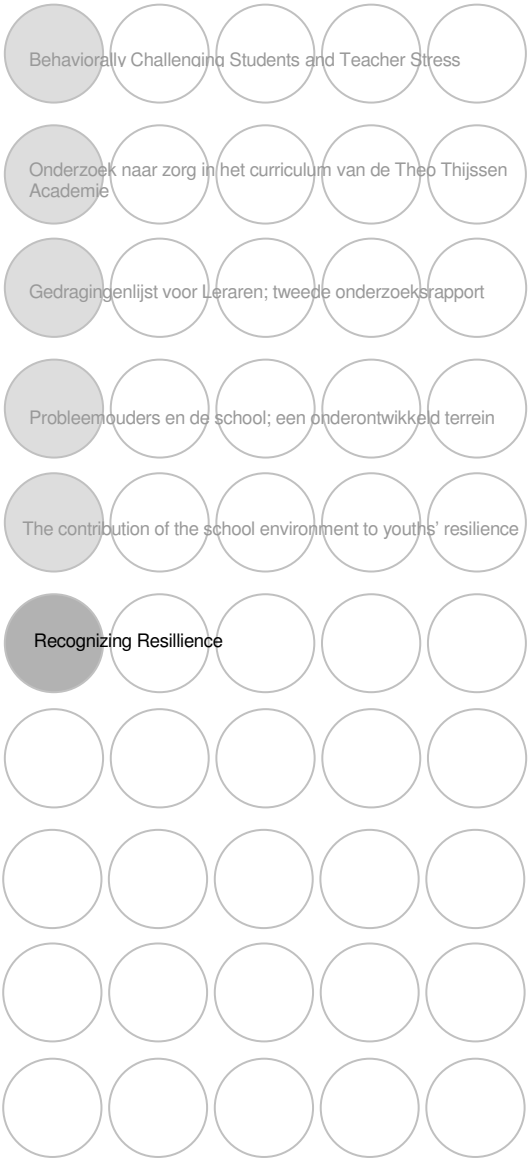

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Recognizing Resilience:
Development and Validation of an Instrument to Recognize Resilience in Dutch Middle-Adolescents.

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Recognizing Resilience: Development and Validation of an Instrument to Recognize Resilience in Dutch Middle-Adolescents.

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Voorwoord

De Kenniskring Gedragsproblemen in de Onderwijspraktijk aan de Hogeschool van Utrecht bestaat uit ongeveer tien personen met als lector J.C. van der Wolf.

Het lectoraat is opgericht in 2003 en heeft als taken het verrichten van vooral toegepast onderzoek en het helpen bij de ontwikkeling van curricula voor de onder de Faculteit Educatieve Opleidingen val¬len¬de afdelingen.

Door de 'leden van het lectoraat' worden allerlei stukken, artikelen, plannen, nota's etc. geproduceerd die dan in verschillende kringen worden verspreid zodat niet altijd een goed beeld ontstaat van de activiteiten van de Kenniskring. Via deze KG-publicatiereeks wil de kenniskring een vaste groep geïnteresseerden in staat stellen om op de hoogte te blijven van de activiteiten. Verwacht mag worden dat de KG-publicatiereeks uit zeer verschillende, uiteenlopende stukken zal gaan bestaan.

Voor U ligt KG-publicatie nr.6
U wordt van harte uitgenodigd om commentaar te leveren.

KG-publicaties

nr.1	Everaert, H.A. en J.C. van der Wolf (2005). Behaviorally Challenging Students and Teacher Stress.
nr.2	Wolf, Kees van der en Hanne Touw (2005) Onderzoek naar zorg in het curriculum van de Theo Thijssen Academie.
nr.3	Doorn, Frida van (2005) De Gedragingenlijst voor Leraren (Tweede onderzoeksrapport).
nr.4	Kees van der Wolf Probleemouders en de school: een onderontwikkeld terrein
nr.5	Enthoven, Mascha (2005) The contribution of the school environment to youths' resilience: A Dutch middle-adolescent perspective.
nr.6	Enthoven, M.; A.C. Bouwer; J.C. Van der Wolf & A. Van Peet (2005) Recognizing Resilience: Development and Validation of an Instrument to Recognize Resilience in Dutch Middle-Adolescents.

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Abstract

This paper presents the development and construct validation of an instrument for identification of resilient and less-resilient middle adolescents in high school. Purpose of this identification is a qualitative in-depth interview study of perceptions of resilient and less resilient middle-adolescents on their school environment. The qualitative study will function as examination of content-validity of the presented instrument. A 33-item Resilient Behavior Questionnaire (VVL) and a 105-item personality questionnaire NPV-J (Dutch Personality Questionnaire- Youngsters) were administered to a sample of 400 middle adolescent high school students (age range 14-16). It was hypothesized that scores on specific components in the VVL would correlate highly with relevant factors of personality in the NPV-J. Principal Component Analysis and Correlation Analysis served as methods of investigation. Results of the quantitative study reveal three components in the VVL and a high correlation between the scores on these components and the resilient personality factor perseverance and non-resilient factor inadequacy in the NPV-J. Discussion focuses on explanation of the results and implications for further development of the VVL.

Keywords: Resilience; Identification instrument; Adolescents; High-school.

Recognizing Resilience:
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1 Introduction

Middle-adolescents at risk

Intervention programs in the Netherlands to reduce school drop-out in secondary education do not seem to pay off. Although many schools have implemented various programs, school drop-out has increased dramatically during the past five years and is one of the major problems confronting Dutch education. Leaving school without at least a diploma in Junior Pre-Vocational Education (VMBO) is referred to as 'priority drop-out' by the Dutch government (Ministry of Education, Culture & Science (OC&W), 2004). VMBO starts directly after primary school with the learners at an average age of 12 and takes four years. This makes middle-adolescence (age range of 14-16) a crucial phase in educational development. Especially middle-adolescents from families with low Socio Economic Status of both immigrant and 'Dutch' origin tend to drop-out of high-school due to learning and/or behavioral problems in school. In policy statements, students from low-income families, especially those with immigrant parents, are described as 'students at risk'.

Intervention programs to reduce school drop-out provide extra financial support to schools with high numbers of 'students at risk'. The failure to reduce school drop-out by means of existing intervention programs points to a need for insight into context specific prevention of learning- and/or behavioral problems of middle-adolescents at risk in school. A focus on middle-adolescents at risk in school who develop successfully without learning- and/or behavioral problems might provide this insight.
Many middle-adolescent students at risk indeed do develop successfully and thereby prove the determining aspect of the risk approach untrue. Studies with a 'Resilience approach' try to understand successful development despite the presence of risk factors (Werner & Smith, 1982; Garmezy, 1991; Masten, 1994; Rigsby, 1994; Wang & Gordon, 1994; Constantine, Benard & Diaz, 1999; Luthar, Cicchetti, & Becker, 2000; Henderson & Millstein, 2003; Olsson, Bond, Burns, Vella-Brodrick & Sawyer, 2003; Tusaie & Dyer, 2004). Although no consensus has been reached about the definition of resilience all authors seem to agree that resilience is a complex construct wherein there is an interaction of physical aspects (e.g. robust neurobiology; gender); personality factors (e.g. initiative, self-esteem, perseverance, independence, insight, sociability, humour, creativity and morality); skills (social skills, academic skills; language skills) and context-factors (caring family members; supportive school climate; friendships). These aspects result in a person's successful development against the odds of riskful circumstances.
Therefore, in this study we define 'being resilient' operationally as:

"having a disposition to identify and utilize personal capacities, competencies (strengths) and assets in a specific context when faced with perceived adverse situations. The interaction between the individual and the context leads to behavior that elicits sustained constructive outcomes that include continuous learning (growing and renewing) and flexibly negotiating the situation".

Resilient middle-adolescents as informed experts

Although perception of adverse situations is not dependent on one's financial or cultural status, it could be accepted that middle-adolescents described as 'at risk' in Dutch policy statements have more adverse situations to overcome than children who grow up under less-riskful circumstances. In our search for prevention of school drop-out, resilient middle-adolescents can serve as informed experts and provide us with information about those skills and those contextual factors in school that have helped them create constructive outcomes when faced with adverse situations. Understanding what has prevented them from dropping out of school can help us prevent other middle-adolescents from dropping out. Additionally, comparing resilient and less-resilient middle adolescents' perceptions of their school environment provides us with insight in specific difficulties less-resilient middle adolescents face in identifying or utilizing assets in the school context.
For the purpose of this study, identification of resilient and less-resilient middle-adolescents is necessary. This paper presents the development and validation of an instrument to identify resilient and less-resilient middle-adolescents in high school. Prior to describing the development and selections of the instruments, objections against existing resilience-identification instruments will be discussed in the next paragraph.

Development and selection of the instruments

Existing instruments

The complexity of the construct of resilience wherein someone's disposition interacts with context resulting in behavior that represents constructive outcomes leads to a diversity in choices of object of measurement in order to assess resilience. Generally, existing instruments and studies focus on (i) assessment of resilient personality characteristics e.g. Adult resiliency scale (Jew, 1991) Resilience Scale (Wagnild & Young, 1993), Resilience Subscales Inventory (Armstrong, 1998), Adolescent Resiliency Belief System (Jew & Green, 1995 in Doll, Jew & Green, 1998) (ii) assessment of protective context factors e.g. Resilience Youth & Development Module (Benard, 2002) or (iii) assessment of successful outcomes e.g. Waxman Huang & Wang (1996 p.8), Jackson & Martin (1998, p. 571), and Gordon Rouse (2001, p.5). None of these scales or studies focuses on resilient behavior as identification of resilience.

Our objection to assessment of resilient personality factors and/or resilient context factors as indication of resilience is that it is not the presence of those factors that elicits resilient behavior

and constructive outcomes. Rather, it is the awareness and utilisation of these factors by the individual that contribute to resilient behavior.
Our objection to studies that focus on successful outcomes is that these studies have generally defined constructive outcomes operationally in terms of academic success (A-levels etc.) despite risk factors. Academic success is strongly influenced by intelligence. Operationalizing resilience as academic success despite the presence of risk-factors implies that less intelligent people by definition can not be resilient. This exclusion contradicts both common and scientific sense.

Without knowing exactly how personality factors and context factors interact the only certain way to identify resilience is by focussing on resilient behavior. In this regard, we need to consider whether coping behavior qualifies as resilience.

Coping behavior

Defining resilience operationally as learning and growing by overcoming adverse situations could lead to a focus on coping behavior as a measure of resilience. Although much is known about various ways of coping, e.g. (i) active coping and internal coping vs. withdrawal/avoidance coping (Seiffge-Krenke, 2000) and (ii) problem focused vs. emotion-focused coping (Lazarus and Folkman, 1984; Carver, Scheier, and Weintraub (1989), little is known about the coping strategies of resilient adolescents. One might expect active, problem-focused strategies to be a part of, or contribute to resilient behaviour. But in some situations, when many risk factors are present, withdrawal or postponement of action could be ‘the wise thing to do’ and these could then be part of, or contribute to, resilient behavior. The construct of resilience is to complex to simply use coping strategies and therefore coping-questionnaires as measure of resilience.

A ‘multi-area’ focus

In identifying resilience in middle-adolescents, one should focus on different areas of development. Focussing on constructive outcome in just one area disregards many middle-adolescents who might be dealing constructively with adversities in another area of their development. Acting resiliently in the family might lead to temporarily less than A-level success in school. Functioning well under high stress might be associated with temporarily distressing emotion. Being resilient does not mean excelling in everything one does. Therefore assessing feelings of resilience as only indicator of resilience is not an option.

Following this line of argument, growing and learning from adverse situations should be looked at in the areas of the middle-adolescent personally, the family, the school environment and the peer group.

These considerations have led to the following conclusions about an instrument to identify resilience in middle-adolescence:

i. The focus of the instrument should be on resilient behavior instead of personality factors or contextual factors.
ii. Resilient behavior should be described by various ways of dealing constructively with various riskful circumstances.

iii. The resilient behavior and riskful circumstances should be recognizably described within the context of the intra-personal level, family level, school level and peer level.
iv. The resilience construct that is measured by the instrument should show high correlation with a resilient personality factor such as perseverance as confirmative validity and low correlation with a non-resilient personality factor such as anti-social behavior as discriminative validity.

Based on these conclusions, the Veerkracht Vragenlijst VVL (Resilience Questionnaire) was developed, piloted and revised.

Construction of the VVL

The 33 items of the VVL are formulated as combined statements along a Likert-scale of 5 positions. The first part of each statement describes a situation that could possible lead to problems, depending on the reaction of the individual. The second part of each statement describes the possible reaction of the individual in terms of either resilient behavior (associated with sustained constructive outcomes that include continuous growth and renewal and flexibly negotiating the situation) or non-resilient behavior (associated with a lack of sustained constructive outcomes or contributing to destructive outcomes).

Five examples of these items are:

i. Possible problematic situation on school-level ↔ resilient behavior:

(16) If a teacher is angry with me then I will try to concentrate more on my schoolwork.

ii. Possible problematic situation on intra-personal level ↔ non-resilient behavior:

(13) If I have to make a difficult decision, then I tend to wait so long that the opportunity to make the decision is lost.

iii. Possible problematic situation on family level ↔ resilient behavior:

(6) If I feel bad about problems at home then I go and talk to someone about it

iv. Possible problematic situation on peer level ↔ non-resilient behavior:

(32) If my friends want me to do something that I would rather not do, I will go along with their plan anyway.
v. Possible problematic situation on school-level ↔ non-resilient behavior
(28) If a teacher is angry with me then I get angry myself and the situation worsens.

Assessment of personality characteristics

Personality factors are of significant influence on someone's resilience. Studies have shown perseverance, self-esteem, sociability, humour and creativity as a few of many personality traits that correlate with resilience (Benard, 1993; Olsson et al., 2003 and Wolin & Wolin, 1996). Therefore, in this study personality traits function as external validity of the VVL in measuring resilient behavior. Assessment of personality traits took place on terms of five affect variables in the Dutch Personality Questionnaire (NPV-J, Luteijn, Van Dijk & Van der Ploeg, 1989): inadequacy, perseverance, social inadequacy, recalcitrance and dominance. The NPV-J consists of 105 items along a 3-point Likert-scale. All scales are reliable with α varying from 0.70 (dominance) to 0.87 (inadequacy). The NPV-J was validated on 1256 Dutch children with mean age of 13.5 and a standard deviation of 1.8. Given low intelligence levels of part of the respondent group indicates this validation of the NPV-J as appropriate for the some-what older respondent group in the VVL study. Internal consistency of the Inadequacy Scale and the Perseverance Scale is good, the Social Inadequacy and Recalcitrance Scales have reasonable internal consistency and the internal consistency of the dominance scale is moderate. Construct validity of the scales is good (Evers, 2002).

Inadequacy is assessed by a subset of 28 items of the NPV-J that measure symptoms associated with vague physical complaints, depressed mood, vague fears and feelings of inadequacy. Each item of the Inadequacy Scale asks children to indicate whether they have experienced a particular problem or symptom. Children with high scores on the Inadequacy Scale describe themselves as tense, fearful, and as having many feelings of insufficiency. To assess perseverance, a subset of 25 items asks children to mark how positively they assess their own task-orientation in school affairs, their adjustment to the demands of the school, their motivation to respond to high school expectations, their willingness to keep an appointment and their ability to keep everything on an even keel. Children with high scores on the Perseverance Scale are often described as peaceful, conscientious and having a positive task-orientation and perseverance. Social inadequacy is measured by a subset of 13 items that ask children about their attitudes and feelings toward social events and social contact. Children with high scores on the Social Inadequacy scale are being characterized as avoiding other children in a group and being less capable of maintaining social relationships or attachment to others. To assess recalcitrance, 24 items ask children about their attitudes toward needing support, asking for support or supporting others when problems occur, trust and distrust towards others. Children with high scores on the Recalcitrance Scale are characterized by a distrusting and negative attitude. Finally, 15 items that ask children about their self-efficacy and hierarchical position in respect of others assess dominance. Children who score high on the Dominance Scale are characterized as having self-esteem, not being easily influenced and sometimes by being bossy (Luteijn et al., 1989).
The NPV-J was used for external validation of the VVL. The NPV-J scale of perseverance was used for confirmative validity of the VVL and the scales of inadequacy, social inadequacy and recalcitrance were used for discriminative validity of the VVL. The VVL describes both resilient and non-resilient behavior. Literature on resilience shows hardiness, self-esteem and sociability as three of various resilient personality factors. High positive correlations were therefore expected between resilient behavior as measured by VVL and perseverance as measured by

the NPV-J and between non-resilient behavior as described by the VVL and social inadequacy as described by the NPV-J. Although, as described in the paragraph 'A multi-area focus', assessment of feelings of resilience as only measure of resilience is not an option, it could be accepted that lacking feelings of self-esteem and having many feelings of insufficiency, tension and fear, are related to non-resilience. Therefore, high positive correlation between non-resilient behavior as described by the VVL and inadequacy as measured by the NPV-J were expected. Additionally, being able to ask for support and appreciating support are relevant aspects of resilience. Therefore a low or negative correlation between resilient behavior as measured by the VVL and recalcitrance as measured by the NPV-J was expected. No high correlations were expected between resilient and non-resilient behavior as measured by the VVL and dominance as measured by the NPV-J.

Research questions

Several questions arose in this exploratory study to develop an instrument to identify resilience:

i. Do the items of the constructed instrument all measure the same construct?
ii. What is the internal structure of the instrument?
iii. Is the construct that the various components in the VVL measure related to / in correspondence with the construct of 'resilience'?

Method

Data collection

Experienced psychologists and educators administered the VVL and the NPV-J in class during school time. The questionnaires were administered simultaneously to all third-grade classes per school, to avoid discussion about the questions amongst the participants. In depth interviews with a selection of the participants are being conducted outside the school, in a community center.

Participants and sites

The participants in this study (N=400) were all third-year middle-adolescent students in the age range of 14-16, drawn from five Dutch Junior Pre-Vocational Education (VMBO) schools in Utrecht, The Netherlands. The schools are 'Education Opportunity schools (Onderwijs Kansen-scholen)' that receive extra financial support on account of their large number of students with a 'high-risk' status. Three of those Education Opportunity schools are 'black' schools, in which the majority of the students (up to 60%) have immigrant parents. The fourth Education Opportunity School is a school for agricultural education. Agricultural education tends to attract 'Dutch' students and this particular agricultural school is attended by a large number of 'Dutch' children with a 'high-risk' status. The fifth Education Opportunity School is a school for theoretical education and is attended by both students with immigrant parents and 'Dutch' 'high-risk' students. The five schools operate in a network in the same area outside the city centre of Utrecht. The inclusion criteria to participate in the study were: being in the third year of one of the five VMBO-schools, in the age range of 14-16 and having informed consent from the parents.

Demographic applicability

Participants in this study, of whom 50% have immigrant parents, are characterized by low-income family background. Most of the participants of immigrant backgrounds don't speak Dutch at home. The total group of participants can be seen as representative of other low-income suburban middle-adolescents attending high school in western cities.

Data analysis

To study the internal structure of the VVL Principal Component Analysis was used. Cronbach's alpha coefficients are computed to estimate the internal consistency reliability of each scale score. External validity of the scales is tested by means of the NPV-J. De Heus, van der Leeden & Gazendam (1995) indicate norms for reliability to compare groups as:

- $\alpha \geq 0.80$ = good
- $0.60 \geq \alpha \geq 0.80$ = reasonable
- $\alpha \leq 0.60$ = bad

Content validity of the VVL is being studied by means of in-depth interviews. The results of the interviews are not reported in this paper.

Results

Reliability

Concerning the first research question on the construct, the inter-item correlation matrix of the total of 33 items in the VVL showed many negative correlations. Consequently, no overall α should be computed. All the items in the VVL do not together measure the same construct. This result was expected because the items were formulated to indicate resilient as well as non - resilient behavior.

Concerning the second question on the internal structure of the VVL, Principal Component Analysis (PCA) on the 33 items indicates three components of which two are highly interpretable. Table 1 shows the results of the PCA. The three components have a cumulative explained variance of 31%. Item distribution was based on the criterion of loadings above 0.40 on one of the components in combination with loadings lower than 0.30 on other components, which resulted in selecting out nine items from the VVL. Component 1 can be interpreted as 'active solution-focused behavior' and Component 2 can be interpreted as 'passive aggressive behavior'. Component 3 consists of only four items, which show a trend of flexible behavior and flexible negotiation of stressful circumstances. The alphas of components 'active behavior' and 'passive aggressive behavior' are reasonable if used to compare groups of people. The □ of component 'flexible behavior' is too low. This low □ is partly due to the small number of items in component. Item 7 has a high loading (0.70) on Component III and is therefore indicative for

interpretation of Component III as well as for further development of items in Component III. In the discussion section of this paper we will elaborate further on the development of the

component. Because of the low reliability and small number of items Component III will not be discussed further in the analysis for validity.

Table 1: Component loading, eigenvalues of components, number of items of component and Cronbach's alpha

Component	I	II	III
Item nr.	Loading	Loading	Loading
1	0,52		
5	0,48		
6	0,55		
8	0,44		
10	0,42		
16	0,55		
20	0,66		
23	0,52		
26	0,64		
30	0,55		
32	0,55		
2	0,55		
9	0,63		
11	0,59		
13	0,43		
15	0,42		
17	0,44		
18	0,51		
21	0,41		
24	0,60		
4		0,44	
7		0,70	
25		0,41	
33		0,50	
Cumulative % Variance explained		15 %	26% 31%
Number of items		11	9 4
Reliability α		0,77	0,69 0,41

Factor loadings smaller than .40 (item 3, 12, 14, 19, 22, 27, 28, 29 and 31) have been omitted

External validity

To answer the third question concerning the external validity of the various components in the VVL, the components were correlated with the scales of the NPV-J. Because of missing values mean scores instead of sum scores were used for the procedure. Four expectations were formulated:

i High positive correlation between resilient behavior as measured by VVL and

perseverance as measured by the NPV-J

ii. High positive correlation between non-resilient behavior as measured by the VVL and inadequacy as measured by the NPV-J.

iii. High positive correlation between non-resilient behavior as measured by the VVL and social inadequacy as measured by the NPV-J.

iv. Low or negative correlation between resilient behavior as measured by the VVL and recalcitrance as measured by the NPV-J.

In order to demonstrate a relation between resilient behavior as described by the VVL and resilient personality factors as measured by the NPV-J, the correlations between the components in de VVL and the scales in the NPV-J should be high, but not too high. If the correlations are too high one could say that the components and the scales are measuring exactly the same phenomenon. Rather, we want them to measure different aspects of the same phenomenon, namely, resilient personality factors and resilient behavior.
Table 2 shows the correlation matrix of the two reliable components in the VVL and the scales of the NPV-J.

Table 2: Correlation matrix of the components in the VVL and the scales of the NPV-J

	Active solution-focused behavior	***Passive-aggressive behavior***
Inadequacy	-0,08	0,46**
Perseverance	0,53**	-0,27
Social Inadequacy	0,07	0,19**
Recalcitrance	-0,09	0,12*
Dominance	-0,12*	0,14**

**significant at 0.01 level
* significant at 0.05 level

Active behavior
Table 2 shows a high and significant positive correlation (0.53) between 'active solution-focused behavior' as measured by the VVL and 'perseverance' as measured by the NPV-J. Studies have shown 'perseverance' as a personality characteristic related to resilient behavior (Benard, 2002; Olson, 2003). A strong correlation between active solution-focused behavior and perseverance therefore suggests that 'active solution-focused behavior' as measured by the VVL is related to resilient behavior. Confirmative validity of the component 'active solution-focused behavior' as indicator for resilient behavior is thereby demonstrated. The negative correlations between 'active solution-focused behavior' as measured by the VVL and 'inadequacy' (-0.08), 'recalcitrance' (-0.09) and 'dominance' (-0.12) as measured by the NPV-J are low, but they strengthen the discriminative validity of the component 'active solution-focused behavior' in not measuring non-resilient behavior.

Passive aggressive behavior
The high and significant correlation between 'passive aggressive behavior' and 'inadequacy' (0.46) indicates that 'passive aggressive behavior' as measured by the VVL is related to non-resilient behavior. Confirmative validity of the component 'passive aggressive behavior' as

indicator for non-resilient behavior is thereby demonstrated. The positive correlations between 'passive aggressive behavior' and 'social inadequacy' (0.19), 'recalcitrance' (0.12), and 'dominance' (0.14) are low but significant, and thereby strengthen the assumption of a relation between 'passive aggressive behavior' as measured by the VVL and non-resilient behavior. Finally, the negative correlation between 'passive aggressive behavior' and 'perseverance' (-0.27) strengthens the discriminative validity of 'passive aggressive behavior' as measured by the VVL in not measuring resilience.

Conclusion and discussion

Purpose of the study

The purpose of the nomological-instrumental study reported in this paper was the development of an instrument to identify resilient and non-resilient middle-adolescents in high school. Identification of resilient and non-resilient middle-adolescents in high school provides us the ability to study the relationship between context specific factors in schools, and the resilience or non-resilience of middle adolescents. Understanding the relation between context specific factors in schools and resilience or non-resilience in middle-adolescents could point to effective interventions in schools to promote resilience in middle-adolescents and thereby reduce school drop-out of 'middle-adolescents at risk' in the Netherlands.
For this purpose, the VVL was developed, piloted and studied in respect of internal structure by means of Principal Component Analysis. Additionally, the relation between the internal structure of the VVL and the construct of resilience was studied by means of a Correlation analysis between the VVL and a personality questionnaire (NPV-J).
Principal Component Analysis is characterized by its exploratory function, which implies initiating further research. The validation of the VVL has partly succeeded. In the conclusions of this nomological instrumental study, we will especially focus on the implication of further research of the VVL and its components.

Validation of the VVL

Two components in the VVL have been validated for measuring resilient and non-resilient behavior. The first component, Active solution-focused Behavior, represents resilient behavior. The second component, Passive Aggressive Behavior, represents non-resilient behavior. The third component has not yet been validated, but the items with the highest loadings on this third component, especially Item 7 (when I have had a bad day at school, then I will do something I like in the evening), and Item 33 (If things don't go my way, then I keep on going anyway) show a trend of flexible behavior in dealing with stressful experiences. More items that describe flexible behavior in dealing with stressful circumstances should be formulated in order to further develop the third component. Development of the third component is important because its content seems to represent the flexible negation that we described in our definition of resilience. Flexibly negotiating a stressful situation could sometimes become evident in active solution-focused behavior but also, sometimes, in postponement of action in terms of withdrawal. Results from the in-depth interviews with resilient and non-resilient middle adolescents will be used for development of additional items for the third component.

Practical implications

Middle-adolescents could show Active solution-focused Behavior in combination with Passive Aggressive Behavior. This combination would not represent resilient behavior. Therefore, for practical usage of the VVL in identifying resilient and non-resilient middle-adolescents in school, the validation of the VVL implies (until such time as when Component 3 will have been developed further) that middle-adolescents in high school that score high on Active solution-focused Behavior in combination with a low score on Passive Aggressive Behavior can be considered resilient. Middle-adolescents with a low score on Active solution-focused Behavior and a high score on Passive Aggressive Behavior can be considered non-resilient. This balance of scores on Component 1 and 2 will obviously need to be revised to combine meaningfully with Component 3 once it has been developed.

An important remark that has to be made about identification of resilient and non-resilient middle adolescents is that the VVL should not be used as a diagnostic instrument focused on characteristics for improvement within the individual. Labeling middle-adolescents as lacking resilience could imply a deficit model in which the middle-adolescent in person is required to change and adapt to the existing school environment. Rather, we should use the VVL to consider ways in which the school environment can be adjusted into an environment in which the middle-adolescent could be supported in dealing constructively with adversities.

Scientific implications

Qualitative studies

As perception of the availability and nature of support is crucial for utilization of support, developing context specific interventions to promote resilience in middle-adolescents in school requires studying middle-adolescents' own perceptions of the contribution of their school environment to their state of resilience. This emphasis on the importance of perception indicates mainly a qualitative approach (Marshall & Rossman, 1999). The perceptions of resilient and non-resilient middle-adolescents on their school environment could be studied by means of e.g. in-depth interviews or participatory observation.
Additionally, qualitative studies with resilient and non-resilient middle-adolescents could provide information for further studying the content-validity of the VVL and improving the VVL by formulating additional items.

Quantitative studies

Formulating additional items for the VVL and especially for the third component could improve the VVL as an instrument to identify resilient and non-resilient middle-adolescents. Future quantitative studies could focus on improvement of reliability and the validity of the VVL.

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Appendix 1

Translated examples of items in the VVL

Examples of items that have high loadings on Component 1, Active problem-focused Behavior, translated in English.

20. When I have to make a difficult decision then I make a list for myself of all the possibilities and then I choose the best one. (0.66)
26. If my parents get angry with and they are right then I apologize. (0.64)
16. If a teacher gets angry with me then I try to concentrate more on my schoolwork. (0.55)

Examples of items that have high loadings on Component 2, Passive aggressive Behavior, translated in English.

9. If I am on bad terms with a friend of mine then as a consequence, I am very unfriendly to my family at home. (0.63)
24. If I feel bad about problems at school then as a consequence, I don't go to school the next day. (0.60)
11. If a feel sad, then that feeling stays with me for days. (0.59)

Examples of items that have high loadings on Component 3, Flexible Behavior, translated in English.

7. If I have had a bad day at school then at night I will do something I like. (0.70)
33. If things don't go my way then I keep on going anyway. (0.50)