

# **Positive psychology within the educational context**

The impact of a school-based positive psychology intervention on the well-being of  
primary and secondary school students in the Netherlands

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## Abstract

**Aim:** An increased focus on the mental health and well-being of young people has led to the integration of positive psychology into the educational context. Growing evidence concerning the use of school-based positive psychology interventions (SB-PPIs) shows that these interventions can positively effect the mental health and well-being of students. This study aims to explore the impact of an SB-PPI on students' well-being.

**Method:** A mixed-methods research design was adopted, using a within-subject design. Students participated in the SB-PPI, with 271 students responding to the quantitative measurement (Kidsscreen-27 [KS-27]) and 255 students responding to the qualitative measurement (best possible selves [BPS]). The Wilcoxon signed rank test was used to analyse the impact of the SB-PPI on students' well-being, and the Mann-Whitney test was used to analyse the difference in gender and type of school. The BPS of the students were classified in PERMA-themes (i.e., Positive Emotion, Engagement, Positive Relationships, Meaning, Accomplishment), non-PERMA-themes (i.e., negative emotion, assets, factual descriptions) and the themes general and behavioural descriptions of the BPS.

**Results:** This study finds the SB-PPI has a significant positive impact on autonomy and relationships with parents, especially for boys. Furthermore, it records a significant decrease in negative emotion, assets and factual descriptions. The students also showed an increase in behavioural intention; they showed a stronger intention to conduct behaviours that lead to greater well-being.

**Conclusion:** The overall findings suggest that students' mental health and well-being can be enhanced by using positive psychology in the educational context; this study shows that SB-PPIs may have a positive impact on students' well-being. The SB-PPI that was employed in this research seems to have a direct positive impact on several aspects of students' well-being, and the intervention may, in the long term, lead to even greater positive outcomes for students' mental health. Further research is required to establish the effectiveness of SB-PPIs in the educational context.

## Introduction

Since the beginning of the 21st century, increased focus has been placed on youth development; the well-being and mental health of children and adolescents has become an important point of interest for researchers, psychologists, educational practitioners and authorities (Chodkiewicz & Boyle, 2017). The World Health Organization (WHO) (2005) has indicated in the '*Child and Adolescent Mental Health Policies and Plans*' the need to promote the mental health of young people. According to the WHO (2005), child and adolescent mental health "is the capacity to achieve and maintain optimal psychological functioning and well being" (p. 7). The International Commission on Education for the Twenty-first Century (Delors et al., 1996) has also emphasized the importance of the mental health and well-being of children and adolescents. Delors et al. (1996) state that education has an important role to play in the personal and social development of young people. In order to prepare students for the challenges of the 21st century, education must be based on four pillars: learning to know, learning to do, learning to live together and learning to be.

Alongside these developments is the rise of positive psychology, which is the science of well-being and optimal functioning (Marques, Pais-Ribeiro, & Lopez, 2011). Positive psychology is suitable to the educational setting in understanding and developing the mental health and well-being of young people and school culture as a whole (Green, Oades, & Robinson, 2011; Marques et al., 2011). According to Chodkiewicz and Boyle (2017), developments among researchers, psychologists and the educational setting have led to the "support for a new era of student-centric teaching practices dedicated to enhancing student wellbeing" (p. 60) by integrating positive psychology into the learning curriculum.

### *Mental problems*

The WHO (2005) clarifies the need to promote the mental health of students; they estimate that 20% of children and adolescents have mental problems or mental disorders. A national study of the health and well-being in Dutch primary (1597) and secondary (5571) school students, conducted by De Looze et al. (2014), found that 15.4% of the students in primary school and 20% of the sampled students in secondary school experienced emotional problems, such as mood-, anxiety-, and psychosomatic disorders. Furthermore, primary and secondary school students reported behavioural problems (13.6% and 13.3%, respectively), hyperactivity (24% and 27.3%), and problems with peers (14.3% and 12.7%).

Mental health problems among young people can have negative consequences, such as a higher risk of psychopathology in adulthood (Reef, van Meurs, Verhulst, & van der Ende, 2010; Rutter, Kim-Cohen, & Maughan, 2006) and a higher risk of school-related problems (De Looze et al., 2014). According to the WHO (2005), early intervention is important because interventions can be aimed at the developmental stages in which specific mental disorders are likely to first appear and since interventions can reduce the likelihood of long-term impairment and the burden of mental problems. Furthermore, children and adolescents rarely seek help on their own (WHO, 2005), since the ability to recognize a mental problem and to judge whether professional help is necessary are complex skills for young people (Wilson, Deane, & Giarrochi, 2005). In addition, barriers in help-seeking behaviour include the fear of stigma and social exclusion (Aisbett, Boyd, Francis, Newnham, & Newnham, 2007), the fear of confidentially breach (Atkinson, Schattner, & Margolis, 2002), or the belief that the person is responsible for solving his or her own problem (Wilson et al., 2005).

### *Mental health*

Mental health and mental problems are two distinct, but related factors (Keyes, 2005; Westerhof & Keyes, 2009). Therefore, the absence of mental problems does not entail the presence of mental well-being. Conversely, mental problems can exist alongside mental well-being. Hence, students both with and without mental problems can benefit from well-being lessons. Seligman, Ernst, Gillham, Reivich and Linkins (2009) state that well-being should be integrated in school, because it can be an antidote to depression, a way to promote life satisfaction and a way to improve learning and creative thinking among students. Schools are pre-eminently suitable in teaching students about well-being because they can reach many children (Seligman et al., 2009) and are environments with daily and direct contact with the children and their parents (Visani, Albieri, & Ruini, 2014). Well-being can be integrated into schools by creating a well-being approach for the whole school culture, in which positive psychology is integrated (Waters, 2011; White & Murray, 2015). To allow students to benefit optimally from the effects of positive psychology and to preserve these effects, students need to be exposed to well-being lessons in various areas of their schooling and across multiple school years. Furthermore, school staff must be trained in the principles of positive psychology (Waters, 2011). White and Murray (2015) speak of positive education, “an umbrella term used to describe empirically validated and scientifically informed interventions and programs from positive psychology that have an impact on student well-being” (p. 10).

In this study, these interventions are referred to as school-based positive psychology interventions (SB-PPIs). According to Visani et al. (2014), it is important to offer SB-PPIs to children at a young age, because this is a crucial period in which students are developing (Chodkiewicz & Boyle, 2017) and usually the first onset of mental health problems is in childhood or adolescence, making it important to aim interventions at the youth (Kessler et al., 2005). Well-being education “is not about fixing what is wrong with students. It is about developing their strengths and adopting a widespread preventative model for well-being” (White & Murray, 2015, p. 6). SB-PPIs focus on strengthening the learning ability of students, addressing mental disorders and providing students with life skills (Chodkiewicz & Boyle, 2017).

### *The impact of school-based positive psychology interventions*

Growing evidence shows that SB-PPIs can have positive effects on the mental health, well-being and academic performance of students (Chodkiewicz & Boyle, 2017). Durlak, Weissberg, Dymnicki, Taylor and Schellinger (2011) have conducted a meta-analysis of the effects of social and emotional learning (SEL) programs, a systematic framework for enhancing students’ social, emotional and academic learning (Casel, 2018) which is related to SB-PPIs. Durlak et al. (2011) have presented findings on 213 SEL programs (involving 270,034 students), using studies that included an experimental and control condition. They conclude that compared to controls, students who participated in SEL programs had improved social-emotional skills (e.g., empathy), improved positive attitudes (e.g., self, others, school), improved social behaviour, better academic performances and less emotional distress and fewer conduct problems. Taylor, Oberle, Durlak and Weissberg (2017) have also conducted a meta-analysis of the effects of SEL, presenting findings on 82 SEL programs (involving 97,406 students), including studies that used an experimental design. Taylor et al. (2017) have found similar effects as Durlak et al. (2011) did, concluding that students benefited from SEL more than six months post-intervention.

Waters (2011) has conducted a meta-analysis of the effects of SB-PPIs, including 12 SB-PPIs, using studies that included an experimental design. Waters (2011) concludes that SB-PPIs are significantly related to the well-being, relationships and academic performance of students. For instance, Shoshani and Steinmetz (2014) have evaluated a one-year SB-PPI, using an experimental design (involving 1,038 students); compared to controls, students who participated in the SB-PPI showed an increase in self-esteem, self-efficacy and optimism, as well a decrease in symptoms of anxiety, depression and general distress. Conducted by Suldo

et al. (2015), a within-subject design on an 11-session class-wide positive psychology intervention showed an improvement in students' positive affect, life satisfaction and satisfaction with the self, others and the environment. Shoshani, Steinmetz and Kanat-Maymon (2016) deployed a two-year longitudinal evaluation of an SB-PPI, using an experimental design (involving 2,517 students). Compared to controls, students in the experimental condition showed an increase in positive emotions, peer relationships, emotional engagement in school, cognitive engagement and grades. Furthermore, controls showed a significant decrease in positive emotions, cognitive engagement and no changes in the other variables.

Research on hope and self-control shows similar effects. Marques et al. (2011) have found in a longitudinal study that hope predicts academic achievement and that life satisfaction predicts mental health. Self-control was found to correlate with students' life balance, flow (Kuhnle, Hofer, & Kilian, 2012), academic achievement (Duckworth & Seligman, 2005; Kuhnle et al., 2012), subjective well-being (Ronen, Hamama, Rosenbaum, & Mishely-Yarlap, 2016) and the amount of stress, optimism and mastery (Converse, Beverage, Vaghef, & Moore, 2018). Kern, Adler, Waters and White (2015), using a single measurement strategy, have found that sampled students with higher engagement, perseverance, optimism and happiness experienced more vitality and higher levels of hope showed less somatic symptoms.

### *Positive psychology*

Positive psychologists have developed various interventions aimed at enhancing students' mental health and well-being. For example, the best possible selves (BPS) intervention—developed by King (2001) and used to measure students' well-being in the present study—is a writing exercise in which individuals write about their future, imaging their BPS. According to Markus and Nurius (1986), possible selves “derive from representations of the self in the past and they include representations of the self in the future. They are different and separable from the current or now selves, yet are intimately connected to them” (p. 954). They can include hopes, fears and fantasies about the future. Thinking about possible selves can provide a direction and impulse for future behaviour, change and development (Markus & Nurius, 1986). A meta-analysis of 30 studies to the effectiveness of the BPS (Loveday, Lovell, & Jones, 2018) concluded that the BPS is an effective intervention for increasing health, well-being, optimism and positive affect. For example, studies of the BPS using an experimental and control condition have found an increase in positive affect (King, 2001; Layous, Nelson

& Lyubomirsky, 2013; Peters, Flink, Boersma, & Linton, 2010; Sheldon & Lyubomirsky, 2006), optimism (Meevissen, Peters, & Alberts, 2011; Peters et al., 2010; Peters, Meevissen, Hanssen, 2013), life satisfaction (Boehm, Lyubomirsky, & Sheldon, 2011; Peters et al., 2013), and flow and feelings of relatedness (Layous et al., 2013). For the young population, Owens and Patterson (2013) have studied the effectiveness of the BPS for primary school students. Compared to controls, students who were in the BPS condition showed a significant increase in self-esteem; however, no significant changes were found in life-satisfaction and affect.

### *Purpose of the study*

This study takes Seligman's (2011) definition of well-being as a framework. In his well-being theory, Seligman (2011) states that well-being is the subject of positive psychology: "the topic is a construct – well-being – which in turn has several measurable elements, each a real thing, each contributing to well-being, but none defining well-being" (p. 15). The elements that constitute well-being are Positive Emotion, Engagement, Positive Relationships, Meaning and Accomplishment, for this the acronym PERMA is used. The elements are defined and measured independently of the other elements, people pursue the elements for their own sake, and each of the elements contributes to the well-being of people (Seligman, 2011). Positive Emotion is about the pleasant life: hedonic feelings of happiness, such as pleasure, warmth, life satisfaction, joy and comfort. Engagement refers to active involvement in domains such as work, school or an activity; it is about flow. Positive Relationships concern the feeling of being socially integrated and supported by others and the belief that one is cared for, loved, esteemed and valued. Meaning refers to belonging to and serving something that is bigger than the self; it is about having a purpose in life, believing life is valuable and searching for meaning. Lastly, Accomplishment regards the pursuit of success, achievement, winning and mastery; it regards making progress towards goals, feelings of pride and having a sense of achievement (Forgeard, Jayawickreme, Kern, & Seligman, 2011; Seligman, 2011).

This study aims to investigate the experiences of Dutch primary and secondary school students with an SB-PPI, with regard to the impact of an SB-PPI on students' well-being. In the pursuit of this aim, it investigates the following research question: '*What are the differences in the well-being of students before and after participation in an SB-PPI?*' The following sub-questions derive from this main research question:

Sub-question 1: What are the differences in the self-reported signs of well-being?

Sub-question 2: What are the differences in the qualitative descriptions of well-being; the descriptions of the BPS?

## Method

### *Study design and ethics approval*

A mixed-methods research design was deployed, using a within-subject design. Quantitative and qualitative methods were chosen in order to use the strengths of both methods and to obtain distinct but complementary data (Clark & Ivankova, 2016; Creswell & Clark, 2017). Both methods provided insights into the impact of an SB-PPI on students' well-being; the methods were implemented simultaneously and were of equal importance. Ethics approval for this study was obtained from The Ethics Committee of the University of Twente (Behavioural, Management, and Social Sciences). The parents of the students gave their passive informed consent to use the data of their children for research purposes.

### *Participants*

Participants were students in the sixth, seventh and eighth grades of primary education and in the first and second class of secondary education. Students were recruited by implementing the SB-PPI at primary and secondary schools. Inclusion criteria were school stage (end of primary school – the beginning of secondary school) and having a thorough command of the Dutch language. To the quantitative measurements, 271 students responded, consisting of 148 boys (54.6%) and 123 girls (45.4%), with a mean age of 12 ( $M = 12.13$ ,  $SD = 1.17$ ) and from which 201 students (74.2%) went to primary school and 70 students (25.8%) to secondary school. To the qualitative measurements, 255 students responded, consisting of 133 boys (52.2%) and 122 girls (47.8%), with a mean age of 12 ( $M = 12.26$ ,  $SD = 1.18$ ), of which 179 students (70.2%) went to primary school and 76 students (29.8%) to secondary school.

### *Procedure*

Schools were recruited through a training session for teachers, for which schools could register voluntarily. This training took place at the beginning of the school year (2016–2017) and concerned information about the SB-PPI. After the training, the researchers approached the schools to implement the SB-PPI and to take part in the study. Subsequently, the questionnaires of the pre-test (T0) were sent to the schools' teachers (January 2017). The teachers had the students complete the quantitative and qualitative questionnaire (paper and pencil) and then sent them back to the researchers. Subsequently, the teachers carried out the SB-PPI, and afterwards the same two questionnaires as at T0 were sent to the teachers for the post-test (T1) (June 2017). The teachers had the students complete the two questionnaires and

then sent them back to the researchers. The researchers linked T0 and T1 of the students to each other on the basis of demographic variables. Students were removed who had not completed both of the questionnaires.

Eighteen primary schools and seven secondary schools volunteered to participate in this study. Despite reminders, only five primary and two secondary schools responded to both T0 and T1. The main reason given for non-response by schools was that they had done too few lessons of the SB-PPI; however, most schools did not provide reasons for their non-response. Of the schools that participated in the study, only two primary schools provided information about the number of lessons conducted ( $M = 16.15$ ,  $SD = 4.93$ ). The number of schools that dropped out of the study and the insufficient clarity about the number of lessons conducted meant that there may be low implementation fidelity in this study.

### *Intervention: The SB-PPI*

The Dutch version of *Positive Psychology in Action* (i.e., Aan de Slag met Positieve Psychologie) from Boniwell and Ryan (2012) was deployed. Boniwell and Ryan (2012) developed personal well-being lessons for secondary school students, aged 11–15. The purpose of this SB-PPI is to improve the well-being of students. The intervention consists of 34 lessons, divided into six blocks: positive self, positive body, positive emotions, positive mindset, positive direction and positive relationships. The lessons are provided with an outline lesson plan, handouts for the students and support in PowerPoint. The SB-PPI is based on well-being theory and scientific research related to well-being, and information regarding these subjects is available for the teachers. Teachers have flexibility in carrying out the SB-PPI. They are free to choose the number and order of the lessons (Boniwell & Ryan, 2012). An overview of the lessons (Boniwell & Ryan, 2012, p. xxi) is included in Appendix A.

### *Measures*

#### *1. Self-reported signs of well-being (quantitative)*

Participants filled out the Kidsscreen-27 (KS-27), a self-report questionnaire, which measures health-related quality of life in (chronically ill) children and adolescents, aged 8–18 (Ravens-Sieberer et al., 2007). The KS-27 gives an estimate of participants' subjective health and well-being. The questionnaire consists of 27 questions divided into five subscales: physical well-being, psychological well-being, autonomy and parent relation, social support and peers, and school. The subscales include between four and seven items each, using a 5-point Likert scale: 1 (*never*) to 5 (*always*). Physical well-being refers to the participants' level of physical

activity, energy and fitness, using items such as follows: ‘Have you been able to run well?’. Psychological well-being measures positive emotions, life satisfaction and the absence of negative emotions, for example: ‘Have you felt sad?’. The subscale autonomy and parent relation measures the quality of the interaction students have with parents or carers and whether the participants feel love and support from their family. Furthermore, it measures the person’s perceived level of autonomy, an example item is: ‘Have your parent(s) had enough time for you?’. Social support and peers examines the quality of the social relationships with friends and peers, using items such as ‘Have you had fun with your friends?’. The subscale school explores the participants’ perceptions of their relationships with teachers and their perceptions of their cognitive capacity, learning, concentration and feelings about school: for instance, ‘Have you been happy at school?’. The internal consistency, test-retest reliability and validity of the KS-27 are sufficient-to-good (Ravens-Sieberer et al., 2007). In this study, the Cronbach’s alpha of the total scale was 0.87 for T0 and 0.88 for T1. The only item that was removed due to poor reliability was item 3.1 ( $\alpha = 0.37$ ). Excluding this item, the Cronbach’s alphas of the subscales ranged from 0.67 to 0.81.

## 2. *Qualitative descriptions of well-being (qualitative)*

Participants filled out the BPS, which is suitable for children, students and adults. Individuals tend to be motivated to complete this exercise, offering more productive data for researchers (Loveday et al., 2018). In this study, the BPS was used as an outcome measure in identifying signs of well-being in the BPS of the students. The students completed the BPS before they participated in the SB-PPI and again after completing the well-being lessons. In filling out the BPS, students were asked to read the following instruction:

*‘Imagine yourself in the future, about a year later than now and you do all kinds of things that you can only dream about now. Take a few minutes to really think about how you are in a year and what your life looks like then. Think about how it goes at school and how it goes at home. Also, think about how your family and friends are doing. If you have thought carefully about it, you can write it down below’.*

## *Analyses*

The quantitative data were digitized and analysed using SPSS 23 (i.e., Statistical Products and Service Solutions; IBM). Missing items in the questionnaires were replaced by the average of the observed values for that item (*single-imputation method: imputing unconditional means*). Twelve students were not included in the analyses due to strongly deviating patterns on the

mean of the difference score between T0 and T1 ( $2SD < M < 2SD$ ). The data were not normally distributed, so non-parametric analyses were performed. A *Wilcoxon signed rank test* was used to analyse differences in scores between T0 and T1. Differences in gender and type of school were assessed using a *Mann-Whitney test*, with the gender and type of school as independent variables and the scores of the students as dependent variables. All analyses maintained a significance level of  $p = 0.01$ .

The qualitative data were digitized and analysed using Atlas.ti. The researchers developed the coding scheme both inductively and deductively. For the deductive approach, the theory of Seligman (2011) was used. For the inductive approach, Braun and Clark's (2006) thematic analysis was used. For the development of the coding scheme, the researchers (D.C.M., & J.M.G) independently coded five BPS and discussed the difference; consensus and a good interrater reliability ( $K = 0.85$ ) were achieved. The first step of the analysis was screening the data on PERMA-signs; the students' answers were placed in the themes Positive Emotion, Engagement, Positive Relationships, Meaning and Accomplishment. Second, the data that could not be placed in these themes were coded into the non-PERMA themes: negative emotion, assets and factual descriptions. Third, it emerged that the students' answers could be subdivided into the themes general and behavioural. The PERMA signs were therefore again analysed and divided in the general or behavioural theme. See Appendix B, Table 5 for a detailed explanation of the coding scheme.

## Results

### *Quantitative outcomes of the school-based positive psychology intervention*

The outcomes for the health-related quality of life analyses are presented in Table 1. The health-related quality of life was not changed significantly after participation in the SB-PPI, with the exception of Subscale 3 (autonomy and parent relation) where there was a significant increase ( $Z = -3.33$ ;  $p = 0.001$ ). Regarding gender, a significant influence was found on the total score of the health-related quality of life. The difference score between boys and girls was significant ( $Z = -2.51$ ;  $p = 0.012$ ); boys showed a slight increase in health-related quality of life, and girls showed a slight decrease. In particular, boys showed more progress on Subscale 3 (autonomy and parent relation) ( $Z = -2.32$ ;  $p = 0.021$ ), and girls showed a slight decrease on Subscale 5 (school) ( $Z = -2.39$ ;  $p = 0.017$ ). The information regarding gender is shown in Appendix C, Table 6. Regarding of type of school, there was no significant influence on the total score of the health-related quality of life.

Table 1

*Scores for all outcomes measures of the KS and the results of Wilcoxon signed rank test*

	<i>N</i>	Subscale 1 <sup>1</sup>	Subscale 2 <sup>2</sup>	Subscale 3 <sup>3</sup>	Subscale 4 <sup>4</sup>	Subscale 5 <sup>5</sup>	Total 1-5
Total T0	271	20.77 (3.03)	30.02 (3.44)	26.20 (3.39)	17.27 (2.65)	16.57 (2.29)	110.83 (10.48)
Total T1	271	20.64 (3.25)	29.97 (3.62)	26.81 (2.96)	17.55 (2.32)	16.33 (2.20)	111.30 (10.41)
<i>p</i> Value*	271	.460	.791	.001*	.067	.053	.281

*Note.* Mean (S.D) are presented; \* difference between scores of T0 – T1, significance level at 0.01; <sup>1</sup> = physical well-being; <sup>2</sup> = psychological well-being; <sup>3</sup> = autonomy and parent relation; <sup>4</sup> = social support and peers; <sup>5</sup> = school.

The outcomes of the PERMA and non-PERMA analyses are presented in Table 2. The number of PERMA signs was not changed significantly by the end of the school year; however, there was a significant decrease in the non-PERMA signs ( $Z = -5.86$ ;  $p < 0.001$ ). All the non-PERMA signs decreased significantly; negative emotions ( $Z = -2.95$ ;  $p = 0.003$ ), assets ( $Z = -3.31$ ;  $p = 0.001$ ) and factual descriptions ( $Z = -3.49$ ;  $p < 0.001$ ). There were no significant differences between boys and girls or between primary and secondary school students.

Table 2

*Scores of the BPS and the results of Wilcoxon signed rank test*

	<i>N</i>	PERMA	Non- PERMA	Negative emotions	Assets	Factual descriptions
Total T0	255	4.00 (1.90)	1.16 (1.24)	0.47 (0.78)	0.28 (0.71)	0.42 (0.64)
Total T1	255	3.90 (1.79)	0.66 (0.85)	0.31 (0.63)	0.12 (0.40)	0.24 (0.52)
<i>p</i> Value*	255	.330	<.001*	.003*	.001*	<.001*

*Note.* Mean (S.D) are presented; \* difference between scores of T0 – T1, significance level at 0.01.

## *Qualitative outcomes of the school-based positive psychology intervention*

### *Signs of PERMA*

The number of PERMA signs found in the BPS of the students is presented in Table 3. In both T0 and T1, students showed most signs of the themes Positive Relationships, Accomplishment and Positive Emotion. Furthermore, some students showed signs of Engagement and a few students showed signs of Meaning.

Table 3

#### *Number of PERMA-signs of the BPS*

	T0	T1	Raw difference*
Positive Emotion	150	165	15+ (10%)
Engagement	42	46	4+ (9.52%)
Positive Relationships	447	426	21- (4.7%)
Meaning	4	4	0 (0%)
Accomplishment	375	352	23- (6.13%)
Total	1018	993	25- (2.46%)

*Note.* \* = difference in number of codes between T1-T0; + = increase; - = decrease.

In the theme Positive Emotion, a substantial number of students described how it went with them in general; for example, they mentioned being happy, healthy or satisfied. Some of the students exhibited satisfaction more indirectly. That is, they mentioned that they wanted or hoped that their lives would stay the same; for example, they wanted to live in the same house. Many of the students exhibited positive emotions more indirectly by describing life events and circumstances that led to positive emotions, such as going on vacation, getting pets and favourable school times, as in the case of a girl who experienced positive emotions due to multiple events in her life:

‘I lost a few pounds due to handball and healthy eating. #pride! And we are going to Spain! In addition, we have addressed our garden. And the dance school now also has ballet lessons on the days that suit us. My life has become fantastic.’

[Participant 132, T1, girl, primary education, theme Positive Emotion]

In the theme Engagement, the students mentioned what hobbies and sports they practised, and they expressed their love or interest in activities, such as gaming, fishing and making music. In addition, a few students expressed that they wanted or hoped to do an activity more often, or they expressed what they hoped for in carrying out activities. For example, a boy mentioned that he hoped to catch a large fish.

In the theme Positive Relationships, many of the students mentioned the people who were part of their social network and gave descriptions of these persons. The students wrote especially about their family members (including pets) and friends, and some described their classmates and teachers. Many students wrote about the transition from primary to secondary education, expressing that they wanted or hoped for new friendships or to stay friends with people they already know and like. Furthermore, students expressed their appreciation for their loved ones and hoped for health and happiness for them. Some students expressed this more indirectly by describing that they hoped that nobody in their family would die. Conversely, students felt cared, loved, valued or supported by their relationships, for example, by describing that their parents were proud of them. Finally, many of the students described that they wanted or hoped to maintain the contact with their relationships. Students' signs of Positive Relationships can be illustrated as follows:

'I hope that I am still friends with my current friends and make some new friends 😊.'  
[Participant 235, T0, girl, secondary education, theme Positive Relationships]

'I live alone with my father. My father and mother did not interact well with each other. My parents divorced when I was about six years old; however, it goes well this way. Hopefully, we will go to Thailand. My mother and brother of five [years old] live over there. My mother had a little insect plantation. Little crickets, they are really delicious! My grandmother is as healthy as a fish. She is also almost a century old! I certainly have a lot of friends. Friends are the most important!'  
[Participant 27, T0, girl, primary education, theme Positive Relationships]

In the theme Meaning, three students wrote about something that was bigger than themselves. One student fantasized about donating money to a cancer fund, and two students wrote about their environment and what they wanted for their environment.

In the theme Accomplishment, many students named their school, class and school level or described what they wanted or hoped for in this area. The students wrote about their

progress in school (grades) and their desired goals. In addition, some students mentioned that they wanted to do their best in school. Some of the students mentioned longer-term goals, such as becoming a doctor or lawyer. Furthermore, many students wrote about their sports progress and their desired goals, such as becoming a professional sportsman or being recruited by a higher-tier team. For example, one participant described her progress in study and sports:

‘Next year, I am even better at badminton and I become first in Limburg. It goes very well at school, and I find things getting easier. I am then in Group 8! I looked at Raayland College, and I want to go there and my school advice is havo/vwo [educational level]!’

[Participant 174, T1, girl, primary education, theme Accomplishment]

#### *Behavioural signs of PERMA*

The number of general PERMA signs and behavioural PERMA signs in the BPS of the students is presented in Table 4. In the general theme, the students gave general descriptions about different life domains, and PERMA signs emerged from these general descriptions. In the behavioural theme, the students wrote their BPS in a ‘behavioural’ way; the students showed behavioural control and intention in different domains of life. The students wrote about what kind of behaviour they would use or had used and what they would do or had done. PERMA-signs emerged from these behavioural descriptions. Overall, the students wrote their BPS in a general way; however, there was a pattern shift in T1; compared with T0, students wrote their BPS more in a behavioural way. The pattern shift emerged especially in the themes Positive Emotion, Positive Relationships and Accomplishment.

In the theme Positive Emotion, at T1 students described more the things they would do, or had done, that prompted positive emotions. For example, doing fun things, making good choices with regard to post-secondary schools and cultivating more positive behaviour. For example, one student mentioned:

‘When it is my birthday, I am not going to have children’s parties, only big people parties’.

[Participant 23, T0, boy, primary education, theme Positive Emotion]

Table 4

*Number of general PERMA-signs and behavioural PERMA-signs of the BPS*

	T0	T1	Raw difference*
<b>Positive Emotion</b>			
<i>General</i>	143	154	11+ (7.69%)
<i>Behavioural</i>	7	11	4+ (57.14%)
<b>Engagement</b>			
<i>General</i>	30	33	3+ (10%)
<i>Behavioural</i>	12	13	1+ (8.33%)
<b>Positive Relationships</b>			
<i>General</i>	376	334	42- (11.17%)
<i>Behavioural</i>	71	92	21+ (29.58%)
<b>Meaning</b>			
<i>General</i>	2	1	1- (50%)
<i>Behavioural</i>	2	3	1+ (50%)
<b>Accomplishment</b>			
<i>General</i>	327	294	33- (10.09%)
<i>Behavioural</i>	48	58	10+ (20.83%)

*Note.* \* = difference in number of codes between T1-T0; + = increase; - = decrease.

Some students showed behavioural signs of Engagement. Instead of giving descriptions of activities and hobbies, students mentioned at T1 more an intention to do a certain activity or hobby. Some students named their behaviour in carrying out activities; they indicated that they spent much time gaming, reading, playing sports or making music, or they said they were about to spend much time on these kinds of activities or would continue to do so. Occasionally, a student gave a passionate statement about how an activity was part of life, as in the case of a student who wrote that dancing was her life and that she participated in many shows. The behavioural intention of students is shown in the following citation:

‘Then I still play in the D1 [Division 1] at EVV [sports club]. When playing tennis, I do not play competitively anymore; however, I will keep training’.

[Participant 26, T1, boy, primary education, theme Engagement]

In the theme Positive Relationships, the students gave at T1 more descriptions of their behaviour within their relationships instead of merely describing their relationships. The students expressed the intention to maintain contact with their relationships, by visiting their family members and friends and by doing activities together (e.g., going out for a day, celebrating holidays, going to the city, playing outside, gaming, and doing homework). Regarding friendships, many students wrote that they would keep in touch with their friends from primary education by meeting up with each other and keeping contact through social media. At the transition to secondary education, students stated that they were going to make new friends or had made new friends. Furthermore, some students mentioned that they would treat others nicely, respectfully and with common courtesy or that they would not argue with others and would resolve conflicts. Other students expressed that they would take care of others; for example, one student wrote he would stand up for his friends if they were in trouble. The behavioural signs of Positive Relationships are illustrated in the following:

‘And of course, I also want to do fun things with my family. Therefore, I am going to visit my family.’

[Participant 3, T0, boy, primary education, theme Positive Relationships]

‘I am going to make many new and reliable friends at my future school! However, Evelien is of course 4-ever my BFF (best friend forever)! I am going to have a lot of contact with Evelien. We are going to introduce our friends to each other, and if we like each other, we will become one big club of friends. I think and I hope that I get a boyfriend!’

[Participants 140, T1, girl, primary education, theme Positive Relationship]

In the theme Meaning, five students showed behaviour that contributed to something bigger than themselves. Two students showed commitment to charity, and three students had an active attitude in their faith; for example, one student wrote:

‘Next year, I will learn the Koran completely.’

[Participant 58, T0, boy, primary education, theme Meaning]

In the theme Accomplishment, many of the students wrote that they were going to do their best in school by completing their homework and by investing time in school. Several

students passionately stated that they were going to fight for their school achievements. Furthermore, some students mentioned that their behaviour at school went well, for example, that doing homework went very well. Some of the students identified specific behaviour that would help them achieve their schools' goals, such as concentrating and being quiet, asking for help, practising at home, working ahead and paying less attention to their telephone. Regarding sports, some students indicated that they were doing their best or practised often. The behavioural signs of Accomplishment are demonstrated in the following excerpts:

'I think my behaviour will change, and that I am more preparing for secondary school. For example; reading books, practising or working more'.

[Participant 42, T1, boy, primary school, theme Accomplishment]

'Now it goes well with rugby. Next year, I will train hard to get into the first team. I just keep training in the holiday to stay fit and to become bigger.'

[Participant 231, T1, boy, secondary education, theme Accomplishment]

## **Discussion and conclusion**

In this study, Dutch primary and secondary school students' experiences with an SB-PPI were examined, with regard to the impact on the students' well-being. Both quantitative and qualitative measurements of the students' well-being were deployed. It was found that the SB-PPI had a positive impact on students' autonomy and relationships with parents, on the amount of negative emotions students experienced and on students' behavioural intention. Hence, both the quantitative and qualitative measurements provided support for the effectiveness of SB-PPIs.

The SB-PPI had no significant influence on the total health-related quality of life of the students. However, there was a small but consistent, significant increase in students' autonomy and relationships with parents, meaning that the students had increased levels of perceived autonomy and increased feelings of positivity concerning their relationships with their parents. This increase was observed especially among boys, in contrast to the findings of most other research, which has found stronger positive effects for girls rather than for boys (Dawood, 2014). This divergence may be due to girls experiencing puberty earlier than boys do (Dorn & Biro, 2011), which may perhaps put pressure on their relationships with the parents. In addition, the five enabling elements of well-being were found, supporting

Seligman's theory (2011). However, despite that students showed most signs of Positive Relationships, Accomplishment and Positive Emotion, in particular, no significant changes were found in these signs of well-being. The unchanged total health-related quality of life and signs of well-being are in contrast with other researchers' findings of progress in positive emotion, relationships (Shoshani et al., 2016; Suldo et al., 2015;), life satisfaction (Suldo et al., 2015), and attitudes and satisfaction with the self and school (Durlak et al., 2011; Suldo et al., 2015; Taylor et al., 2017). Contrary to the unchanged signs of well-being, the SB-PPI led, however, to a decrease in negative emotions, corresponding to other studies that found a significant decrease in anxiety, depression and general distress (Durlak et al., 2011; Shoshani & Steinmetz, 2014; Taylor et al., 2017). Furthermore, the students significantly less often mentioned assets and factual descriptions, this might be due to the students being more focused on actual behaviour, since the SB-PPI led to increased behavioural intention, leaving less room for assets and factual descriptions. Overall, the findings of this study are in line with those of other research that also suggests gains in some, but not all, aspects of well-being (Suldo et al., 2015) and in line with the field of research on SB-PPIs, which boasts inconsistent and largely mixed findings (Chodkiewicz & Boyle, 2017; Dawood, 2014). This variance may be due to the diversity of SB-PPIs being studied, differences in research methodology (Chodkiewicz & Boyle, 2017) and gender differences (Dawood, 2014).

The increase in behavioural intention that was found in this study means that the students showed a stronger intention to conduct behaviour that leads to greater well-being. In the long term, this may lead to greater well-being via perceived behaviour control and positive future expectancies. Hence, the SB-PPI seems to respond more to behavioural intention than directly to well-being. According to the theory of planned behaviour (Ajzen, 1991, 1998; Ajzen & Madden, 1986), behavioural intention is a major influence on whether an individual will actually carry out a behaviour. These intentions are largely formed by the perceived behavioural control of individuals: the perceived ease or difficulty of performing behaviour. The perceived behavioural control of students can be enhanced by promoting students self-knowledge, knowledge of barriers, by modelling and previous experience (Ajzen, 1998). Future expectancies are also important predictors of young people's behaviour, as they influence goal setting and planning (Slipsma, Ickovics, Lin & Kershaw, 2011), and they therefore, may influence behavioural intention. It may be that the SB-PPI also influences students' positive future expectancies. These expectancies are positively related to resilience (Sulimani-Aidan, 2015, 2016), life satisfaction (Sulimani-Aidan, 2015), resistance to negative peer influence, perceived social support, problem-solving-efficacy, self-esteem (Dubow,

Arnett, Smith & Ippolito, 2001) and levels of school involvement and social and emotional adjustment to school (Catalano, Berglund, Ryan, Lonczak & Hawkins, 2004; Dubow et al., 2001). These experiences may lead to even more well-being.

### *Strengths and limitations*

One of the merits of this study is the use of a mixed-methods research design. The quantitative and qualitative method provided insights into the impact of the SB-PPI on students' well-being. Hence, different but complementary data was obtained, which has led to a stronger representation of the impact of the SB-PPI. In addition, the qualitative method gave students the ability to write openly and honestly about their experiences. Participants gave answers from their own experience instead of simply selecting among preconceived options (Verhoeven, 2011).

The internal validity of this study is weakened by the lack of a control group, so rival explanations of the results cannot be ruled out. In addition, since the BPS itself is already used as a positive psychology intervention which can have beneficial effects on well-being (King, 2001), it is worth bearing in mind that the BPS might also have had an effect. Therefore, the possibility that the results of this study were caused by the BPS cannot be rejected. However, this seems unlikely, because in this study the BPS was used only twice as an outcome measurement. Studies that have found positive effects for the BPS had used it seven to 14 days for five minutes per day (Meevissen et al., 2011; Peters et al., 2013) or four weeks in a row (Layous et al., 2013; Sheldon & Lyubomirsky, 2006). Furthermore, a possible limitation of this study is the possibility of low implementation fidelity. In the current study, it is unknown how, exactly, the implementation of the SB-PPI went. Low implementation fidelity is not unexpected in the educational context (Sanetti, Kratochwill, & Long, 2013), since teachers do not always implement an intervention as intended. This potential for misapplication can influence the effectiveness of an intervention (Chodkiewicz & Boyle, 2017; Sanetti et al., 2013).

### *Implications of the study and recommendations*

The findings of this study show that SB-PPIs may have a positive impact on students' well-being. Therefore, this study contributes to the growing body of evidence that suggests that SB-PPIs can produce positive effects on students' mental health and well-being (Chodkiewicz & Boyle, 2017; Dawood, 2014). However, this study did not provide insights into the cause-and-effect relationships between the SB-PPI and the student's well-being. Further research is

required to analyse these effects and to see the patterns of change in well-being (Caruana, Roman, Hernández-Sánchez, & Solli, 2015; Dooley, 2009). A longitudinal study, using an experimental and control condition, is recommended. Students from primary and secondary schools should be followed, preferably, for a period of two years, the complete SB-PPI must be performed as intended, and a triangulation research design is recommended to analyse the effects. It is recommended to analyse the long-term effects of the SB-PPI on well-being because it may be that the SB-PPI, in the long-term, will lead to a greater increase in signs of well-being than was found in the current study. The causal relationships between the SB-PPI and students' perceived behavioural control, future expectations and behavioural intentions, should also be investigated to see whether these variables have an effect on students' well-being. Finally, the effects of the SB-PPI should be analysed for the group as a whole and for particular groups (e.g., by gender or type of school) in order to see what works and for whom.

In further research it is recommended to use the PRIME model (i.e., planning realistic intervention implementation and maintenance by educators) of Sanetti et al. (2013), to obtain an adequate implementation of an SB-PPI and hence high implementation fidelity. This model suggests that implementation requires a behaviour change in teachers and suggests three steps: “(a) implementation planning, (b) assessment of implementation intention and sustainability self-efficacy, and (c) strategies to increase implementation” (p. 52).

It is recommended that schools continue to integrate positive psychology into the whole school culture and learning curriculum. The PERMA framework (Seligman, 2011) seems to be suitable for integrating positive education into schools. Furthermore, the current study highlights the importance of students' behavioural intention in performing behaviour that leads to well-being; therefore, it is recommended that teachers focus on promoting students' perceived behaviour control and positive future expectations. Teachers could use the BPS as an intervention to enhance students' well-being and positive future expectancies.

### *Conclusion*

The overall findings suggest that students' mental health and well-being can be enhanced by using positive psychology in the educational context; this study shows that SB-PPIs may have a positive impact on students' well-being. The SB-PPI that was employed in this study seems to have a direct positive impact on several aspects of students' well-being, and it may be possible that the intervention can, in the long term, lead to even greater positive outcomes for students' mental health. Further research is required to establish the effectiveness of SB-PPIs in the educational context.

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## Appendix A

### *Positive Psychology in Action lesson grid*

#### Positive Psychology in Action Lessons Grid

	Unit 1: Positive Self	Unit 2: Positive Body	Unit 3: Positive Emotions	Unit 4: Positive Mindset	Unit 5: Positive Direction	Unit 6: Positive Relationships
Lesson 1	Happy Talk	Image Matters	Understanding Emotions	Fixed or Flexible?	Egg Yourself On	Tonic or Toxic?
Lesson 2	Me, Inc.	Supersize Me!	The Negativity Bias	Hope	Nail, Nag, Nudge	Forgiveness
Lesson 3	My Strengths Portfolio	The Nutrition Quiz	Boost your Positive Emotions!	Creative Problem-Solving	The Flow Zone	Listening and Empathy
Lesson 4	Confident You	Mindfulness for Life	Just for Fun	Money, Money Money!	Big Hairy Goals	Sweet Trading
Lesson 5	My Best Possible Self	Go to Bed, Sleepyhead!	Surprising, Spontaneous Savouring!	The Tyranny of Choice	Five Little Pigs	Kindness and Gratitude
Lesson 6	The Strengths Songbook	The Power of Exercise	Mental Time Travelling	Think Yourself Happier	The Balancing Act	Happiness across Cultures

*Figure 1. Positive Psychology in Action Lessons Grid. Reprinted from Personal well-being lessons for secondary schools: Positive psychology in action for 11 to 14 year olds (p. xxi), by I. Boniwell, & L. Ryan, 2012. Retrieved from google.nl/books?id=RmZFBgAAQBAJ Copyright 2012 by Ilona Boniwell & Lucy Ryan.*

## Appendix B

### *Coding scheme*

Table 5

*Coding scheme*

Theme	Content
Positive Emotion	
<i>General</i>	<ul style="list-style-type: none"><li>○ Describing hedonic feelings such as happiness, pleasure, warmth, life satisfaction, joy and comfort.</li><li>○ Describing that things are going well.</li><li>○ Describing being healthy or describing that health and happiness are important.</li><li>○ Experiencing positive emotions as a result of positive aspects in various life domains.</li><li>○ Wanting or hoping that certain life elements stay the same or that something positive will happen.</li></ul>
<i>Behavioural</i>	<ul style="list-style-type: none"><li>○ Intention to do something pleasant, have done something pleasant (or experiencing positive emotions as a result of behaviour).</li><li>○ An active attitude in realizing positive emotions.</li></ul>
Engagement	
<i>General</i>	<ul style="list-style-type: none"><li>○ Describing psychological connection.</li><li>○ Describing liking something or having interest in something.</li><li>○ Describing having a hobby, sport or activity.</li><li>○ Wanting or hoping to do something more often or longer.</li></ul>
<i>Behavioural</i>	<ul style="list-style-type: none"><li>○ Intention to do an activity, hobby or have done an activity or hobby.</li><li>○ Intention to continue with a hobby or activity or doing something a lot (more).</li></ul>

(continued on next page)

Table 5 (continued)

*Coding scheme*

Theme	Content
Positive Relationships	
<i>General</i>	<ul style="list-style-type: none"> <li>○ Describing relationships.</li> <li>○ Describing friends, family members, classmates, teachers.</li> <li>○ Describing to have friends, family members and teachers.</li> <li>○ Describing to have the same or new friends.</li> <li>○ Describing to feel socially integrated, loved, valued or supported by others.</li> <li>○ Describing to have time for relationships.</li> <li>○ Describing that activities with relationships can be done.</li> <li>○ Expressing satisfaction with relationships and wanting or hoping to keep in contact with relationships.</li> </ul>
<i>Behavioural</i>	<ul style="list-style-type: none"> <li>○ Intention to keep contact with relationships.</li> <li>○ Intention to or doing activities with relationships.</li> <li>○ Intention to or making time for relationships.</li> <li>○ Intention to making new friendships, making new friendships/have made new friendships.</li> <li>○ Intention for certain behaviour or performing certain behaviour.</li> </ul>
Meaning	
<i>General</i>	<ul style="list-style-type: none"> <li>○ Describing something that is bigger than the self.</li> <li>○ Describing serving something that is bigger than the self.</li> <li>○ Wanting or hoping for something that is bigger than the self.</li> </ul>
<i>Behavioural</i>	<ul style="list-style-type: none"> <li>○ Intention to or conduct behaviour that contributes to something bigger than the self, such as charity or faith.</li> </ul>
Accomplishment	
<i>General</i>	<ul style="list-style-type: none"> <li>○ Describing accomplishment.</li> <li>○ Describing study- and sports progress.</li> <li>○ Describing progress towards goals.</li> </ul>
(continued on next page)	

Table 5 (continued)

*Coding scheme*

Theme	Content
Accomplishment	
<i>General</i>	<ul style="list-style-type: none"> <li>○ Describing school, class and school level.</li> <li>○ Wanting or hoping for progress in study and sports, a school or school level, to become better at something, a future profession or wanting to make an effort.</li> </ul>
<i>Behavioural</i>	<ul style="list-style-type: none"> <li>○ Intention to do or doing one's best.</li> <li>○ Intention to have behaviour that contributes to achieving goals, such as doing homework and concentrating.</li> <li>○ Indicating that behaviour is going well.</li> </ul>
Negative emotion	<ul style="list-style-type: none"> <li>○ Describing negative emotions, such as uncertainty, stress and tension.</li> <li>○ Problems with homework or school, such as having much homework, being busy and experiencing difficulties with homework.</li> <li>○ Problems in relationships, such as irritations, quarrels, being bullied or missing someone.</li> <li>○ Experiencing negative emotions as a consequence of circumstances, such as moving, travelling a long distance for school, not being allowed to have or do something, too little free time.</li> </ul>
Assets	<ul style="list-style-type: none"> <li>○ Descriptions of assets: money, residence, car, bicycle, telephone, computer, PlayStation, vacation, fantasy (time machine, flying car, wings).</li> </ul>
Factual descriptions	<ul style="list-style-type: none"> <li>○ Descriptions of factual information.</li> <li>○ Description of the person, such as name, age and appearance. Description of the future person: being older, changing appearance, puberty, having more responsibility.</li> <li>○ Description of daily routine and school routine.</li> <li>○ Description of residence, moving.</li> <li>○ Description of the society.</li> </ul>

## Appendix C

### Supplementary results

Table 6

*Scores for all outcomes measures of the KS and the results of Mann-Whitney test; gender*

	<i>N</i>	Subscale 1 <sup>1</sup>	Subscale 2 <sup>2</sup>	Subscale 3 <sup>3</sup>	Subscale 4 <sup>4</sup>	Subscale 5 <sup>5</sup>	Total 1 -5
Boys T0	148	20.86 (3.27)	30.21 (3.25)	25.99 (3.62)	17.00 (2.79)	16.35 (2.40)	110.40 (10.69)
Boys T1	148	20.85 (3.52)	30.30 (3.27)	27.06 (2.96)	17.49 (2.21)	16.33 (2.23)	112.02 (10.23)
*	148	-0.01 (3.30)	0.09 (3.00)	1.07 (2.94)	0.49 (2.47)	-0.02 (2.14)	1.62 (8.17)
Girls T0	123	20.67 (2.73)	29.80 (3.66)	26.45 (3.08)	17.59 (2.45)	16.83 (2.13)	111.35 (10.24)
Girls T1	123	20.39 (2.89)	29.57 (3.97)	26.52 (2.96)	17.61 (2.46)	16.33 (2.16)	110.42 (10.60)
*	123	-0.28 (2.49)	-0.23 (3.45)	0.07 (2.94)	0.02 (2.52)	-0.50 (1.95)	-0.93 (8.20)
<i>p</i> Value**	148/123	.453	.366	.021*	.113	.017*	.012*

*Note.* Mean (S.D) are presented; \* difference score; \*\* = difference between mean difference score of boys and girls, significance level at 0.01; <sup>1</sup> = physical well-being; <sup>2</sup> = psychological well-being; <sup>3</sup> = autonomy & parent relation; <sup>4</sup> = social support & peers; <sup>5</sup> = school.