their artwork based on a model? According to Eiglsperger (2000), continuous switching between seeing the whole and seeing the details while creating a sculpture is essential to perceive three-dimensional spaces. Stepping back allows seeing the own developing sculpture as a whole and one can compare the own artwork to the original model. In the domain of drawing, an observation study revealed that a higher gaze frequency between the model and the own artwork resulted in more accurate drawings (Tchalenko, 2009). This gaze behaviour might also be observed during sculpting.

Our observation study took place in a university course on sculpting. The course was weekly over a period of fourteen sessions. Six students with varying experience in sculpting and one expert participated. All participants had the task to create a clay-based sculpture of a female nude model. In each session, observation protocols were written and a picture of the artworks was taken to document the progress over time. During the observation, we focussed on the following dependent variables: surface of the sculpture, composition changes, gaze frequency between model and own artwork, stepping back, and mistakes.

The observations showed that the expert left the surface of the sculpture raw and unfinished for a long time. The less experienced students smoothed the surface at a very early stage before the proportions even were correct. This action led to the fact that these students often had to change their compositions dramatically, although their sculptures appeared to be ready. The observations revealed that the expert showed a higher gaze frequency while working on details. Moreover, the expert stepped back more often than the students did. When students went off to take a break and looked back at their artwork, it happened that they suddenly looked astonished and returned to their sculpture to repair a mistake they had not seen earlier. Thus, the lack of stepping back had serious consequences.

This study is a first step to explore the learning and professional development in the domain of sculpting. The findings suggest that the continuous switching between seeing the whole and seeing the details and stepping back regularly led to more accurate sculptures. Similar to the results in the domain of drawing, we found that the expert's gaze frequency when modelling from life increased when working on details. Future research is needed to gain a better understanding of the complex creation processes in artistic domains like sculpting.

Eiglsperger, B. (2000). Differenziertes Raumwahrnehmen im plastischen Gestaltungsprozess: Eine Untersuchung zur Anwendung des "Cognitive-Apprenticeship-Ansatzes" beim Modellieren eines Selbstporträts. München: Utz.

Tchalenko, J. (2009). Henri Matisse Drawing: An eye-hand interaction study based on archival film. Leonardo, 42, 433-438.

## Working with categories and recontextualising expertise in professional-client interactions

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### Aims

Shifts in the relational nature of professional work have significant implications for professional expertise (Edwards, 2010). In services for children and families, partnership between professionals and parents is regarded as crucial.

Partnership has been conceptualised in terms of professional skills and qualities, focusing on communication and relationship-building (Day et al 2015). However, the forms of expertise required, and means by which specialist knowledge can be put to work through partnership, are not adequately understood. This paper aims to address these gaps by tracing the use of expertise in professional-client interactions.

### Methodology

In Australia, a series of nurse home visits is offered to families where risks to parent or child wellbeing are identified. This paper explores data from a study in which 32 targeted home visits were observed. Visits to five families facing different challenges are subjected to a fine-grained analysis. The analysis is informed by a cultural historical framework, conceptualising learning as changing interpretations and actions, and attending to how speech, gesture, writing and other tools gain meaning and affordance through social interaction in activities where they are employed (Mäkitalo 2016).

### Results

Six practices were key to the accomplishment of partnership: making observations, modes of questioning, reinterpreting, reframing, orienting to the future, and offering metacommentary. These practices elucidate how partnership demands professionals to recontextualise expertise in ways that make their reasoning available to parents. Categories are a crucial epistemic tool in accomplishing this (Mäkitalo 2014); they are not simply treated as 'given' as defined by parents or professionals, but subject to expansive questioning, infusion with new meaning, and testing against experience.

### Theoretical and practical significance

This paper elaborates how professional expertise contributes to partnership as an expansive, collaborative practice. This is done through practices that draw out clients' knowledge and bring it into productive connection with specialist knowledge in

order to change what can be thought and done in a family. This goes beyond existing accounts of relational practice (Edwards 2010). It also addresses well-documented problems relating to professionals' uncertainties as to how to wield their expertise without undermining the principles of partnership (van Houte et al 2013).

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## **G06 - Paper session: Learning in informal contexts**

*Time:* Friday, 14/Sep/2018: 8:30am - 10:30am · *Location:* M1150

*Session Chair:* Patrizia Salzmänn

### **Professional development in real work situation: case studies in block release apprenticeship training**

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This paper aims to give a better understanding of the professional training of Civil Engineering Works Foremen. We study the organisational and individual factors influencing the learning process efficacy through and at a real work situation.

In a framework of block release training apprenticeship, learning periods spent at companies are good opportunities to acquire the necessary professional knowledge by working in a participatory practice and learning by work. It allows to apprentices to learn how to work in an efficient and autonomous way and to accomplish actions in relation to their professional function or field (Billett, 2001; Eraut, 2011). By observation, trial and error, projects or work realisations, they are supposed to reach the appropriation and the transmission of professional knowledge, skills and competencies. However, these learning processes take place only in an adapted symbolic and material work environment (Delbos & Jorion, 1984). In this sense, they are closely related to the participatory work practice of which they constitute a by-product (Veillard, 2017). According to Billett (2001), there are two types of factors taking part in work-based learning. Some factors depending on the work environment are related to the way it calls and makes possible the activities and the interactions in the professional context. Other ones come under the way the individuals involve themselves in working and learning according to the given resources

Hughes and Moore (1999) identified a number of contextual factors that can influence the learning process in a real work situation. This approach outlines appropriately that workplaces are far from offering standardized, neutral and systematically supporting environments (Darragh 1996, Hull 1997). Furthermore, Filliettaz and al. (2009) highlighted the importance of tutorial interactions in case of work-based learning situations.

We adopted, through six case studies a qualitative research approach in order to explore and analyse the influencing factors of learning process in real work situation. Interviews with apprentices, their trainers and their tutors were proceeded. Also, we made learning process observations at apprentices' workplace in companies. We selected out subjects on the basis of our longitudinal cohort research that we realized last seven years in this field.

Our findings revealed a contrasted understanding by apprentices of opportunities and resources available at their professional working environment, and of the way they seize them. Moreover, the organisational structure of their workplace has a considerable influence on their learning process through and at work as they could have a really different consideration about the provided affordances. Consequently, their individual commitment in the practices and the available interactions is largely determined by the way they perceive these affordances inside the work context. As a conclusion, our most important finding is that the recognition by their peers and by the experienced professionals inside the targeted professional field, appear as a key element of the work-based learning process and so of their professional development.

### **The Role of Recognition of Prior learning (RPL) in Access, Persistence and Academic Achievement of Adults seeking a First Diploma**

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In Quebec, as in many states, RPL services have been developed (Singh, 2015) and touted as a means to obtain a qualifying diploma based on work experience (CEDEFOP, 2016). Yet, the number of adults who use RPL services in Quebec remains low. For example, in Quebec's vocational training system, scarcely more than 5 % of students used RPL services in 2016-2017 (MEES, 2017). We sought to gain deeper understanding about how adults without a first diploma engaged in RPL and how RPL contributed to academic achievement.

We conducted an informative synthesis on RPL practices in OECD countries aiming to synthesize current knowledge about RPL's role in access, persistence and academic achievement for adults without a first diploma or with a general education diploma.

Using English and French key words, major databases were searched and citations in bibliographies of relevant documents were used. The final sample of 120 documents are scholarly works published in: peer-reviewed journals; book sections; theses; research reports as well as reports published by major international organizations.

Many studies confirm that adults without a first diploma still face many obstacles to access, persevere and complete a RPL process. These are institutional obstacles relating to long delays in processing, to differences in vocabulary between academic and work settings and to lack of financial support. There are also situational barriers linked to professional-personal life balance, and dispositional barriers relating to negative school experiences in the past.

Adult motives for engaging in RPL vary, ranging from: securing workplace promotion; to protection in the face of anticipated job loss; to deferred job integration for adults who wish to stabilize their situation of temporary jobs; to conversion to other skills after a disturbance in their professional or personal life, and; to validation of their accumulated experience (Pinte et al., 2012). Finally, mentoring of adults by specialized professionals as they engage in RPL appears to enhance perseverance and achievement.

Many studies indicated the difference employers can make at the initial stages of the RPL process to enhance perseverance of these adults. Greater attention should be paid to the vocabulary used to disseminate information about RPL and greater resources could be invested to provide scheduling flexibility and financial aid to enhance access to these services.

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### **From the study of interactions in restaurants-schools to vocational training engineering in the field of catering and hospitality management**

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Anchored in the field of language studies, our research is involved in the area of vocational training, which has been developed over the last few years in the french-speaking sector (Filliettaz, 2014). The research works conducted in this field made it possible to better define the importance of language and interactions in the training curriculum, both as vectors for the transmission of vocational practice and knowledge and as subjects to be taught.

From a perspective inspired by the ethnography of communication (Gumperz & Hymes, 1972) and the language socialization (Schieffelin & Ochs, 1986 ; Duranti, Ochs, & Schieffelin, 2012) paradigms, our contribution is based on a collaborative ethnography recently conducted over two years within a vocational degree course (Bachelors) in International Catering and Hospitality Management at the Institut Paul Bocuse (Ecully, France). The aim was to analyze, then improve the process of the transmission-acquisition of interactional skills in catering and restaurant service.

In this contribution, we intend to present how the study of interactions in three restaurants-schools at the Institut Paul Bocuse brought interesting results for constructing tools intended to improve vocational training in this institution. Amongst these results, we first focus on the low level of taking into account the transmission of interactional skills in the training practices, whereas these competences are mainly required in the table waiting activity. To this end, we categorize the interactions in restaurants-schools between procedures, based on predetermined expected scripts that do not vary, and processes, premised upon open interactions that are not constrained by any pre-defined and particularly expected scripts. Second, we tackle the collective and shared dynamic we brought to light in the service practices shown in these restaurants-schools, which helps beginners to cooperate in the professional conduct of the activity and understand the different issues it covers for those involved. We then address how we conducted our training engineering work in close collaboration with the service staff instructors responsible for professional practice in the institution's training restaurants on the basis of above-mentioned research findings, and discuss the effects observed in students' service performances following the incorporation of the changes made to the training course. We conclude with the promising prospects that the study of interactions can bring to vocational learning and training and professional development.

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### **Validation of non-formal and informal learning in Switzerland – the example of healthcare assistants**

**Patrizia Salzmann, Evelyn Tsandev, Saskia Weber Guisan, Deli Salini**

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Skilled and knowledgeable citizens are essential not only for thriving economies but also from a social and socio-political point of view. Individuals lacking formal qualifications at upper-secondary level are at high risk for becoming unemployed, and they are more often dependent on social welfare (FSO, 2015). Although the percentage of individuals without formal qualifications has decreased over the past years, in Switzerland, about 400'000 adults aged 25 to 54 did not hold a formal vocational qualification in 2014 (SBFI, 2014; Wettstein, 2015). At the same time, certain sectors suffer from significant workforce shortages (e.g. the healthcare sector, BAG, 2013; WHO, 2015). Thus, it has become a priority of Swiss educational politics to improve the conditions for adults to obtain a formal vocational qualification.

Validation of non-formal and informal learning (VNIL) is one of four possible ways for experienced adults to obtain a formal vocational qualification. Adults who chose the VNIL option do not enrol in a VET programme, nor do they take the final examination, but their qualification procedure consists in working out a validation portfolio by means of which they provide evidence of their already acquired competences, and in validating them (OPET, 2010).

The objective of this study is to show how VNIL is being practiced in the Swiss VET system and how practice can be improved. In order to reach this objective, we chose to study in depth the example of healthcare assistants (EQF level 4) in the canton of Zurich. To obtain the qualification healthcare assistant, about 25% of adult apprentices chose the VNIL option, about two fifths of them in the canton of Zurich (BFS, 2018; Tsandev et al., 2017). The results of this study are based on an extensive review of documents and interviews with persons responsible for VNIL in the canton of Zurich.

First, the results show that, compared to other Swiss cantons, there are some innovative aspects in the canton of Zurich's VNIL practice that should facilitate making visible for adults what they have learned in non-formal and informal contexts and obtaining a formal vocational qualification through VNIL. For example, there are currently four options for documenting professional competences (Canton of Zurich, 2017): 1) a written report of experience, 2) an oral report of experience, 3) an on-the-job visit, and 4) project and order documentation. One benefit of this variety is that language requirements for preparing a written report of experience should not constitute a major obstacle for validation candidates anymore. Second, some obstacles to the further development of validation practices in Switzerland and in the canton of Zurich could be identified. For example, there seem to remain a lack in knowledge of the validation procedure and rules in the workplace (employers) and in organisations supplying candidates.

This study contributes to the knowledge of best practices in VNIL and gives indications on how practice can be improved. It serves as a basis for further improvements in VNIL and as a source of inspiration for other Swiss cantons and other countries.

## G07 - Paper session: Learning and professional development in health

Time: Friday, 14/Sep/2018: 8:30am - 10:30am · Location: M1160  
Session Chair: Katrien Cuyvers

### Supervision in psychiatry: interactional analysis to learn self-disclosure competence

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Aims: Workplace training, such as supervision, constitutes a reflective space for analysing and commenting on the events that occurred during the activity, and through this approach, a space to support learning processes at work (Tynjälä, 2008). In the context of psychiatric care in Switzerland, the professional development has taken a central place in institutions since the vocational training of caregivers and social workers is based on general training. How can we ensure the development and maintenance of expert professional skills in and through activities and interactions in the workplace? In the last 30 years, the scientific literature has been interested in the therapeutic alliance as an essential vector for the effectiveness of a therapy (Derlaga & Berg, 2013). In this field, what the professional reveals in his or her interactions with the patient is a central focus. However, self-disclosure is not a topic taught in training courses. This study focuses on how the specific competence of self-disclosure through the sharing of the professional's personal experience in psychiatric care is acquired in the training spaces adjacent to the professional activity. The training of facilitators in the therapeutic intervention "Positive Emotions Program for Schizophrenia, PEPS" (Nguyen et al., 2016) is the field for this study. The study investigates how a collective, which analyses a group session in an interactional and sequential manner, is led to adopt an analytical posture that allows to rethink what happened and acquire knowledge about the competence of self-disclosure. The aim of this study is to understand how this approach is a resource for co-constructing a shared understanding of the role of professional self-disclosure in therapeutic processes. Methodology: According to an ethnographic approach, the supervisions of two professional teams were videotaped in their natural environment. A synoptic table of collective interactive activities was created for each supervision. The co-construction sequences of a shared sense of the competence of self-disclosure have been transcribed according to the conventions of interactive linguistics. An analysis of the sequentiality of turns-at-talk of the collection was conducted. Results: The data reflect the collective development of a knowledge of what happened in group sessions and particularly on the competence of self-disclosure. Despite differences in participation patterns between the two teams inherent in the positioning of supervisors, the sequential analysis reflects similarities in collaborative dynamics, with overlaps and collaborative statements. Supervision groups provide detailed descriptions of self-disclosure in one team, and detailed descriptions of facilitator-patient interactions in the second team. The analytical posture in the context of interactive supervision revealed a training potential for the development of self-disclosure competence.

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### Becoming an implementer – Professional development of experts in social and health care reform

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Multiple organizational, technological and client-related changes currently impose hybrid and competing demands on the professional development of experts in public sector. In social and health care reforms, these hybrid demands derive partially from the ongoing tensions in the work itself, accentuated by competing discourses about why, how and to whom these services should be produced and delivered, and partially from broader institutional and national-level plans concerning future public services. As key implementers of change in work organizations, public professionals in expert and leadership positions are expected to aim at increasing clients' autonomous agency while exercising control over increasing service needs and expenses, and, at the same time, acting responsibly. On top of this, public sector experts and leaders are expected to lead the implementation of new digital tools and platforms for professional and client use. With a focus on interpretive repertoires, this study adopts a discourse analytic approach to analyze how public sector experts handle these hybrid and competing demands on their professional agency in research interviews. The study draws on interviews with ten professionals, in various development function roles, aiming to implement social and health care integration based on digitalization in a Finnish network of municipalities. The findings reveal that instead of taking a clear or one-sided stand on their professional agency, the interviewees shifted between repertoires from competing discourses to describe their professional agency in a positive and constructive light, despite tensions in the hybrid landscape of their implementation effort. These findings demonstrate how the availability of multiple discourses helps the experts to justify their professional agency in their challenging implementer role, and also creatively transform it as the contextual, technological and institutional demands broaden. The study indicates that the hybrid nature of professional agency should be better taken into account in the studies and practices of contemporary public service organizations. While the study showed professionals' ability to learn and use discursive coping tactics, work organizations could support individuals by allowing such diversity and by explicitly discussing the multifaceted nature of professional agency at work. The implications of the study address the need to develop educational perspectives that focus on discursive resources in supporting expert learning in challenging public sector reforms.

### Transfer of nursing roles from theory into practice in the care for older persons, based on the CanMEDS

Petra Huizenga<sup>1,2</sup>, Evelyn Finnema<sup>1</sup>, Robbert Gobbens<sup>3</sup>, Petrie Roodbol<sup>2</sup>

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Aims

To determine to what extent trained Registered Nurses specialised in gerontology and geriatrics (RN-GG) make a transfer from theory into practice of CanMEDS roles in the care for older persons. The research questions were:

- Which conditions for transfer of the roles were available in the care organizations and how are they experienced by RN-GG and their collaborating partners such as managers, nurse assistants, advanced nurse practitioners and geriatric specialists?
- What obstacles / incentives do RN-GGs and their partners experience in the transfer of the roles?

#### Methodology

In this mixed methods research a concurrent triangulation design was used (Creswell et al. 2003) consisting of a survey (N=106), semi-structured interviews (N=63) and in-depth interviews (16). Data were collected in different care organizations between September 2013 and April 2014. The survey were analysed with the software program IBM Statistics Package for the Social Sciences v. 21. Interviews were analysed with the qualitative data analysis software program Atlas Ti combined with content analysis (Graneheim & Lundman 2003).

#### Results

The results of the study show that not all seven in theory learned roles are sufficiently transferred into daily nursing practice considering the ten characteristics of a strong learning environment. In the main category of professional content the characteristics of a strong learning environment: authentic and functional score low on being complete and rich. The role of nursing expert is the most performed (26.8%). The lowest values are related to the roles of scholar (9.4%) and health advocate (6.9%). Also in terms of priority these roles score low: health advocate (2.8%) and scholar (1.9%). For sufficient transfer of all roles, eight characteristics of a strong learning environment needs development, especially the professional content needs clarity and policy. The lack of clarity, policy, and guiding activities ensure that RN-GG are swallowed up by direct-patient care and that specific competences of other roles stagnate, competences that gives true meaning to innovation and quality of care for older persons.

#### Theoretical / practical relevance of the research

The field of Nursing is dynamic and it is constantly influenced by social, political and legal factors such as the rising number of older people in the population, educational and organizational developments and financial changes in health insurance. Health care professionals need to adapt to changing patterns. To enhance the quality of care for older people, health care organizations in the Netherlands deploy RN-GG. These nurses followed a training programme for geriatric nursing based on the roles of CanMEDS: nursing expert, communicator, manager, collaborator, professional, scholar and health advocate. Transfer of these roles in practice needs a powerful learning environment of professional content, learning and guiding activities and evaluation.

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### **Measuring self-regulated learning processes during job-performance of medical specialists: an integrated research perspective**

**Katrien Cuyvers<sup>1</sup>, Van den Bossche Piet<sup>1,2</sup>, Donche Vincent<sup>1</sup>**

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#### Aims

Measuring professional learning in the middle of job-performance raises difficult methodological problems for different reasons: \*professional learning is often largely implicit and very much intertwined with performance; \* covert professional learning activities are hard to make explicit, \*professional work is often complex, requires complex competences thereby defying simple representations (Cuyvers, Donche, Van den Bossche, 2016; Eraut, 2004). This study aims to further develop an adequate research approach for investigating learning during actual job-performance. The main goal was to spell out the challenges and problems of using observations and stimulated recall procedures to map professional learning in general and self-regulation of professional learning in particular, and how they can be tackled.

#### This research

A longitudinal multiple case-study design is proposed to capture professional learning in everyday work settings of medical specialists in Flanders (the Dutch speaking part of Belgium). Thirteen physicians from different medical specialties and hospitals were recruited.

Long term observations are used to generate meaning of what actually happens as learning unfolds during job-performance and offer evidence on overt self-regulatory strategies. Observable behaviors are used as cues for stimulated recall interviews also taking place during job-performance, asking about metacognitive strategies and the content of thoughts regarding a situation at hand.

Key issues regarding the experienced research approach include the difficulty of designing a standardized observation-protocol because of the unpredictable course of job-performance and appearance of potential learning events. Based on our experiences, important questions are dealt with regarding the used research design and choice of research units such as: what to observe? when to observe? how long to observe? Further the issues of obtrusiveness and the role of the observer are being discussed. Regarding the stimulated recall interviews, the complexity of making metacognitive strategies explicit is approached since not taking over the regulation process of learning by the researcher through questioning metacognitive strategies is a challenge. An evidence-based protocol is proposed regarding the elicitation of metacognitive strategies. Also, questions regarding the best possible timing for stimulated recall questions and the danger of time consumption, are addressed. Further, data preparation for analysis will be discussed. Finally, the research procedure is made explicit and issues of validity and reliability are addressed to guide future research.

#### Conclusion and significance of the research

The proposed research perspective can be appraised for giving very rich data regarding actual learning behavior and processes of self-regulation during job-performance. The proposed approach offers handles for dealing with generic problems in measuring learning in the middle of professional activity and specific issues on self-regulation of professional learning. Suggestions can be made for adjustments of the stimulated recall protocol and further integration of research methods to investigate self-regulatory processes at the workplace.

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## G08 - Paper session: Learning in vocational education and training

Time: Friday, 14/Sep/2018: 8:30am - 10:30am · Location: M1170

Session Chair: Juergen Seifried

### Reasons and barriers for continuing vocational education and training (CVET) of fringe groups

Christin Siegfried<sup>1</sup>, Eveline Wuttke<sup>1</sup>, Susan Seeber<sup>2</sup>, Therese Rosemann<sup>2</sup>

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Due to demographic, political and technological trends an increasing skills and labor short-age in various sectors of the economy in industrialized countries is to be expected (Calo, 2008). Especially the sectors gastronomy, healthcare, retail and technology will be affected by this shortage (Helmrich et al., 2012). Consequently, companies are forced to fill the rising number of job vacancies by training currently unexploited labor force (fringe groups). The term fringe group refers to persons with limited participation in various areas of life such as education, income or social participation (Trostel, Walker & Woolley, 2002). In our study, we refer to four fringe groups underrepresented in CVET yet (BMBF, 2006): (1) low or non-formally qualified people, (2) people with migration background, (3) people returning from career breaks, and (4) older employees (Seeber, Wuttke & Rosemann, 2017). Until now little is known about their training motivation, since research mainly focused on barriers against, not on reasons for attending CVET using quantitative (representative) surveys (e.g. Georges, 2013; Beicht, Gorges & Hollmann, 2015; Kaufmann & Widany, 2013, BMBF, 2006).

Thus, the aim of our study is to identify both fringe groups' reasons and barriers to participate in CVET in the economic sectors mentioned above. We use a mixed method approach conducting in a first step an interview study, followed in the second step by a quantitative survey. This paper will focus on the interview study.

We interviewed employees (N=72) of all fringe groups and sectors. Besides interviews, questionnaires to measure cognitive abilities (Baudson & Preckel, 2015), self-efficacy (Rigotti, Schyns & Mohr, 2008), goal-orientation (Spinath, 2014) and background variables were used to analyse to what extent those factors influence the reasons and barriers mentioned by the employees.

In order to analyze the interviews four intensive coder trainings were carried out. First, 10% of the interviews are coded in a team of three coders. In the next step two coders coded 30% of the interviews. Only after having established a satisfying interrater reliability with a Co-hen's kappa between .70 - .85, the remaining interviews were coded by a single coder.

We identified 21 reasons to participate and 14 barriers not to participate in CVET. While some reasons to attend CVET such as "career changes", a "general interest in the content" or the "maintenance of not directly occupation-related knowledge" seem to have a high significance for all fringe groups (50-100% of all interviewees mention these), other reasons seem to be more specific to a fringe group (e.g. "professional networking" is mostly mentioned by people returning from career breaks (75%).

Regarding barriers, all groups mentioned „competing professional obligations" and „unsuitable CVET offers" (30% to 75%). Holidays are predominantly mentioned by low qualified people (75%) as a barrier to attend CVET, while "private obligations" are predominantly mentioned by people returning from career breaks (70%).

Differences in reasons to and barriers against the attendance of CVET can be explained mainly by cognitive abilities (33% explained variation). Self-efficacy and goal-orientation hardly contribute to the further clarification of variance.

### Mediation system for development: the case of agricultural trainers

Samira Mahlaoui<sup>1</sup>, Grégory Munoz<sup>2</sup>

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The speeches advocating "increase" prosper, such the terms of "man increased" or by "increased reality". This suggests that the technologies would always bring openings of the fields of action without considering the limits? Our purpose would be to consider with Vygotski the idea of "mediatized man". In this respect, Vygotski (1930/1985, p. 42-43) proposes the concept of instrumental act. In the latter, the psychic processes coordinated during the activity and defined by the instrument, represent a complex, structural and functional unity turned to a solution to the problem; where, like the technical instruments to transform objects, the psychological instruments allow or make it possible to transform the mental activities. The psychological instruments are turned to mediation towards oneself, in reflexive content, or towards others, allowing "interpersonal mediations intersubjects" (Rabardel and Samurçay, 2006, p. 33). These authors underline the limits of the genetic epistemology, more based on a natural world than of culture. They then put forward the idea of "social schemes" developed and shared in communities of practice, in particular within the framework of an approach to "activity mediatized by instruments" (Rabardel and Bourmaud, 2005, p. 226), inspired by Vygotski. Indeed, for Vygotski (2014, p. 127), "if what dominates in the biological development of man is the organic system of action, and in his historical development it is the system of action using tools, so if in the phylogenesis both systems appear separately and developed apart from each other, in ontogeny they develop simultaneously and together".

If we rely on the contributions related to the notion of systems of mediations in the learnings spread by Rabardel and Samurçay (2006), following contributions of Vygotski (1934/1997), we analyze the various mediations generated during the activity of design of educational scenario between novice and experimented trainers (Mahlaoui, 2010), within the framework Ersce (Exchanges of scenarized resources: "Echanges de ressources scénarisées" in french). These mediations are implemented through various artifacts: the digital system, the scenario, the tracks of the activity on which self-confrontations are initiated. The device allows sharing and exchange scenarios within a computerized platform, for Vocational training centers and Agricultural Promotion (CFPPA for « Centres de Formation Professionnelle et de Promotion Agricole » in french).

Our study based on self-confrontation interviews (Clot and Faïta, 2000) reveals, from the point of view of the actors, the resources and the constraints of the Ersce digital device, from the analysis, within the device, of the various mediations toward objects, oneself and the others. This device is a tool for transmitting knowledge related to the educational scenarization, which takes place during interactions between peers to provoke development, according to the proposals of Vygotski (2014). We discuss this perspective from the Mayen reflections (2008) which proposes ten developments about the professional didactics (Pastré, 2011) and the development.

## **Mentoring and construction of professional competences of pre-service teachers**

**Zi Yin Xiong, Rebecca Matthews, Sébastien Chaliès**

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### **Introduction**

Teachers as expert learners and classroom actors (Paquay & Wagner, 2001), their competence is vitally important for the development of their students. The developing demand of teacher's competence implies a shift of its understanding from a narrow view on knowledge competence towards a more holistic view in which teachers' competence is understood as the development of a complex combination of integrated skills, knowledge and attitudes (Korthagen, 2004). Up to now, numerous publications have already attempted to analyze what constitutes teachers' competence (Council of the European Union, 2009). However, there has not been detailed investigation of how teachers' competence can be built effectively during teacher training.

We present an original conceptual framework from which the dynamics of building competences can be questioned; an illustration of this conceptualization from empirical results; and a discussion of further possible contributions for this conceptual framework to improve the activity teacher training.

### **Theoretical framework**

This case study is taken from a research program conducted in cultural anthropology focused on professional training (Chaliès & Bertone 2017). On the basis of this program's key postulates, the following hypothesis was constructed and then tested through an experimental training research design. Professional competence is comparable to the part of the trainee's experiential flux that is fueled by Situated Normative Experiences (SNE) undergone during training. This flux is supported by a series of training situations that allow the trainee, from the initially taught SNE, a gradual and cumulative opening of normative capacities related to meaning, analysis, "simulated and real" implementation and interpretations.

### **Method**

The experimental setup to test the hypothesis consisted of adjusting the traditional French mentoring situation among three Preservice Teachers (PT) and their Cooperative Teachers (CT). The CTs had to implement a training sequence with different mentoring situations so that PTs could engage their capabilities of attributing meaning, analysis, "simulated and real" implementation and interpretation. During each mentoring situation, audio and video data were collected and later analyzed through self-confrontation Interviews.

### **Results**

Firstly, the results show each professional competence can be subsumed to an experiential flux originating from the SNEs taught by the CTs. Secondly, the need to organize successive and specific mentoring situations to build PT's professional competence.

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## **Training Drop-Out in the Hotel and Catering Industry – Individual Reasons or Lack of Training Quality?**

**Stefanie Findeisen, Juergen Seifried, Stefanie Zutavern**

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The vocational education and training (VET) system plays a major role in the education of young people in Germany. About half of all high school graduates start a training program in the dual system. However, for some domains training drop-out is a major concern. This is especially true for the hotel and catering industry – in 2015, 47% of prospective chefs terminated their training program prematurely. Empirical evidence on the reasons for training drop-out, especially for this industry, is still scarce. This paper aims to contribute to this research gap and to provide insights into the factors influencing training drop-out of prospective chefs. We are specifically interested in whether individual reasons and/or aspects of training quality are responsible for drop-out.

The study uses a longitudinal design with three measurement points to examine trainees during the first and second year of their apprenticeship program (N = 599; questionnaires and test instruments). Each measurement point covers (1) individual characteristics, (2) training characteristics, and (3) trainees' (tendency to) drop out. When it comes to individual characteristics, the instruments cover specific traits (e.g., motivation, self-regulation) as well as trainees' competence (e.g., prior knowledge in the field of cooking, mathematic skills, and reading skills). Concerning the training characteristics, the questionnaires comprise both trainees' overall satisfaction with the training program or the training organization and in the second and third measurement point detailed aspects of training quality (e.g., evaluation of school-based instruction, competencies of trainers, quality of working tasks). In the first measurement point, the trainees also state their tendency to drop out. In the second and third data collection, we gather data on actual drop-outs through the teachers at the vocational schools.

The analysis of the data is work in progress. Linear regression analysis based on data of the first measurement point show significant effects of both individual aspects (e.g. perceived fit) and trainees' satisfaction with the training program on their tendency to drop out. In line with expectations and previous findings, prospective chefs' satisfaction with the training program

significantly lowers their drop-out tendency ( $\beta = -.248$ ). Also, the higher a prospective chef's perceived fit to the training program (e.g., perception that the training program matches his or her interests, abilities, etc.) the lower the tendency to terminate the apprenticeship ( $\beta = -.520$ ). However, the tendency to terminate the training is not affected by whether the profession one is trained in is the profession one desired to be trained in. Furthermore, prospective chefs' prior knowledge shows no significant effect on drop-out tendency. In further analysis, we will use data from measurement point 2 which offers more detailed information about the training quality and allows a deeper examination. The findings will be included in the final paper.

The findings can be used by both policy makers and different parties involved in the training program, for instance trainers in the company or teachers at vocational schools, to implement strategies or support systems to reduce the high number of training drop-outs in the hotel and catering industry.

## **H01 - Symposium: Collectifs-groupes-équipes de travail et apprentissage en contexte de travail : formes et objet, enjeux scientifiques et méthodes empiriques**

*Time:* Friday, 14/Sep/2018: 1:00pm - 2:30pm · *Location:* MR160

*Session Chair:* Frédérique Rebetez

*Session Chair:* Sephora Boucenna

### **Collectifs-groupes-équipes de travail et apprentissage en contexte de travail : formes et objet, enjeux scientifiques et méthodes empiriques**

*Chair(s):* **Frédérique Rebetez** (HEP Vaud, Suisse), **Sephora Boucenna** (Université de Namur, Belgique)

*Discussant(s):* **Frédérique Rebetez** (HEP Vaud, Suisse)

Le développement de nouveaux secteurs de production et les temporalités dans lesquelles nos sociétés sont contraintes de produire richesses et services ravivent des questions qui traversent l'humanité depuis le 20ème siècle dans ses préoccupations de performance et d'efficience au travail. Le développement professionnel dans l'espace de travail n'est pas un phénomène nouveau, « on apprend en situation de travail depuis... la nuit des temps » (Bourgeois & Durand, 2012, p. 9). Cependant, l'intérêt scientifique est récent quant à lui (2ème moitié du 20ème siècle). Après le passage par une formation professionnelle essentiellement développée hors des espaces de travail, la complexité des fonctions (nécessitant une multitude de compétences diverses et variées) ainsi que la célérité de transformation des outils et des modes de travail exigent à leur tour vitesse d'adaptation et flexibilité dans la définition des postes mais aussi dans les définitions identitaires des travailleurs.

Le présent symposium se propose de réunir des communications portant sur des recherches qui explorent la dimension sociale de l'apprentissage (Aumont & Mesnier, 1992) sur le lieu de travail en privilégiant la notion de collectif. Rebetez (2016) dans son travail de thèse met en perspective qu'il y a des apprentissages individuels dans un groupe ou un collectif et des apprentissages du groupe. Ceux-ci présentent des difficultés à approcher dans la mesure où ils sont peu aisés à circonscrire avec un recueil qui se fait avec des individus.

Dans ce symposium, il s'agit de se centrer sur l'apprentissage d'un collectif dans ses objets, ses processus et la nature des situations dans lesquelles il se produit sur le lieu de travail et en situation de travail : comment la recherche développe la notion de collectif, de groupe de travail, d'équipe ? Que couvre ce concept ? Relève-t-il de termes mobilisateurs de l'action (Barbier, 2011a) ou peut-on le considérer comme un concept scientifique ? Quels sont les indicateurs d'un apprentissage du collectif ? Ou encore, l'apprentissage du groupe de travail désigne-t-il ce dernier comme collectif de travail ? quelles sont les caractéristiques des situations qui conduisent un collectif à transformer ses habitudes d'activité (Barbier, 2011b) ? Quels sont les processus caractérisant ces transformations ? Quels sont les objets sur lesquels portent les transformations ? Quels seraient les éléments qui caractériseraient l'apprentissage d'équipe en contexte de travail ? Quelles sont les caractéristiques épistémologiques des recherches qui s'intéressent à cet objet ?

*Presentations of the Symposium*

### **Equipes de travail et apprentissage en contexte organisationnel**

**Frédérique Rebetez**

HEP Vaud, Suisse

Notre recherche s'intéresse à comprendre comment se déroule le processus d'apprentissage des équipes de travail en organisation. Les équipes concernées par notre recherche étaient toutes face à une situation d'apprentissage et de changement de pratiques. Un collectif de techniciens en radiologie médicale (TRM) du secteur IRM intégrait une nouvelle machine avec une fonction de pilotage automatique inédite. Une équipe d'éducateurs d'un centre de formation professionnelle implémentait un nouveau logiciel de suivi des jeunes. Un groupe éducatif accueillait un nouveau collègue et une école réorganisait sa pédagogie compensatoire en instaurant une nouvelle culture de collaboration en classe entre enseignant titulaire et ressource, ainsi qu'en équipe sous la forme d'une communauté éducative interprofessionnelle intra-organisationnelle (Rebetez, 2018, à paraître). Ces quatre terrains très diversifiés nous ont permis, dans une démarche compréhensive, de mettre en lumière des dimensions parfois peu développées dans la littérature. Tout d'abord, nous avons distingué trois scénarios : l'apprentissage individuel dans un collectif (par ex. lors de la socialisation d'un nouveau collaborateur), l'apprentissage individuel en groupe (par ex. les séances d'analyse de pratiques entre les enseignants) et l'apprentissage de groupe (les séances de supervision d'équipe visant à optimiser son fonctionnement). Nous avons également mis en évidence quatre caractéristiques relatives à l'objet d'apprentissage : sa nature (un savoir technologique ou une nouvelle culture de collaboration), son contour (parfois clairement identifié comme l'apprentissage de la nouvelle machine, parfois plus diffus quand il s'agit d'une pratique de collaboration), sa portée collective qui correspond à l'impact (ou non) sur le collectif du degré de maîtrise de l'objet par les individus (si un collaborateur ne maîtrise pas l'utilisation de la machine, cela n'impacte pas le travail des collègues, ce qui n'est pas le cas concernant l'optimisation de la collaboration) et l'entité apprenante de l'objet (une nouvelle technologie relève de l'apprentissage individuel, alors qu'un nouveau fonctionnement d'équipe relève de l'apprentissage de tout le groupe). Nous pensons que l'objet pourrait avoir un lien avec le scénario d'apprentissage (apprendre une nouvelle machine ne nécessite pas le même scénario qu'apprendre à travailler ensemble) ainsi qu'avec les interactions présentes dans le processus d'apprentissage. Nous avons constaté que plus la portée de l'objet est collective, plus des interactions de type co-construction et controverse sont présentes. Nous faisons également l'hypothèse que le climat jouerait un rôle sur les interactions. De la rétention d'informations semblait être présente dans le contexte où le climat relevait d'une insécurité psychologique alors qu'à l'inverse, lorsqu'il y avait de la sécurité psychologique, le partage de pratiques ou la recherche collective de solutions étaient perçus. Finalement, nous avons également constaté que dans les contextes où l'organisation du travail et la nature de l'activité reposaient sur une coordination standardisée des professionnels et qu'il n'y avait aucune possibilité de réunir les équipes, le scénario de type « apprentissage individuel dans un groupe » est privilégié, alors que dans les contextes où la tâche implique un ajustement mutuel et qu'il y a une régularité dans les séances collectives, on constate la présence d'apprentissage individuel en groupe et d'apprentissage de groupe.

**Lorsque les chercheurs s'intéressent aux transformations de leur propre équipe**

**Sephora Boucenna**  
Université de Namur, Belgique

Cette recherche se présente comme un exercice réflexif (Bourdieu, 2001) dans la mesure où, dans un mouvement de mise en abîme, une équipe de recherche travaillant sur l'apprentissage des enseignants en situation de travail devient le terrain d'une recherche dont l'objectif est de comprendre les processus de transformation vécus par l'équipe de chercheurs lors des séances collectives de travail ; autrement dit, il s'agit de comprendre la nature des apprentissages réalisés lors des séquences de travail et les processus les caractérisant. L'équipe de recherche dont l'activité a été analysée est constituée de cinq enseignants - chercheurs issus de cinq hautes écoles (enseignement supérieur non universitaire en Belgique Francophone) et d'un enseignant chercheur d'une université.

Le matériau analysé dans cette recherche a été constitué d'une part, des films de trois séances d'analyse des matériaux et d'autre part, des autoconfrontations (Theureau, 2010) menées de manière collective sur ces séances d'analyse. Ces autoconfrontations collectives sont menées par une chercheuse externe à l'équipe. L'analyse des matériaux est réalisée conjointement par l'équipe de recherche et deux chercheuses externes. Ces huit analyseurs ont procédé par catégorisation conceptualisante (Paillé & Mucchielli, 2013). S'appuyant sur l'approche de Rebetez (2016), les séances de construction d'un outil d'analyse par l'équipe sont étudiées car ils correspondent aux instants où l'équipe vit l'épisode d'interdépendance le plus aigu. En effet, la poursuite de la recherche ne peut se réaliser qu'à la condition que chaque membre du groupe revendique la paternité de l'outil d'analyse. De cette co-construction dépend l'adhésion et l'engagement des membres de l'équipe dans la poursuite de la recherche, ce que Johnson et Johnson (2003) nomment l'interdépendance positive.

La question de l'apprentissage de l'équipe se pose à différents lieux : lors des épisodes de construction de l'analyse, lors des séances d'autoconfrontation collective et lors des analyses collectives. La spécificité de cette recherche réside dans cette posture de chercheur/praticien de la recherche adoptée par l'équipe qui, dans une logique de recherche action (Lewin, 1963; Moreno, 1970), porte de l'intérêt à sa pratique de recherche et aux transformations de l'équipe au cours même du processus de recherche.

**L'apprentissage collectif : mission impossible ou soutien de l'activité**

**Marco Allenbach**  
HEP Vaud, Suisse

Dans les systèmes scolaires européens et nord-américains, le travail collectif entre divers professionnels se développe sous l'influence, entre autres, de la pédagogie inclusive (Rousseau & Bélanger, 2006; Ramel & Doudin, 2009 ; Beaumont, Lavoie et Couture, 2010 ; Porter et Aucoin, 2012) et de la lutte contre le décrochage scolaire (Blaya, Gilles, Plunus, & Tièche, 2011; Potvin, 2013; Thibert, 2013). Nos recherches portent sur les processus de construction de la coopération en contexte pluridisciplinaire et sur le développement de pratiques collaboratives chez les intervenants à l'école du canton de Vaud (Suisse): enseignants itinérants, psychologues, logopédistes, psychomotriciens, infirmiers et médiateurs scolaires. Ces intervenants ont en commun, malgré la diversité de leurs fonctions, d'être incités à investir des espaces intermédiaires (Thomazet et Merini, 2014), tandis que s'estompent les "programmes institutionnels" (Dubet, 2002) qui axaient leur travail sur l'évaluation et la prise en charge individuelles.

Autour des projets d'élèves, de classes ou d'école se constituent des collectifs réunissant les acteurs impliqués. Des groupes de pairs et des équipes pluridisciplinaires représentent d'autres collectifs, davantage pérennes, auxquels les intervenants peuvent se référer. La dimension collective apparaît pour les intervenants, tour à tour comme une problématique (réussir à coopérer), un objet de travail (construire la coopération), mais aussi comme une ressource sur laquelle s'appuyer pour parvenir à répondre aux défis qu'ils rencontrent dans leur activité.

Cette communication s'appuie principalement sur des enregistrements de séances d'analyse de pratique (Thiébaud, 2013) chez plusieurs groupes professionnels d'intervenant à l'école se réunissant régulièrement. Ces données ont été exploitées sous trois angles : 1) les récits des participants informent sur leur activité au sein de divers collectifs 2) l'analyse collective des situations exposées permet d'identifier des tensions inhérentes à l'activité 3) les interactions entre participants illustrent des processus d'apprentissage collectif.

Nous nous appuyons principalement sur deux éclairages théoriques en analyse de l'activité : clinique (Clot, 2006) et systémique (Engeström et Sannino, 2010). Ainsi, nous présenterons comment le travail de négociation de la coopération confronte à des dilemmes, des tensions et des doubles contraintes, mais aussi comment les collectifs permettent des processus d'apprentissage où s'inventent ensemble des issues créatives aux paradoxes rencontrés et où, autour du travail de négociation de pratiques coopératives, s'élabore un métier commun d'intervenant à l'école.

## H02 - Symposium: Simulations for Professional Learning

Time: Friday, 14/Sep/2018: 1:00pm - 2:30pm · Location: M1160

Session Chair: Helen Jossberger

### Simulations for Professional Learning

Chair(s): **Helen Jossberger** (University of Regensburg, Germany)

Discussant(s): **Andreas Rausch** (University of Mannheim)

Simulations are learning environments for practice and learning that can be applied to many different disciplines and trainees in diverse professional domains. Simulations can have various forms such as computer-based programmes or games, dummies or actors. These learning environments have in common that they replace and amplify real experiences with guided ones that evoke or replicate substantial aspects of real work situations in an interactive fashion. Simulation-based learning can be the way to develop professionals' knowledge, skills, and attitudes. The advantage is that simulations offer a safe and controlled setting, in which learners can make errors that do not result in severe consequences. On the contrary, errors can be seen as a source to learn from. The realistic scenarios and equipment allow for retraining and practice until one can master the procedure or skill. Simulation-based learning can also mitigate ethical tensions and resolve practical dilemmas. Our symposium presents studies that make use of different simulations to investigate learning in business and in the health profession. We will address questions on how to design simulations, how to use simulations to assess non-technical and technical skills, how to analyse performance data, what to pay attention to when designing effective simulation interventions, and what the implications are of our findings so far. The three empirical studies shed light on different aspects of simulation-based learning. We will look more closely into the relation between verisimilitude and learning in the context of a computerised business simulation game and critically discuss attractiveness, tool practicality, general applicability, and collaboration. Moreover, we present a study, in which mountain rescuers' (non-)technical skills and the role of self-efficacy and attitude in resuscitation using a simulation dummy were assessed. In the third empirical contribution, the effectiveness of a simulation-based training to improve physicians' ward round communication was investigated and motivational factors were examined. In our symposium, the discussant will aim to identify strengths and weaknesses of using simulations and critically reflect on whether and in which situations simulations are effective ways to foster professional learning and development. Simulations may offer an additive benefit to the traditional didactic instruction, enhance performance, and possibly help reduce errors. Recommendations for future research on simulation-based learning for professional learning will be offered.

#### *Presentations of the Symposium*

### **The Relation of Verisimilitude and Learning in the Context of Simulated Games**

**Tuire Palonen, Timo Lainema**

University of Turku

Simulation gaming (SG) is the term that the educational gaming community has adopted for game environments that are expected to help how the systems or processes work (Greenblat, 1988). Keys and Wolfe (1990) define a business game as a simplified simulated experiential environment that contains enough verisimilitude, or illusion of reality, to include real-world-like responses. Realism has been discussed relatively much in the simulation gaming literature, but what has been missing is the nature of verisimilitude (i.e. What are the components of realism?). In our study, we discuss the different aspects of validity and then link the validity aspect to realism (i.e. verisimilitude, fidelity). We have built a classification of the different dimensions of verisimilitude to see how they relate to perceived learning in SG environments. Alessi (1988) found out that several sources state that transfer of learning is believed to increase as the similarity between the learning situation and the application situation increases. Peters, Vissers and Heijne (1998) argue that if we want to make inferences about reality based on experiences and knowledge acquired in a game, we have to be sure that the game model is a valid representation of the real situation. Stainton et al. (2010) note that if a simulation is not an accurate representation of reality that might affect the quality of learning, and hence educational validity. Feinstein and Cannon (2002) conclude that the degree of fidelity in a learning environment is an extremely difficult element to measure and that many authors studied the relationship between fidelity and its effects on training and education in the 1960s and 1970s. These studies found that a higher level of fidelity does not translate into enhanced learning. On the contrary, many studies found that lowered fidelity actually can be beneficial from the learning point of view. We have collected data in computerized business simulation games to test the tailoring effect. Realism in the simulation gaming community has been defined as the similarity between the SG and the real-world target. We have applied three different types of SG models. There were altogether 493 participants in the gaming sessions out of which 326 (66%) filled in the questionnaire. The research questions were presented under the themes of attractiveness, tool practicality, general applicability, and collaboration. Item reliabilities measured with Cronbach's alphas were at good level. The results indicate that tailoring seems to be a powerful instrument to facilitate tool practicality. The authenticity of learning situations and tasks is assumed to be a very important factor in facilitating higher order learning (Brown, Collins, & Duguid, 1989). Our results show, however, that it is unrealistic to try to achieve full authenticity and aiming to this will most certainly produce counter-productive effects. The general applicability of a tailored but disguised SG to the participants' real-world work is greater than that of generic or tailored SGs.

### **Mountain rescuers' (non-)technical skills and the role of self-efficacy and attitude in simulated resuscitation**

**Michael Scheumann, Helen Jossberger, Hans Gruber**

University of Regensburg

Within their daily work lives, mountain rescuers have to perform a variety of different tasks; one of them is cardiopulmonary resuscitation (CPR). So far, no study has investigated whether and how mountain rescuers' technical, non-technical and personal factors interact with each other and influence medical outcome. Although specific guidelines define CPR precisely, it is a complex task. Mountain rescuers have to react quickly in an emergency and apply different skills. First, there are the technical skills (TS) which are necessary to execute a specific medical task like chest compression or ventilation. Second, CPR requires non-technical skills (NTS), which are all cognitive, social and personal resources that complement TS (e.g. communication or task distribution between team members). Third, there are individual factors that influence performance in general, like self-efficacy or the attitude towards the importance of social and cognitive resources. To investigate these factors' possible

influence on CPR performance, we addressed three research questions: (1) Do participants have insight into their non-technical skills? (2) In how far are they able to master the (non-)technical skills relevant for simulated CPR according to the European Resuscitation Council (ERC) guidelines? (3) How do self-efficacy and attitude affect CPR performance? We conducted a video-based observation study at an air rescue simulation centre to examine mountain rescuers' CPR skills. The simulation setting of CPR training offers possibilities to investigate TS as well as NTS and examine medical performance in emergencies without severe consequences in case of errors. All participants were mountain rescuers (n=108). First, all participants answered a questionnaire about their self-efficacy concerning overall CPR performance and NTS. With self-efficacy being situational to the respective domain, we developed the questionnaire based on social and cognitive resources needed during CPR. We also tested participants' general attitude towards the need of NTS in medical actions and gathered biographical information such as prior knowledge and real-life CPR experience. The questionnaire was validated beforehand ( $\alpha > .90$ ). Second, all participants performed a simulated CPR and were video-recorded. An observation instrument ( $\alpha > .70$ ) to rate NTS on a four-point Likert scale was developed based on existing assessment tools (ANTS; NOTSS). Four raters analysed the videos to rate the non-technical performance during the simulated CPR performance. The simulation dummy stored the technical data. Results show that (1) on a four-point Likert rating scale, participants' self-efficacy scores were significantly higher than their actual non-technical performance. This indicates insufficient insight into their actual NTS. (2) According to ERC guidelines for CPR, the subjects scored high on TS, significantly higher than on NTS. (3) We found no significant correlations between self-efficacy and attitude towards the importance of NTS and (non-)technical performance. The findings indicate that mountain rescuers have little insight into their NTS. Although they consider NTS to be important and think they perform these skills well, they did not apply NTS on all relevant occasions. However, the technical performance met the ERC standards. With simulation training as authentic learning environments, mountain rescuers' learning and professional development can be fostered without consequences for patient safety.

### **Improving Physicians' Ward Round Communication through Simulation-Based Training**

**Marc Grünewald, Evelyn Klein, Martin Gartmeier, Pascal Berberat**  
TUM Medical Education Center

Ward rounds are an essential part of medical doctors' everyday work. They visit every patient on the ward to discuss the latest information, the patients' worries and further proceedings. Ward rounds thus are the central opportunity for patient and doctor to interact with each other (Weber & Langewitz 2011). To perform ward rounds well, doctors need non-technical skills, especially communication, to establish a shared understanding with the patient. Currently, not enough training in ward round communication during medical education may cause insufficient competence in conducting ward rounds (Nikendei et al. 2008). Hence, developing effective interventions and understanding what makes them effective are relevant research goals. Only few training programmes aimed at ward round communication are documented (Nikendei et al. 2007; Thomas 2015). Drawing upon these approaches, we developed a similar, simulation-based intervention. It was a half-day workshop dedicated to advanced medical students including a theoretical and a practical part. During the theoretical part, trainees were familiarised with the procedure of surgical ward rounds based on the "Basler Visitenstandard" (Weber & Langewitz 2011). The practical part consisted of simulated ward rounds with standardised patient scenarios and actors as patients. The first aim of the present study was to investigate the efficacy of this intervention for fostering ward-round communication competence through a randomized controlled trial (1). To get more insight into what makes different parts of such training programmes effective, the second aim of our study was to investigate how different aspects of training affect the current motivation of participants (2). (1) In the randomised controlled trial, the ward round performance of an intervention group (n=17) was compared between ward rounds performed before and after the half-day training programme. The control group (n=11) performed two ward rounds without the workshop in between. The performance was assessed with a validated ward round rating tool (Ahmed et al. 2015) by two blinded raters. Before the study, they rated videos of ward rounds not included in the study and compared and discussed their ratings to gain a shared understanding of the tool.

Analysis of the ratings suggests that ward round performance scores of the intervention group improve between assessments while scores of the control group decreased. (2) All participants of the workshop (n=220) filled in questionnaires (Rheinberg et al. 2001) concerning their current motivation during training. Those were completed at four separate points in time during the training programme and capture three factors of current motivation: challenge, the probability of success and anxiety. Trainees show no relevant difference in any of these factors between theoretical and practical training regarding the method itself, order of methods or elapsed time. Therefore, we conclude that it is of no consequence whether trainees first complete the theoretical or the practical part of training. This finding simplifies organisational aspects of training. The results of this study show that simulation-based training is an effective way of improving the competence of medical students in conducting ward rounds and should be further explored and implemented in medical curricula.

## H03 - Paper session Fr: Apprentissages et formation professionnelle

Time: Friday, 14/Sep/2018: 1:00pm - 2:30pm · Location: M1130  
Session Chair: Jean-Marie Weber

### Alternance et accompagnement dans la formation professionnelle de la suisse romande et du Tessin

**Valentina Giovannini-Cartulano**

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Quel qu'en soit le niveau, la formation professionnelle suisse se caractérise par un système dit « dual » ou « en alternance » où les apprenants sont parallèlement des étudiant.e.s en écoles professionnelles et des apprentis ou des stagiaires dans des entreprises ou des institutions (Masdonati, Lamamra, Gay-des-Combes, & Puy, 2007). Cela fait que « les apprentis de tous les métiers se trouvent face à des professionnels différents qui sont censés les accompagner dans leurs parcours, tant professionnel que scolaire » (Kunégel, 2005, p.137). Comment un tel accompagnement, effectué par des formateurs différents dans des lieux différents, est-il géré sur le plan institutionnel et dans la vision des protagonistes impliqués ? deux questions de recherche en particulier parcourent ce travail :

Quelles sont les principales caractéristiques, et les représentations des responsables, de l'accompagnement dans les différents contextes de formation professionnelle ?

Comment ces formes différentes d'accompagnement sont-elles coordonnées par les institutions formatrices ?

Pour répondre à ces questions, nous avons obtenu (par des questionnaires avec des questions ouvertes et fermées) les réponses d'une trentaine d'écoles professionnelles de différents niveaux et types de formation de Suisse romande et du Tessin (HEP, HE, ES, Ecole professionnelles). Une analyse catégorielle du contenu a permis de mettre en évidence la variation des appellations données aux différentes personnes formatrices dans les différentes écoles, la diversité de leurs rôles (prescrits et perçus) et les différents "espaces" créés pour tenter d'obtenir une certaine coordination de leur accompagnement (y compris de l'évaluation des acquisitions des apprenants). Ces différents éléments nous permettent d'interroger le concept d'accompagnement à plusieurs niveaux (prescrit, formes d'accompagnement et visions) et de dégager des aspects à investiguer auprès des formateurs afin de mieux comprendre dans quelle mesure ces aspects s'actualisent et jouent en rôle dans la collaboration entre accompagnants.

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### La co-conception en ingénierie pédagogique numérique

**Dorothée Cavignaux-Bros, Denis Cristol**

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La transformation numérique de la formation continue des adultes impacte aujourd'hui les activités des concepteurs, des formateurs et des chargés d'ingénierie pédagogique.

La notion d'ingénierie apparaît dans la formation en France dans les années 60 (Barbier et al. 2009) ; aux Etats-Unis l'instructionnel design se développera dans les années 70. A partir des années 80-90, des champs de recherche s'organisent dans les pays francophones, notamment en lien avec le développement des TIC (Ardouin, 2017). Aujourd'hui, l'ingénierie pédagogique, semble encore « une discipline en émergence » (Carré et Jeunesse, 2017).

De nouvelles manières de réaliser l'ingénierie pédagogique sont observées ici et là, parmi elles, la co-conception, issue des sciences de l'ingénieur et du design. Si en informatique, il s'agit de concevoir rapidement des prototypes de logiciels pré-testés avec des utilisateurs finaux ; en formation, la démarche se veut à priori propice à l'apprentissage collectif (Cristol, 2016), et mobilise, pour cela, une implication de la maîtrise d'usage (Carré, 2010, une approche pédagogique expérientielle (Dewey, 1910) et le prototypage (Sanders et Stappers, 2014).

Notre communication cherchera à identifier les spécificités de la co-conception dans le domaine de l'ingénierie pédagogique, ses enjeux socio-organisationnels et comment la modéliser.

Notre étude repose sur une série d'observations de co-conceptions d'offres pédagogiques. Elles sont issues d'un travail exploratoire de doctorat sur les effets de la co-conception sur la montée en compétences en ingénierie pédagogique numérique de professionnels de la formation. L'établissement d'accueil, organisme de formation, déploie des équipements informatiques, des espaces physiques spécifiques et organise des séminaires de co-conception pour ses collaborateurs et ses partenaires.

Le corpus empirique comprend six observations de séances de co-conception avec prise de notes et photographies. L'analyse porte sur les aménagements, les formes d'interactions, les ressources et les éléments produits. Elle sera réalisée à partir de la grille de la maîtrise d'usage de Carré (2010) et celle de l'approche par les capacités en sciences de l'éducation de Fernagu Oudet (2016).

Notre objectif est d'analyser comment la co-conception peut, à certaines conditions, fonctionner comme une pratique de formation et/ou d'ingénierie et d'en proposer une modélisation.

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### **Entre désir et compétence professionnelle : recherches pour une formation à l'éthique de la rencontre**

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Les remaniements actuels du lien social produisent dans notre modernité des processus de socialisation de plus en plus affaiblis et hétérogènes. Le collectif semble être sous l'ordre de l'autonomie des individus (Blais, Gauchet & Ottavi, 2008 : Conditions de l'éducation), de leurs demandes et frustrations de ne pas tout obtenir. (Melman, 2002 : L'homme sans gravité. Au-delà des questions stratégiques, beaucoup d'enseignants cherchent comment permettre l'autonomie de l'élève et comment co-habiter dans les institutions, afin que la nécessaire réciprocité de l'être humain puisse être effective. (Malherbe, 1996 : L'incertitude en éthique). Ce sont des questions qui touchent la dimension éthique.

Nombre d'enseignants que nous croisons dans le cadre de nos formations et de nos recherches universitaires se demandent, et nous demandent, « comment être juste ? » dans la relation avec les élèves ? Ils s'interrogent sur ce qui est dû à chacun des élèves qu'ils rencontrent, pour qu'il puisse apprendre, se former, et devenir sujet. Cette question est représentative de la tension constitutive face à laquelle le sujet se trouve confronté en permanence : entre l'éthique comme compétence professionnelle et donc nécessité déontologique, et une pratique de l'éthique de la rencontre qui doit quand même passer « par le crible de la norme » (Ricœur, 1990 : Soi-même comme un autre), par l'application de règles. Les normes pédagogiques ne peuvent pas, à elles seules, réguler l'acte éducatif pour qu'il soit « juste », et c'est ce reste, ce qui dépasse la dimension normative que les enseignants questionnent et recherchent dans les espaces de formation. C'est alors ce point, ce reste, que nous mettons au travail dans des dispositifs d'enseignement orientés par la psychanalyse. Il s'agit de déconstruire la tentante illusion d'une formation à l'éthique, qui serait équivalente à une formation à une discipline, pour que les enseignants ou futurs enseignants entendent qu'une éthique qui se soutient d'une valeur de justice ne peut pas être donnée par avance. Elle nécessite la mise au travail et la construction d'une position subjective et créative dans un cadre normé dans lequel, enseignant et enseigné, doivent trouver une place d'être parlant.

Dans ces espaces de formation, nous essayons de soutenir un processus d'élaboration autour des normes pour que le sujet puisse travailler avec les injonctions sur-moiques et leurs tentations jouissives dans un cadre institutionnel. « L'école c'est injuste », peuvent dire très souvent les élèves le plus en difficulté. Or cette injustice fondamentale ne peut être acceptée que si des adultes pliés à la même Loi symbolique, essaient de rechercher et d'innover le plus justement possible en prenant en compte le jeu de places, la dimension transférentielle propre de la relation éducative, le désir, et l'angoisse des interlocuteurs.

C'est à l'aide de la présentation de situations recueillies dans des dispositifs d'analyse clinique de pratiques professionnelles, et d'interviews post-formation avec une cohorte de cinq enseignants, que nous montrerons comment nous essayons de mettre au travail les demandes des enseignants en les articulant à la question éthique du désir et de la rencontre.

## H04 - Paper session: Learning and professional development of teachers

Time: Friday, 14/Sep/2018: 1:00pm - 2:30pm · Location: M1140

Session Chair: Valerie Lussi Borer

### How can (preservice) teachers be promoted to develop supportive student-teacher relationships?: Exploration of preservice teachers' relational beliefs and relational competence

**Anne Milatz**

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There is striking evidence that student-teacher relationships and emotionally-supportive classrooms are crucial for students' learning processes and also for teachers' emotional experiences and health (Hagenauer, Hascher & Volet, 2015; Pianta, Hamre & Stuhlmann, 2003; Roorda et al., 2011; Milatz, Lüftenegger & Schober, 2016; Spilt, Koomen & Thijs, 2011). Even though the relevance of relationship quality for teaching and learning is widely accepted, little is known as to how teachers can be promoted to develop supportive student-teacher relationships (Jensen, Skibsted & Christensen, 2015; Whitaker et al., 2015).

As teachers' beliefs have been shown to be crucial for their teaching practice (e.g. Calderhead, 1996; Fives & Buehl, 2012; Pajares, 1992; Richardson, 1996) teachers' relational beliefs, which have been under-reported to date, potentially help to deepen our understanding of teachers' relational experiences and practice in school (Chang, 2013; Chang & Davis, 2009; Spilt et al., 2011).

Thus, the present study aims to explore preservice teachers' relational belief patterns before and after a half-year practical experience in school (Q2) and its impact on relational competence (Q3) as well as the psychometric properties of the relational belief scale (Q1).

In total, N = 171 pre-service teachers reported before their practical experience in school had started on the newly-developed relational belief scale (a scale adapted to student-teacher relationships according to Chang & Davis, 2009; Knee, 1998; Knee, Patrick, & Lonsbary, 2003). In order to measure self-perceived relational competences, a scale based on adoptions of the relational competence scale for primary school teachers (Leitz, 2015) was used. A further two vignettes of student-teacher interaction were provided and preservice teachers were asked to evaluate the situation and suggest possible actions. The follow-up data collection after the practical experience will take place in June 2018, so most results cannot be reported now.

Preliminary results indicate (Q1) a three-factorial model of the relational belief scale by conducting a confirmatory factor analysis (CFI = .91; RMSEA = .07; SRMR = .06) indicating the proposed subscales' relational growth belief, goal-congruence belief, and destiny belief. Based on a two-step cluster analysis (Q2) three relational belief clusters reveal a relational-oriented type, a relational-indifferent type and a relational-avoiding type, where the last one rates highest on destiny beliefs. Further results will be presented at the conference, including the qualitative content analysis based on the vignettes (Kuckartz, 2016). Implications of the results for teachers' professional development will be discussed, as well as further research in this field.

### [CANCELLED] Teachers' perception of effects of in-service training on their teaching and on their students learning

**Davaajav Purevjav<sup>1</sup>, Edit Katalin Molnár<sup>2</sup>**

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The effectiveness of professional development is an important issue in the educational sector and it has been a recurrent theme in the relevant literature.

Studies on the effects of IST found teachers improved in subject knowledge and teaching practice, positively influencing student achievement and teacher satisfaction (e.g., Vescio, Ross & Adams, 2008; Timperley, 2008; OECD, 2009; Avalos, 2011; Mohanty, 2014). There is intensive research on effective methods for in service teacher training (IST; Lipowsky & Rzejak, 2015). Improvements were also found in students' academic knowledge and their learning motivation (e.g., König, 2017). Also, Bando & Li (2014) used qualitative various methods in a large sample. They found that after IST trainees improved their subject knowledge and changed their classroom practices, they provided more motivation for students to actively engage in learning.

However, we know little about teachers' perceptions of their gains from IST and its effects on their students. This information may contribute to teachers' motivation to participate in and learn from IST. Teachers' perceptions regarding their gains from IST and its effects on their students may contribute to teacher's motivation to participate in and learn from IST. Such teacher perceptions have received limited research attention. Therefore, three research questions were formulated:

How did teachers perceive changes in their knowledge as a result of IST?

How did teachers perceive changes in their professional behavior as a result of IST?

What changes in students did teachers attribute to their IST development?

This paper reports results from two Mongolian studies targeting teachers' perceptions of IST transfer effects. The participants had been involved in compulsory IST.

In Study 1, information was collected from a representative sample (N1=520) with a self-report questionnaire regarding changes in instructional practice. In Study 2, teachers (N2=14) were interviewed about the changes in practice, including the effects they observed on their students.

In Study 1, statistical analyses revealed that participants rated the changes in declarative knowledge, skills, and attitudes similarly. However, in their comments they attributed greater importance to the procedural domain. In Study 2, content analyses confirmed the emphasis on teachers' skills and abilities. Mostly higher student motivation and sometimes higher achievement were attributed to teacher participation in IST. The interviews revealed a lack of reflectivity in most cases.

The information from quantitative and qualitative methodology provided a more comprehensive view on the effects of IST, which can be used for improving the efficiency of training. Activities made greater impressions on teachers.

The concept and opportunities for reflection seem to be key issues for Mongolian IST curricula. The findings of two studies suggested a lack of reflection. This may hinder teachers' personal and professional growth. Further research seems necessary in this regard.

This study is beneficial for the effectiveness of IST due to a combination of qualitative and quantitative methods. Recently, there has been growing attention on using a mixture of these two methods. In the present projects, the questionnaire and the interview themes were the same, thus information collected in breadth and in depth could be related.

## **Considering Work Norms to Design Collaborative Inquiry in a Workplace Professional Development Program**

**Valérie Lussi Borer, Alain Muller**

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### **Aims**

In this contribution, we aim to describe and analyze the expression and debate of work norms within a collective of teachers, pedagogical counsellors and university facilitators engaged in collaborative inquiry processes on teachers' practices.

### **Methodology**

As part of a three-year workplace Professional Development program based on Dewey's collaborative inquiry (1938), we recorded interactions between elementary school teachers, pedagogical counsellors and university facilitators working on teachers' practices during three two-hour sessions. The participants' verbalizations were transcribed verbatim. We analyzed and coded the data using a peircian semiotic frame (Lussi Borer, Flandin & Muller, in press) and constructed classes of signs to describe the relationship between each work norm invoked in relation to the analyzed activity.

### **Findings**

Our analysis shows that the collaborative processes of inquiry into teachers' practices (i) presuppose teachers to engage in strong evaluations (Taylor, 1977), i. e. involving their identity; (ii) tend to trigger the emergence of norms that often operate tacitly during daily work; (iii) require the implementation of expressive rationality (Cavell, 1979) - that is, the expression of norms, values, meanings, etc. in which collective and individual actors are involved; (iv) require transition processes to move from one position to another (Taylor, 1977) involving processes of expression, comparison and articulation of divergent positions.

The norms we found are of various kinds: we noticed ethical rules, work norms, tacit knowledge, professional habitus, beliefs or representations ; all conscious or unconscious, formal or informal, personal or collective, related to a subject or completely non-specific: all, in any case, driving the work at different levels.

These norms were identifiable in the daily work situations investigated in the collaborative inquiry, directly because of their input to actions, objects, situations and events, and indirectly because they were partially accessed via the experience of actors, who expressed them. However, they are not easily identifiable and isolated because exogenous norms may be explicit (formalized in the workplace by texts, codes of ethics, etc.) or implicit (peer expectations, informal work culture) and overlap with endogenous norms that are implicit (dispositions to act) or explicit (personal norms developed through language).

### **Significance of the research**

Analysing the processes of expressing, and debating work norms within teachers', counsellors' and facilitators' collectives engaged in collaborative inquiry processes on their practices help to better give place to work norms in workplace professional development programs.

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## H05 - Paper session: Workplace learning and vocational training

Time: Friday, 14/Sep/2018: 1:00pm - 2:30pm · Location: M1150

Session Chair: Stephen Richard Billett

### Towards a Heutagogy-based Workplace Curriculum Development Model

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In the last couple of decades, workplace has been recognized as a fertile and valuable ground for learning and development. Hence, "workplace learning" is no longer deemed as a strange and unheard-of concept; conversely, it indicates a vast area of research on various aspects of learning in enterprises. Taking into account this level of importance, this study aims at developing a prescriptive model for workplace curriculum development based on Heutagogy (self-determined learning theory). Therefore, Heutagogy is initially explained as the theoretical basis of the model. Then, the assumptions and principles underlying the model are explicated. Afterwards, the five dimensions of the prescriptive model, entitled Heutagogy-based Workplace Curriculum Development Model (HWCDM), are outlined as follow: S3M Analysis (or context awareness), SPL Goal Formulation, Self-Awareness, AVST Learning Opportunities, and Empowerment Evaluation. Methodologically, the study may be deemed as theoretical inquiry because it aims to put forward a new theoretical structure. To develop and validate the model, 12 workplace learning academics and practitioners were selected purposively by criterion sampling and their input analyzed thematically. Also, other strategies were further applied for credibility, namely member check and peer debriefing. Finally, it is argued that the proposed model may be used for arranging individualized and team learning in complex organizations.

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### Work analysis in vocational education researchers' training

**Olivier Allain, Crislaine Gruber, Paulo Roberto Wollinger**

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This paper presents an experiment carried out with 24 master students in Vocational Education of a Technological Institute in Santa Catarina State (Brazil), aiming to analyze concepts mobilized in technical education, based on an epistemology for Vocational Education. The experiment was organized in three moments: theoretical discussion; observation of a class in a Bakery Technical Course held in the laboratory; analysis of the items observed. During the observation, which lasted approximately one hour, the students not only watched teacher and the students working, but also talked to both of them, based on guidelines previously elaborated. The laboratory in which the class was held simulates a bakery, with equipment, supplies, layout, suitable for the accomplishment of the trade. The theme of the class was freezing and thawing techniques of loaves. For the analysis and written registration, the master students were organized into five groups. At first, a discussion involving the whole group was made, and then a written report by each group was handed out to the teachers. They reported their experience, relating it to the concepts studied in the discipline of "Conceptual Basis for Vocational Education". The experiment allowed students to verify fundamental concepts in Vocational Education, such as oeuvre (BARATO, 2008, 2015), technique (SIGAUT, 2009; VIEIRA PINTO, 2005), worker intelligence and work complexity (WISNER, 1994), didactic transposition and conceptualization in action (PASTRÉ; MAYEN; VERGNAUD, 2006). In addition, they realized the importance and influence of the students' life history (and also of the teacher) in vocational education (ROSE, 2007). They emphasized that the professional experience of the bakery teacher, together with her academic education, grounds her actions in the classroom. The analysis led to the very concept of work as a means of personal fulfillment and to the construction of worker identity. This apparently simple exercise allowed master students to make several observation and analysis concerning both the work of the teacher and the activity of bakery students, as future professionals (some were already working as bakers). Finally, the greatest lesson drawn from this experiment was for the master students to realize through practice how crucial observation is to the understanding of work activity as a fundamental dimension for any pedagogical and methodological approach to Vocational Education.

### Two conceptions of apprenticeship: Mode of learning and model of education

**Stephen Richard Billett**

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Current conceptions of apprenticeship are usually associated with novices: young people, being guided by more experienced practitioners (e.g. tradesperson). In this conception, the relationship between the more- and less experienced individuals is central to how apprenticeship progresses and its effect enactment. That is, it is a model of education comprising a novice being taught or guided by a more informed other. Yet, another conception of apprenticeship is that comprising a mode of learning. This is what was seemingly long practiced across human history and cultures, before the formation of mass education, and its models of delivery and provisions, including those of vocational education that arose from the formation of modern nation-states and industrialisation (Billett, 2014). Apprenticeship as a mode of learning is consistent with the original meaning of the word is exercised: learners apprehending the knowledge they need to learn (i.e. to grasp the knowledge required for work) (Goody, 1989).

So, a key difference is that this second conception positions apprentices as learning in highly active and highly interdependent ways within the physical and social environments in which they work and learn, rather than being directly guided by more experienced practitioner (Billett, 2016). That is, the former is mediated by social institutions and partners, and the second emphasises personal mediation. This mode of learning is long-standing and central to human learning and development, and societal and cultural progress. The discussion extends to and is supported by a consideration of two distinct Vygotskian attributed accounts of the Zone of Potential Development and the Zone of Proximal Development, the relations between them and their relevance to work through for and across working lives in contemporary times.

Both conceptions of apprenticeship are important in contemporary times, not only for initial occupational preparation, but learning through and across working life.. Just as the kinds of learning in current times require support and guidance in being learnt, the processes of learning both in initially learning an occupation and then continuing to learn across working life are premised on a mode of apprenticeship learning.

This paper draws on a review of historical, anthropological and educational accounts to elaborate these two discusses the two conceptions of apprenticeship and what they say about contemporary considerations of learning at and for work.

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## H06 - Paper session: Learning behaviors in work and education contexts

Time: Friday, 14/Sep/2018: 1:00pm - 2:30pm · Location: M1170

Session Chair: Therese Grohnert

### Computer-supported collaborative learning for careers staff working in European Public Employment Services

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This paper draws upon work from a four year (2014 – 2018) research project, EmployID, in order to provide an overarching view of how to use on-line collaborative learning to facilitate learning, development and professional identity transformation of careers practitioners, working mainly in European Public Employment Services (PES).

The methodology comprised participatory design, so that learning support (both online and face-to-face) could be developed that met the particular needs of the practitioners. IT applications were developed to support practitioners with on-line reflection, peer coaching and the use of labour market information (LMI) in their practice.

The initial application partners were three European PES. In one PES (DWP in the UK) two blended learning programmes were developed to support identity transformation for employment advisers and work coaches, while subsequently a Massive Open On-line Course (MOOC) was developed to support the continuing professional development of careers practitioners more generally across Europe and internationally.

A detailed evaluation of the blended learning programmes was undertaken based mainly on Kirkpatrick (1998). This showed that the blended learning programmes were highly successful and how practitioners had incorporated changes in their everyday practice six months after completion of the programmes. Additionally, both sets of staff now perceived their work identities in a more expansive way: making greater use of on-line collaborative learning, LMI, peer coaching and reflection.

The project's management of change strategy was successful and employer engagement staff and work coaches took forward the development and adaptation of an LMI on-line tool demonstrated in the learning programmes. The LMI on-line tool which was trialled within the blended learning programmes was subsequently trialled with a further 150 work coaches and then in 2017 the tool was rolled out nationally to 16,000 staff. The approach adopted with the initial PES was picked up by the European PES network and incorporated within their peer learning programme.

The International MOOC was successful in facilitating a dialogue about the implications of the changing world of work for the professional identities of careers and employment practitioners in Europe. It attracted over four hundred learners who were mainly careers practitioners, eighty of whom were very active participants. The MOOC has attracted interest in being adapted for use in Latin America, the Caribbean and India.

The significance of this study is that computer-supported collaborative learning can be expanded from enhancing continuing professional development to supporting professional identity transformation of careers practitioners engaging with a changing world of work.

### Graduation project supervision of undergraduate students in Higher Professional Education

**ir. Irene R.M. van der Marel<sup>1</sup>, Dr. Lisette Munneke<sup>1</sup>, Prof. Dr. Elly de Bruijn<sup>2</sup>**

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#### Aim

Universities of Applied Sciences (UAS) that offer Professional Studies (PS) are required to educate students to become starting professionals with research competence, that enable them to deal with challenging tasks that professionals face in a dynamic knowledge society (e.g. Heggen, Karseth, & Kyvik, 2010). To assess professional and research competence, students at UAS in the Netherlands mostly develop a professional product for an external bidder as their graduation project. The professional product is an artefact that is ideally representative for students' future professions within a specific domain, e.g. a strategic advice within the economic domain (e.g. Losse, 2016). Due to the integrative and complex character of this task, supervision is essential and we thus need to understand what expertise supervisors need and which are good pedagogic strategies. However, little is known about graduation project supervision at UAS. This literature review aims at providing knowledge about graduation project supervision and at revealing what further inquiry on graduation project supervision should aim at, by answering the following questions:

1. What expertise do supervisors need and what is known about pedagogic strategies in graduation project supervision at UAS?
2. What should further inquiry after graduation project supervision at UAS aim at?

#### Methodology

We searched in eight databases (e.g. PsycInfo, Academic Search Premier, Education Research Complete, MEDLINE and ERIC) with keywords: research supervision or professional product supervision and synonyms. Two researchers have selected potential relevant literature based on pre-formulated inclusion/exclusion criteria: namely studies on research supervision and professional product supervision, that deal with pedagogic strategies of supervisors and/or supervisors' expertise. Quality criteria were: empirical studies described in articles from peer-reviewed journals with at least an explicit question and/or research aim and insight into the research methods. We used NVivo software to apply open, axial and selective coding.

#### Results

Content analysis of the articles reveals that current knowledge is mostly about generic pedagogic expertise or strategies, such as supporting independence by asking questions. There is some knowledge about the research competence and strategies of graduation project supervisors. It remains unclear what role the students' future profession plays within supervision, since most studies deal with the research competence in which research is the final product in contrast to the professional competence with a professional product as a final product.

#### Theoretical and practical implications

This review gives insight into the current knowledge of graduation project supervision. Besides, it shows that there is little knowledge about the supervision of graduation projects in which students develop a professional product.

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### **Retaining the learning professional: A Survival Study on Professionals' Actual Turnover and A Supportive Learning Environment at Work**

**Therese Grohnert, Roger H. G. Meuwissen, Wim H. Gijssels**

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Professional service firms have a vested interest in reducing employee turnover - each leaving professional takes with them invaluable knowledge (Vaiman, 2008). In this study, we explore whether a supportive learning climate is related to lower turnover behavior. Several existing studies have found a negative relationship between a supportive learning climate and turnover intentions (e.g. Egan et al., 2004; Govaerts et al., 2012). These findings may however not translate to actual turnover behavior. This study is conducted in audit, a knowledge-intensive professional service context, and follows 107 professionals from one firm across a period of 48 months. In month 1, participants evaluated their learning climate and provided covariate information. In month 48, we obtained employment data for 96 participants from a professional networking site (36% female, 10.3 years average experience). We used survival analysis to determine the impact of learning climate on turnover behavior over time. We found that across the 48-months observation period, 42% of participants left their employer. The observed hazard rates (HR) show that learning climate is significantly and negatively related to turnover behavior ( $HR = 0.280$ ,  $p = 0.000$ ); Unexpectedly, individual reflection is positively and significantly related to turnover behavior ( $HR = 1.890$ ,  $p = 0.029$ ). The Kaplan-Meier tests indicate that HR vary significantly for participants in the low, medium and high learning climate groups, with all X2 statistics being significant. In this study, we found that a supportive learning climate was negatively related to professionals' turnover behavior, adding to existing findings on turnover intention (Egan et al., 2004; Govaerts et al., 2011). This finding highlights two simultaneous benefits of creating a supportive learning climate for professional service firms: fostering the creation of (tacit) knowledge as well as retaining this knowledge in the firm. Surprisingly, we found that auditors who engage in individual reflection were more likely to leave - unless they perceived at least a moderately supportive climate; then they were retained within the firm. For practice, this implies that interventions fostering a supportive learning climate at the organizational level are effective tools for lowering turnover and for retaining especially those professionals who learn through reflection.

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## **I01 - Symposium: Collectifs-groupes-équipes de travail et apprentissage en contexte de formation (dans et hors de l'espace de travail) : formes et objet, enjeux scientifiques et méthodes empiriques**

*Time:* Friday, 14/Sep/2018: 3:00pm - 4:30pm · *Location:* MR160

*Session Chair:* Frédérique Rebetez

*Session Chair:* Sephora Boucenna

### **Collectifs-groupes-équipes de travail et apprentissage en contexte de formation (dans et hors de l'espace de travail) : formes et objet, enjeux scientifiques et méthodes empiriques**

*Chair(s):* **Frédérique Rebetez** (HEP Vaud, Suisse), **Sephora Boucenna** (Université de Namur, Belgique)

*Discussant(s):* **Sephora Boucenna** (Université de Namur, Belgique)

Le développement de nouveaux secteurs de production et les temporalités dans lesquelles nos sociétés sont contraintes de produire richesses et services ravivent des questions qui traversent l'humanité depuis le 20ème siècle dans ses préoccupations de performance et d'efficience au travail. Le développement professionnel dans l'espace de travail n'est pas un phénomène nouveau, « on apprend en situation de travail depuis... la nuit des temps » (Bourgeois & Durand, 2012, p. 9). Cependant, l'intérêt scientifique est récent quant à lui (2ème moitié du 20ème siècle). Après le passage par une formation professionnelle essentiellement développée hors des espaces de travail, la complexité des fonctions (nécessitant une multitude de compétences diverses et variées) ainsi que la célérité de transformation des outils et des modes de travail exigent à leur tour vitesse d'adaptation et flexibilité dans la définition des postes mais aussi dans les définitions identitaires des travailleurs.

Le présent symposium se propose de réunir des communications portant sur des recherches qui explorent la dimension sociale de l'apprentissage (Aumont & Mesnier, 1992) en situation de formation dans et hors de l'espace de travail, en privilégiant la notion de collectif. Rebetez (2016) dans son travail, de thèse met en perspective qu'il y a des apprentissages individuels dans un groupe ou un collectif et des apprentissages du groupe. Ceux-ci présentent des difficultés à approcher dans la mesure où ils sont peu aisés à circonscrire avec un recueil qui se fait avec des individus.

Dans ce symposium, il s'agit d'explorer les dimensions épistémologiques et paradigmatiques relatives à l'étude de l'apprentissage de collectifs (de groupes, d'équipe) en situation de travail : comment la recherche développe la notion de collectif, de groupe de travail, d'équipe ? Que couvre ce concept ? Relève-t-il de termes mobilisateurs de l'action (Barbier, 2011a) ou peut-on le considérer comme un concept scientifique ? Quels sont les indicateurs d'un apprentissage du collectif ? Ou encore, l'apprentissage du groupe de travail désigne-t-il ce dernier comme collectif de travail ? quelles sont les caractéristiques des situations qui conduisent un collectif à transformer ses habitudes d'activité (Barbier, 2011b) ? Quels sont les processus caractérisant ces transformations ? Quels sont les objets sur lesquels portent les transformations ? Quelles sont les caractéristiques épistémologiques des recherches qui s'intéressent à cet objet ?

#### *Presentations of the Symposium*

### **[CANCELLED] Les groupes de travail sont-ils des environnements apprenants ?**

**Patrick Mayen**

Université de Bourgogne Franche-Comté / Agrosup Dijon

Comme le rappelle le texte problématique de ce symposium, de très nombreux travaux issus de différentes disciplines et différentes épistémologies mettent en évidence le caractère apprenant des groupes de travail. Ils soulignent certains facteurs spécifiques aux groupes propres à engager et étayer des apprentissages.

Dans cette communication, nous souhaitons reposer la question : « les groupes de travail sont-ils des environnements apprenants ? », non pas pour remettre en question les résultats de ces recherches, mais pour prendre en compte aussi tous les cas où les groupes de travail ne sont pas ou peu apprenants, ou bien encore engendrent des apprentissages non souhaitables ou des apprentissages peu conceptuels et peu autonomes.

Si l'on considère la notion de parcours et notamment des parcours qui alternent situations de travail et situations de formation ou situations d'analyse de pratiques, par exemple, il apparaît que les séquences de formation ou d'analyse de pratiques peuvent mobiliser pour compenser le caractère peu ou pas apprenant des situations de travail dont le groupe constitue une part active.

Notre cadre de référence est celui de la didactique professionnelle par lequel nous cherchons à comprendre ce que les gens apprennent par le travail et par la formation. Nous utiliserons la notion de potentiel d'apprentissage des situations de travail pour examiner le potentiel d'apprentissage de certains groupes de travail, notamment en ce qu'ils ne semblent guère favoriser des apprentissages et un développement de nature conceptuelle.

Nous examinerons ensuite comment la formation ou l'analyse de pratique peut exercer une action de compensation des facteurs négatifs des groupes de travail sur les apprentissages en situation de travail.

Nous nous appuierons pour cela sur plusieurs chantiers de recherche conduits dans différents secteurs professionnels

### **Improving Learning in Self-organizing Teams in High-School**

**Christian Wandeler<sup>1</sup>, Eric Herzog<sup>2</sup>, Willy Wijnands<sup>3</sup>**

<sup>1</sup>California State University, Fresno, <sup>2</sup>California State University, Fresno, USA, <sup>3</sup>Ashram College, Alphen, Netherlands

The complexity of a globalized world, accelerating technological advances, and rapid change also challenge educational systems around the world. At the same time around the world the call is to develop 21st century skills with a focus on career readiness and ability for lifelong learning (Ananiadou & Claro, 2009). To get there research and practice in education have encouraged to create more student-centered learning environments, such as project-based learning (Bell, 2010), where students can develop 21st century skills. However, the focus largely remains on the individual learner, whereas in the real world tasks are often accomplished as a team. So it seems important for learners to not only improve their collaboration skills, but to also learn how to improve the team functioning and team learning. The present quasi-experimental study examines a novel pedagogical method that introduces a collaboration method from the software industry into US-High School chemistry classes.

While the overall project looks at a comparison to traditional instruction, the functioning of the teams is crucial for the success of the method. The reported research questions here thus are: 1) How well do the team function according to the students? 2) How do the teams improve their team learning over time? The sample will consist of approximately 70 High School students in California, that are enrolled in 2 sections of the same chemistry teacher that were assigned to the treatment condition, the self-organizing teams method. There will be about 12 different teams. The self-organizing teams method used is an approach called eduScrum, developed by Willy Wijnands, a High School chemistry teacher from Netherlands. The structural key elements of the eduScrum method consist of grouping students in teams of 4-5, training them in a method to develop and track their tasks, and creating a basic macro structure for each lesson, within which students have a very large degree of autonomy. Each lesson starts with a brief planning meeting, during which the teams decide what they want to work on. Then they work. Towards the end of the lesson there is a demonstration meeting, where the teams present to the whole class what they have achieved. To finish the meeting there is a retrospective meeting, where the individuals rate their team's performance and teams reflect on how they function and opportunities to improve. The data analysis will focus on the written journals from these retrospective meetings. The anticipated contribution of this study is to provide some insights on the impact of using a pedagogical method of self-organizing teams on students' learning in regards to team learning and specifically the improvement of team learning

### **How psychological safety climate influences team performance: A multilevel study of explanatory mechanisms in an academic setting.**

**Nathalie Delobbe<sup>1</sup>, Cecilia Mornata<sup>1</sup>, Maud Lebrun<sup>2</sup>**

<sup>1</sup>Université de Genève, Suisse, <sup>2</sup>Université Louvain, Belgique

Psychological safety, defined as a shared belief held by members of a team that the team is safe for interpersonal risks taking, has been shown to enable teams to learn and to perform. When people feel secure to express their ideas and to make mistakes, they are more prone to contribute to collective goals rather to withdraw and focus on self-protection. Several mechanisms contribute to explain how psychological safety improves performance, such as information sharing, initiatives taking, engagement and learning. However, to date, further research is needed to understand the respective roles and the interplay of individual- and group-level processes that explain how psychological safety climate influences objective team performance (Edmondson & Lei, 2014).

This study aims at advancing our understanding of these multi-level mechanisms and explores two mediatory processes. First, psychological safety is expected to facilitate team learning behaviors that are preconditions to performance, at least in contexts where team members are facing tasks that require new abilities. Second, we hypothesize that psychological safety strengthens identification with the team and, as a result, the willingness to collaborate in achieving the team's goals. Learning behaviors and team identification would contribute to develop the team efficacy, i.e. the shared belief in team capabilities to produce the desired level of attainments, which in turn predicts performance.

We tested these hypotheses on 372 French-speaking students in management divided into 66 teams that had to carry out several practical activities as part of a course in their curriculum. At the end of the semester, two teaching assistants evaluated each team based on various outcomes, mainly a written report analyzing a case study. In order to document a final debriefing on the team dynamics and before receiving feedback on their mark, each student completed an anonymous online survey including scales measuring psychological safety, identification with the team, learning behaviors and team efficacy.

As preliminary analyzes, we tested the psychometric properties of our French adaptation of Edmondson's (1999) scales of psychological safety and learning behaviors. We also calculated the statistical indices (ICC (1), ICC (2) and rwg (j)) proving that psychological safety, as well as others constructs under study, apprehends a shared belief at the group level and not only an individual perception. Finally, we used multilevel structural equations (MPlus, Muthen & Muthen, 2015) to test our full hypothetical model, controlling for prior academic achievement of team members.

Overall, the results support the model, while indicating that the French version of the Psychological Safety Climate Scale still requires some refinement. Beside the well-known role of learning behaviors, team identification and team efficacy appear to be key processes to understand how variations of psychological safety climate explains differences in performance between teams, beyond the variance accounted by individual perceptions and behaviors. These results encourage further exploration of the driving role of psychological safety in the dynamics of real work teams.

## I02 - Paper session Fr: Professionnalisation des acteurs de l'éducation

Time: Friday, 14/Sep/2018: 3:00pm - 4:30pm · Location: MR170

Session Chair: Robert David

### Interaction préméditée, interaction improvisée du médiateur culturel dans un musée

Jamila Al Khatib, Anne Jorro

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L'activité du médiateur culturel, adaptée aux différents publics qui entrent dans les musées, mobilise des processus interactionnels distincts. Le travail de ce professionnel s'avère à la fois ouvert et fermé : « ouvert » parce que durant son animation, le médiateur s'adapte au contexte de médiation, « fermé » parce que l'activité de médiation culturelle repose sur une solide connaissance des œuvres, des publics et de leurs attentes. Cette double dimension de l'activité de médiation semble mettre en évidence un double processus d'interaction : préméditée (préparation de l'activité) et improvisée (mise en œuvre face au public). La problématique des interactions rend compte de la complexité de la mise en lien dans un espace relativement ouvert, et nous conduit à la caractériser du point de vue des gestes professionnels.

Si l'activité du médiateur culturel a fait l'objet de conceptualisations avec les travaux de Dufiet (2012), d'Allard (1999), nous concevons la professionnalité du médiateur avec l'approche de la communication plurimodale. Si le médiateur transmet un contenu par son discours, son corps et ses gestes sont des médiateurs tout aussi puissants (Jorro, 2017, 2018).

Pour étudier ces interactions, nous prenons appui sur deux terrains de recherche : le Musée des arts et métiers à l'occasion d'une co-animation entre une médiatrice culturelle et une professionnelle Meilleure Ouvrière de France et le Musée du Louvre Lens à l'occasion de la présentation de la table d'orientation. Pour chaque terrain de recherche, un dispositif filmique a été mis en place permettant de capturer et d'analyser les interactions entre le médiateur et le public. Puis, des entretiens d'auto confrontation ont été réalisés pour confronter l'analyse du chercheur avec celle des professionnels en question.

Lors de cette communication, nous souhaitons mettre en évidence l'activité interactive du médiateur culturel et identifier des gestes professionnels qui soutiennent cette interaction. Nous mettrons en débat la spécificité de ces gestes dans deux contextes muséaux. Nous discuterons des enjeux de développement professionnel, qui peuvent être conçus dans le cadre de la formation de ces professionnels, sachant que la majorité des médiateurs s'auto-forment sur le tas.

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### L'apprentissage par la pratique en milieu plurilingue

Didérot Djiala Mellie

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Cette étude sur l'apprentissage par la pratique (learning by doing) en contexte de formation professionnelle fait partie d'un vaste projet de recherche entamé par un groupe de chercheurs en pédagogie et en didactique de l'enseignement et de l'apprentissage. Cette contribution est une réflexion qui porte sur la formation inverse et indirecte des formateurs pendant leurs activités professionnelles. D'un point de vue linguistique, elle se focalise précisément sur les enjeux d'un enseignement conjoint entre les enseignés et les enseignants pendant des sessions d'activités d'éducation de futurs acteurs de la communication sociale et stratégique à l'Université de Dschang. En effet, au moment où la promotion du vivre ensemble encourage la mixité et l'inclusion des langues et des cultures, sa mise en place suppose une révision profonde des frontières, des pratiques et des anciens clichés rétrogrades et obscurantistes pour inclusivement trouver de la place à l'autre et ses pratiques socioculturelles. Il se dégage de ce fait la question de savoir comment le rapprochement des cultures et le dialogue interculturel en contexte de plurilinguisme se réalise-t-il dans les enseignements. Constatant que dans les centres de formations professionnelles du contexte camerounais, certains formateurs sont monolingues, ceci soulève la question spécifique suivante : comment des pédagogues qui ne maîtrisent qu'une seule langue d'enseignement parviennent-ils à atteindre l'objectif de transmettre, efficacement et sans exclusion, aux étudiants de cultures linguistiques différentes des leurs des savoirs, des savoir faire et des savoir être indispensables à leur formation. Pour mener notre étude, nous avons utilisé un cadre méthodologique basé sur l'analyse conversationnelle couplée à l'ethnographie de la communication.

### Conditions d'efficacité des cercles pédagogiques pour susciter un développement des pratiques pédagogiques

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Un corpus de plus en plus important d'études suggère un faible niveau de développement professionnel tout au long de la carrière des enseignants et le peu d'efficacité des formations courtes généralement offertes (TNTP, 2015; Wei et al., 2009). Nous nous sommes intéressés aux études portant sur les cercles pédagogiques ou « Video club » (Santagata, R., 2009; Sherin, M. G., et van Es, E., 2005, 2009). Il s'agit d'une forme de communauté d'apprentissage professionnelle qui se base sur l'analyse, en petit groupe, d'une documentation sur vidéo des pratiques pédagogiques en classe. Ce poster présente les

données recueillies dans le cadre de quatre expérimentations, une analyse des fondements qui le sous-tendent et une théorisation des conditions de mise en oeuvre.

Les données recueillies auprès d'une quarantaine de participants regroupent des enregistrements des cercles pédagogiques, des documentations sur vidéo de pratiques en classe et des entretiens. Un premier projet a permis d'analyser le développement du regard professionnel de 22 enseignants du primaire répartis en trois groupes sur une durée d'un an (Giguère et David, 2017). Ce projet associait des formations portant sur la grammaire actuelle à des périodes d'analyses de pratiques (Santagata, 2009). Un deuxième projet regroupant 6 enseignants de disciplines diverses dans une école secondaire s'est principalement intéressé au processus d'appropriation de savoirs pédagogiques sur une période de deux ans. Ici, des formations portant sur des concepts pédagogiques choisis par les participants et des périodes de planification collectives étaient jumelées à l'analyse de pratiques. Un troisième projet a rassemblé pendant 8 mois 7 enseignants en français au secondaire sur le thème de l'écriture. Dans ce cadre, les enseignants avaient préalablement suivi une formation sur ce thème; l'objectif était ici d'observer le travail de transposition des savoirs didactiques en classe. Enfin, la quatrième expérimentation décrit comment des conseillers pédagogiques s'approprient collectivement le dispositif du cercle pédagogique en animant eux-mêmes des cercles auprès des enseignants qu'ils accompagnent. Dans les quatre projets, l'analyse des résultats a principalement porté sur les verbatims de la documentation sur vidéo des cercles pédagogiques avec pour intention une classification de l'objet des échanges, des référents pratiques et théoriques convoqués, de la profondeur des raisonnements et des éléments que discernent les participants en contexte d'analyse de pratique. Ces analyses ont permis de mieux comprendre comment se développe le regard professionnel des participants ainsi que le principe d'appropriation et de transposition de concepts pédagogiques, convoqués notamment dans les capsules de formation. Ces analyses nous permettent de proposer des modalités de mise en oeuvre du dispositif pour accroître son efficacité.

Considérant l'effet important des pratiques pédagogiques sur les apprentissages de tous les élèves, notre axe de recherche contribue à une meilleure compréhension des conditions permettant le développement de l'expertise des enseignants (Santagata et van Es, 2016). Le dispositif de cercle pédagogique contribue à la mise en oeuvre de pratiques inclusives en permettant aux enseignants de s'exercer à discerner les éléments importants d'un contexte d'apprentissage et à réguler leurs pratiques en observant les effets de celles-ci sur les apprentissages des élèves.

## **I03 - Paper session: Adult learning processes within the context of work**

Time: Friday, 14/Sep/2018: 3:00pm - 4:30pm · Location: M1160

Session Chair: Judy MacCallum

### **Emotions in professional learning at work: a review**

**Päivi Kristiina Hökkä, Katja Vähäsantanen, Susanna Paloniemi**

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The meaning of emotions in adult learning has gained a considerable attention during the last years. Emotions have proven to play a significant role for example in teacher learning and professional identity, and the workplace setting, as well as in organisational behaviour and leadership. Despite an increase in research into emotions at work, there is still a scarcity of literature on the emotional aspects of professional learning in working life. Although this is an evolving research topic, a comprehensive understanding and elucidation of studies conducted in the field is lacking, together with a clear direction as to the next steps to be taken. Thus, the objective of the current review was to focus on emotions in professional learning at work, with a focus on how the relationship between emotions and professional learning is reciprocal in the way in which they influence and affect each other. A diversity of research in the field was identified, and trends and gaps were evaluated so that future research directions could be determined when assessing emotions in a professional learning context.

Thirteen peer-reviewed scientific journals with a focus on professional and adult learning, and workplace learning and human development, were selected using purposive sampling in the first stage of the review process. Teaching journals were excluded owing to their inclusion of a high number of studies in which teachers' emotions are evaluated, thus leading to potential distortion. From the selected journals, articles with a focus on emotions and learning in the workplace context were identified. Papers that considered emotions in the workplace context in general, or in a formal schooling context were excluded. Google Scholar and ERIC databases were utilised in the second stage of the review process. The review was limited to articles published from 2000. Thirty articles constituted the final sample to which thematic analysis was applied.

Professional learning at work was understood to comprise cognitive learning (knowing, sense-making and skill development), identity development, learning in social communities and learning as working. Emotions were classified within the selected articles as emotional intelligence, emotional labour and work, and emotions as responses or experiences. When studying the relationship between emotions and learning, emotions were often evaluated as an aspect of learning alongside other issues, e.g., social dimensions and processes, and intuitive and rational aspects, rather than as one significant standalone feature. However, in analysing the reciprocal relationship between emotions and professional learning, the following themes were identified: i) learning as a means of developing emotional intelligence and emotional labour, ii) emotions that influence professional learning, iii) professional learning that influences emotions iv) emotions that are supported or inhibited by professional learning. In conclusion, robust studies (both quantitative and qualitative) are warranted to further explore the multi-dimensional relationship that exists between emotions and professional learning in order to better clarify how learning takes place at work. Emotions and learning should be explicitly defined in future research, as this was not self-evident in the studies reviewed in the current research.

### **[CANCELLED] The role of adult learning theory in the practice of mentoring novice teachers: a qualitative literature review**

**Kinga Káplár-Kodácsy<sup>1</sup>, David Cameron<sup>2</sup>, Helga Dörner<sup>3</sup>**

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Forming and reforming initial teacher education are generally conceptualized in the paradigmatic and theoretical framework of adult learning for CPD (European Council, 2010). However, it is not clear that this is consistently the case in empirical, practice-based research (Murray, 2005; Dolan, 2012).

This paper will synthesize the existing evidence base to address the question: "How and to what extent do recent studies suggest that adult learning theories inform ITE mentors' self-conceptualization and practice?"

Through a systematic process, we are reviewing, assembling and analysing the findings of a range of recent, relevant primary qualitative studies which provide insight into the extent that adult learning theory informs the practice and self-conceptualization of ITE mentors as they support novice teachers. Through this process, we will identify the characteristics of how adult learning theory informs ITE mentoring, and evaluate the extent to which the existing evidence base suggest these characteristics are evident in the practice and self-conceptualization of ITE mentors.

We are performing a two-stage eligibility screening process in three information sources (Google Scholar; Scopus; ERIC) for the period 2000–2018. Abstracts are searched for the following keywords: teacher mentor; initial teacher education; reflective practice; adult learning theory. Studies are filtered to include only those set in the context of school based initial teacher education then full texts are reviewed to identify the studies which have produced empirical results on the basis of a qualitative methodology. Eligibility screening will be completed by three researchers; borderline cases for inclusion will be discussed and decided through joint discussions.

Studies selected for inclusion are analysed by applying the PRISMA-P 2015 coding protocol (adapted for our use). This allows a narrative synthesis of emergent themes, oriented by the following concepts: self-regulation; student autonomy; self-monitoring; meta-cognition; knowledge validation; goal-orientation; relevancy-orientation; collaboration; practical application; problem-centred learning; involvement in planning and evaluation; intrinsic motivation (Knowles, 1984:12; Kearsley, 2010). The themes and patterns that emerge will be synthesized within the meta-ethnographic tradition, by an approach developed by Noblit and Hare (1998): (1) by reciprocal translation analysis (RTA); secondly, (2) by lines of argument (LOA).

The possible benefit of this synthesis would be to provide an insight into the extent to which adult learning theory informs the practice of ITE mentoring and the self-conceptualization of mentors, and also suggest the factors which contribute to or inhibit this.

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### **Vocational teachers' perception of professionalism and continuing professional development (CPD)**

**Ani Widayati<sup>1</sup>, Judith MacCallum<sup>2</sup>**

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As notions of professionalism are changing from a traditional view focused on status and financial gain to a transformative view focused on improving standards and adaptive expertise (Sachs, 2003; Timperley, 2013), teachers face the challenge of redefining their own concepts of professionalism. In Indonesia, government reform of national education in line with globalisation focuses on teacher competencies and teachers' continuing professional development (CPD). This study was underpinned by Bronfenbrenner's bioecological model of human development which provides a framework for conceptualising the developing teacher, the environments that influence teachers' professional development and the interactions between them (Bronfenbrenner, 1979). The aim of this study was to better understand teachers' perceptions of professionalism and CPD.

As the study focused on the teachers' perceptions and drawing out meaning, a qualitative interpretive paradigm was employed. Six Indonesian accounting teachers, three certified and three uncertified, were interviewed to examine their perceptions of the concepts of professionalism and CPD. The interview questions were guided by Bronfenbrenner's ecological systems model and focused on identifying and understanding different factors in each system (microsystem, mesosystem, macrosystem, exosystem) important in teachers' perceptions. Transcripts were sent to participants for member checking before thematic analysis.

The findings show that teachers have a range of perceptions of professionalism encompassing aspects of transformative and traditional conceptualisations. Four themes emerged with the teachers regarding teacher professionalism, including competency, responsibility, an air of authority, and adhering to ethical code of practice. Regarding their perceptions of CPD, both certified and uncertified teachers, had a common understanding of CPD in terms of goals, activities and outcomes of CPD. The teachers understood CPD as for teachers' improvement, and they defined CPD in terms of performance assessment, government program, and personal development activities, showing the importance of personal and environmental factors. However, the civil servant teachers participated in more structured CPD (because CPD relates to their promotion). Different from previous studies, the current results show that even though there were internship opportunities for vocational teachers, these experiences did not allow for development of teachers' accounting skills. Furthermore, although these vocational teachers did not teach in Islamic or Protestant schools, some considered religious values when they described professionalism and CPD. These teachers regarded their profession as a devotion to their God and considered teaching as a part of their duty and their responsibility as obedient persons. The study highlights the need for further support of accounting teachers in vocational schools to develop their professionalism in order to ensure that their students are work ready by considering the various factors identified. For example, how religious values impact teachers' perceptions of professionalism and CPD in a context of globalisation, and how to facilitate partnerships between schools and companies where actual accounting is practised so that teachers and students experience accounting in the current real world setting.

## I04 - Paper session: Testing, measuring and assessment

Time: Friday, 14/Sep/2018: 3:00pm - 4:30pm · Location: M1170

Session Chair: Josef Guggemos

**The contribution has been withdrawn.**

### **Rate of TOL: a new look into measuring the quality of work-based training programs**

**Saeid Safaei Movahhed, Keyvan Salehi**

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### **The development of a video-based competence assessment in vocational teacher education**

**Felix Walker, Andrea Faath-Becker**

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\*state of research\*

One of the main goal of the vocational teacher education in Germany is to enable the students during their study to plan, perform and reflect on effective competency-based teaching (KMK, 2015).

To fulfill this claim, examination formats should be taken into account which allow to test the mentioned competencies (planning, performing and reflecting). So far, the study of vocational school teachers allows students (with a focus on metal technology) almost exclusively lesson planning (the written design of fictional lesson sequences). This means students without or with little teaching experience (Bachelor/Master) are planning lessons but have no option to perform or even reflect it. They have no opportunities to gain experiences from the performing to reflect their planning. It is questionable whether this type of examinations takes into account the above mentioned competencies of the students. Video vignettes have great potential to fulfill this requirement (Hoth et al., 2018).

So far there is no existing examination format, e.g. in the form of video vignettes in vocational teacher education (Riegel, 2013) (with one exception in business education (Wuttke, 2011)). It is necessary to provide a competence-oriented type of examination, with the following aims: An exam format that encourages the student to plan an efficient lesson; provides the opportunity to observe and reflect on the performance of the lesson; give the students a differentiated assessment of their performance.

\*aim\*

Our project meets with this demand, by the development of theory-based video vignettes in the teacher training for vocational teachers of metal technology. Those video vignettes should help students to observe and reflect on teaching. Furthermore, the performance of the students will be assessed competence-oriented, with the help of the video vignettes.

\*theoretical framework for the development of the video-based competence assessment\*

According to Oser and Patry (1990), the recorded lessons will be analyzed with regard to sight and deep structure of the instruction. Various studies (e.g. Lipowsky, 2015) have found that clarity and coherence of lesson goals, the cognitive activation of the pupils as well as the (teacher) feedback are characteristics of effective teaching. Based on the approach of Lindmeier et al. (2013) a category system will be developed, in order to assess the lesson sequences and thereby the performances of the students. The outcomes are video vignettes incl. the written drafts of the lesson sequences, which invite the students to observe the implementation of the lesson. In part the students are requested to continue (instead of the teacher in the video) and reflect on the implementation of the lesson.

The presentation focuses the introduction of the theoretical concept for the development of video vignettes, the procedure of the development of the video vignettes itself, including the technical implementation and the detailed presentation of some video vignettes. Finally, there will be a discussion on the potential of the transferability of the development of video vignettes on multiple teacher education courses (vocational and general education).

### **Developing innovative behaviour of teachers at work**

**Arnoud Evers, Kamakshi Rajagopal, Karel Kreijns**

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Aims

This study aims to test the longitudinal influence of personal and organisational factors on innovative behaviour of teachers and their collaboration for educational innovation in secondary education. Stimulating innovative behaviour of teachers and innovation in education is getting more and more important nowadays, because of fast development of new knowledge and increasing demands of society to schools (Thurlings, Evers, & Vermeulen).

Methodology

Three regression analyses were performed with three dependent variables. Sample size shows some variation due to missing data (see under results).

The total sample size of teachers on both measurements (with one and a half years in between) is N = 89. Average age: M = 42.42 (SD = 11.22). Gender: 46.1% female.

Dependent variables. 1) Innovative behaviour was measured with a validated scale. Use of new media is a new scale (4 items). Cronbach's alpha on T1: .90 (N = 98). Possibility to collaborate on educational innovation, is also a newly developed scale (2 items). Cronbach's alpha: .76 on T2 (N = 97).

Independent variables. To measure Competence, Autonomy, Relatedness (Personal factors)(Ryan & Deci, 2000), Transformational leadership (De Hoogh, Den Hartog, & Koopman, 2004) and Participation in decision making (Kwakman, 2003)(Organisational factors), we used validated scales.

Results

Regression analysis with Innovative behaviour as dependent variable (N = 89): significant effect of Competence ( $\beta = .30$ ,  $p < .05$ ). R square = .13.

Regression analysis with Use of new media as dependent variable (N = 81): significant effect of Competence ( $\beta = .40$ ,  $p < .01$ ). R square = .17.

Regression analysis with Possibility to collaborate on educational innovation as dependent variable (N = 74): significant effect of Autonomy ( $\beta = .30$ ,  $p < .05$ ) and Participation in decision making ( $\beta = .29$ ,  $p < .05$ ). R square = .18.

Theoretical and practical significance

Thurlings, Evers en Vermeulen (2015) asked for more longitudinal research about innovative behaviour. Competence of teachers appeared to be an important factor for (individual) innovative behaviour. With respect to Possibility to collaborate on educational innovation, the factors autonomy (as perceived by teachers) and participation in decision seem to play an important role. Future research should also investigate longitudinal indirect effects of the investigated organisational factors (Klaeijns, 2015).

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### **Validation of an Information Literacy Test in a Multinational Setting**

**Sabine Seufert, Katarina Stanoevska-Slabeva, Josef Guggemos**

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Information literacy (IL) is a key 21st century skill (Binkley et al., 2012). It is regarded as a precondition for an active participation in society and a self-determined as well as lifelong learning process (Gapski & Tekster, 2009). In this light, it might also be of special importance in workplace learning (Lloyd, 2005). Based on a literature review (Author group, 2015), we conceptualize 'IL' by means of seven facets: 1) Information needs, 2) Information sources, 3) Information access and seeking strategy, 4) Information evaluation, 5) Information use, 6) Information presentation, and 7) Reflection of information process. To operationalize our model, we rely on two types of test instruments: performance test and self-assessment. Hence, we capture objective IL (OIL) and subjective IL (SIL). For developing the instruments, we utilize work of Balceris (2011) and Marshall (2006). We put particular emphasis on social media because of its decisive and special role in the information process: information is not simply retrieved but interactively created. Both instruments are validated using item response theory. To this end, we utilize a sample with  $n = 432$  9th to 13th grade students from Austria, Germany, Liechtenstein, and Switzerland. 268 of them attended a vocational school. Both instruments are Rasch-scalable. After (anticipated) exclusion of items, we are able to provide evidence for person homogeneity in terms of school type, age, grade, gender, and country of origin. Of particular interest in this context are differential item functioning (DIF) effects between students from vocational and general schools. Weighted mean square values (wMNSQ) lie between 0.8 and 1.2 and are therefore satisfactory (OECD, 2014). Reliability equals in case of OIL .84 (EAP/PV) and .88 (WLE), in case of SIL .75 and .77, respectively. In terms of construct validity, we provide evidence for a positive impact of instruction on IL. Students' grade positively influences OIL after controlling for age. IL-related content in class also positively effects OIL. However, for SIL we did not find such a significant influence. Contrary to previous evidence (e.g. Large, Beheshti, & Rahman, 2002; Tsai, 2009), we report a higher OIL for female students. Country of origin and school type (general vs. vocational) neither has a significant influence on OIL nor on SIL. Pearson correlation between OIL and SIL equals .52. Female students underestimate their IL in comparison to male students, i.e. their OIL is on average higher than their SIL.

Our findings indicate that it may be more suitable to assess IL using performance tests instead of self-assessment tools. We demonstrate that it is possible to reliably and validly measure OIL with reasonable effort (about 18 minutes required test time). As IL is of special importance in (informal) workplace learning settings, our sample (partially) consists of students from vocational schools, and we focus on interactive creation of knowledge by means of social media in an international context, we are confident that the presentation of our test validation makes a valuable contribution to EARLI SIG 14 conference.

## I05 - Paper session: Teachers training and professional development

Time: Friday, 14/Sep/2018: 3:00pm - 4:30pm · Location: M1150

Session Chair: Bernadette Charlier

### Studying Teacher Professional Development through Proxemic Analysis and Cartography of Movements in the Classroom

**Isabelle Lermigaux-Sarrade**

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Using a methodology based on proxemic analysis of the teacher's movements, we followed interaction decisions in the classroom second by second. We propose to apply some results of this proxemic analysis to develop a specific approach to study teacher professional development

Our theoretical framework is based on proxemic interactions in physical spaces and teacher professional knowledge in context.

Hall (1968) showed that human social interactions in physical space follow the rules of proxemics, and Forest (2009) showed that teachers used proxemics motifs to capture the attention of students. Issaadi and Jaillet (2017) pointed out that ease of access for the teacher to the students work-table seemed to modify the nature and number of interactions.

We consider the teacher's physical workspace as part of the instrumental context described by Grangeat and Hudson (2015). Each interaction in the class is considered the result of a teacher's decision. Thus, each interaction contributes to the construction of the professional knowledge of the teacher (Fischer & Boreham, 2004). We assume that the physical workspace could interact with the teacher's decisions to go to a particular group, since student behaviour seems to be sensitive to their placement in the classroom.

Thus, we consider movements and stops as visible traces that reveal partly the teacher's decisions and repertoire of actions (Grangeat, 2015).

To analyze these traces, we developed a specific device that tracks teacher movements every second. We recorded three teachers in group work sessions in the context of Inquiry Sciences Based Teaching. We obtained twelve teacher tracking files (x,y,t) for each 1,800 second of group work session. To visualise the tracking data, we built maps of the teachers' presence, which we reported on the class maps. The time spent by the teacher in each point of the class is visualised by coloured areas.

For each classroom configuration, we calculated a specific independent variable to describe the potential ease of access from the teacher to the studied group. We called this variable the Group-to-group distance. This variable depend on classroom dimensions and students placement.

On the other hand, we calculated a dependent variable to describe the actual movements of the teacher, calculated from each 1,800 triplets of the teacher tracking file. We used an algorithm to compute this variable that we called the Teacher-to-group distance.

Results showed that the potential ease of access of the class and the actual movements of the teacher appeared correlated. We showed that the differences between the movements of the same teacher placed in two different configurations are significant, but there were no significant differences between the movements of different teachers placed in similar configurations. A first consequence is that to study teacher interactions, it is important to isolate the configuration.

Results also showed that different teachers used the same configuration in different ways. Mapping of the teacher's movement showed different styles that reveal different repertoires of space usage. The search for the proxemic motifs described by Forest (2009) from movements mapping could be an interesting way to analyse professional development.

### Teachers' professional development and environmental sustainability in schools: Insight from the activity systems analysis

**Niina Mykrä**

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Public discussion on climate change and other environmental hazards demonstrates an urgent need for society to change both individual and institutional environmental practices. In global politics, there are hopes that the public school system could lead the way in this process. Currently, a new national core curriculum for compulsory basic education in Finland states that a learning community should account for the necessity of a sustainable way of living in all its activities. This discussion sets significant demands on the professional development of teachers and also of school culture. The collective activity and motivation of schools plays a vital role. This presentation applies the activity systems analysis from the teachers' point of view, asking: what promotes and hinders teachers' professional development in the field of environmental sustainability?

Practices, learning contents and underlying values constitute environmental sustainability in schools. Yet several studies have revealed that the practices, learning contents and values for realizing ecological sustainability are still weak in many schools. Teachers are uncertain of how to include education for ecologically sustainable future in different subjects. Furthermore, some teachers are afraid to speak about environmental issues, supposing they are too personal. Nor are methods clear, as teachers are often unaware of how to create positive attitudes toward the environment. Therefore, expansive learning (Engeström 1987) is needed: teachers and the whole school system "must learn something that is not yet there".

This research analyzes sustainability education in schools in the interactive framework of activity systems from the teachers' point of view. The analysis is part of the PhD study that examines the perspectives of ecological sustainability in authentic situations at school by using multilevel organizational approach and systemic thinking in the cultural-historical activity theory (CHAT) framework. The data contains interviews (38) of teachers and administration, curriculum texts, the annual plans of the schools (38 x 2), and ethnographic research diaries from two schools.

The preliminary results propose, first, that the role of curriculum is seen differently among teachers and administration: the administration views curriculum and the annual plans of the schools as instruments for planning, while many teachers see them as rules that are not connected with real everyday situations. Secondly, although all the informants state that environmental sustainability is very important aspect and there is a lot to do at their school within this field, it appears that many teachers do not have a desire to change activity for the enhancement of environmental sustainability. Third, there seems to be problems in the division of labor between teachers and different actors: e.g. teams, principal and real estate management. There would

therefore seem to be a definite need for redefining the work processes at school and enter in expansive learning activity in order to make positive changes to environmentally sustainable practices.

### **The final project in a HE teacher training: what effects for the working team?**

**Bernadette Charlier, Lambert Marie**

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To support the academic development of HE teachers, action research projects focused on one's practices are generally considered as an efficient mean (principles of the Scholarship of Teaching and Learning/SoTL). However, the effective impact of such training practice is seldom evaluated. This contribution investigates this issue in the context of a training programme.

This research includes two parts. The descriptive part aims at allowing the generalisation of the findings (Stake, 1988) through the description of the learning environment in reference to several frameworks (e.g. typology of hybrid systems (<http://prachysup.univ-lyon1.fr/>); SoTL (Brew, 2011; Rege-Colet et al., 2011; Trigwell et al., 2000)) and the description of the participants' individual characteristics. Based on a theoretical framework (Bourgeois & Durand, 2012; Burton et al., 2011; Charlier et al., 2015; Vertongen et al., 2009), the evaluative part addresses two research questions: 1. What effects of the final project do the participants perceive on their professional development and on their working team? 2. What interactions between the participants and the learning environment and between the participants and their working environment lead to what effects? In a mixed methods approach, data were collected through an online questionnaire sent to the participants having achieved their final project since 2010 (N=40/96) and through semi-structured interviews with volunteers (N=14).

This contribution focuses on the evaluative part. Answering the first research question, descriptive analyses show that participants perceive numerous and various effects of the final project on their professional development (i.e. at an individual level). On the contrary, perceived effects on the practices of the working team (i.e. at a collective level) appear as less important. We formulated the hypothesis that this result could be related to the perception of the working environment: the environment is perceived as supporting the teachers' participation in the training programme and their individual professional development, but as not valorising the results of their final project and not considering it as useful at a collective level for the working team.

To investigate this hypothesis, further statistical analyses were carried out in an exploratory approach. They aimed at testing whether the perception of the working environment play a role of mediating variable between the participants' individual characteristics and the practices of the working team – as postulated in the theoretical model. Findings are consistent with the model and confirm the role of the mediating variable. This means that perceived effects on the working team depend more on the perception the participants have of their working environment than on their own individual characteristics. This result gives promising first elements to answer the second research question of the evaluative part of the project.

Considering these first results, we identified several perspectives to increase the effects of the training programme on the practices of the working teams within our university. Actions can be taken at an institutional level as well as within the training programme.