

**MASTER'S THESIS (10 EC)**

Positive Psychology and Technology  
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The relationship between wellbeing and  
academic achievement

A systematic review

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## **Abstract**

**Background:** Various studies have underlined the beneficial effect of wellbeing on mental health as well as on resilience against stress and psychopathology. Also in the educational sector several studies have indicated that interventions, based on the principles of positive psychology, enhance wellbeing and resilience of students. Less is known about the relationship between wellbeing and academic achievement. To make positive interventions at school more effective and purposive, advanced knowledge of the relationship between wellbeing and academic achievement and their influencing factors is needed.

**Method:** The systematic literature review was conducted in December, 2016. The databases Scopus and Web of Science were searched for relevant literature by combining the search terms wellbeing, school and academic achievement and several synonyms of these terms. This resulted in a pool of 300 studies. The application of several criteria of exclusion resulted in a final selection of 5 studies.

**Results:** The selected studies suggest that there is a positive relationship between emotional and psychological wellbeing and academic achievement. The relationship of social wellbeing and academic achievement has not been examined in the included studies. In general students with higher levels of psychological and emotional wellbeing also show higher levels of academic achievement. Engagement, self-esteem, organizational justice, interpersonal relationship with teachers, student's perception of school and motives for attending school may moderate or mediate the relationship between wellbeing and academic achievement.

**Discussion/Conclusion:** This systematic review is a first attempt to get an overview of existing studies regarding the relationship between academic achievement and wellbeing and provides useful information that can serve as a starting point for further, more specific research in this area. Positive emotions, the fulfillment of basic needs, intrinsic motivation, personal strengths and engagement are supposed to influence in the relationship of wellbeing and academic achievement.

## **Samenvatting**

**Achtergrond:** Verschillende studies hebben aangetoond dat welbevinden een gunstige effect heeft op de geestelijke gezondheid evenals op weerbaarheid tegen stress en psychopathologie. Ook laten een aantal studies zien dat interventies, gebaseerd op de principes uit de positieve psychologie, welzijn en veerkracht van studenten verbeteren. Uit wetenschappelijke literatuur blijkt dat minder bekend is over de relatie tussen welzijn en academische prestaties. Om positieve interventies op school efficiënter en doelgerichter te maken, is meer kennis nodig over de relatie tussen welzijn en academische prestaties en de beïnvloedende factoren.

**Methode:** Een systematische literatuurstudie werd uitgevoerd in december 2016. In de databases Scopus en Web of Science werd gezocht naar relevante literatuur. Hiervoor worden de zoektermen welzijn, school en academische prestaties en een aantal synoniemen van deze begrippen met elkaar gecombineerd. Dit resulteerde in een pool van 300 studies. De toepassing van verschillende exclusiecriteria resulteerde in een uiteindelijke selectie van 5 studies.

**Resultaten:** Er bestaat een positieve relatie tussen emotioneel en psychisch welbevinden en academische prestaties. De relatie tussen sociaal welbevinden en academische prestaties was niet onderzocht in de geselecteerde studies. Leerlingen met een hoger niveau van psychisch en emotioneel welbevinden laten ook een hogere academische prestatie zien. Verder zijn betrokkenheid, eigenwaarde, interpersoonlijke relatie met leeraren, gerechtigheid in organisaties, percepties van school en motieven voor aanwezigheid op school als factoren, die de relatie tussen welbevinden en academische prestaties modereren of medieren, geïdentificeerd.

**Discussie / Conclusie:** Deze systematische review is een eerste poging om een overzicht te geven van bestaande studies, over de relatie tussen academische prestaties en welbevinden. De resultaten vormen een uitgangspunt voor verder, meer specifiek onderzoek op dit gebied. Er zijn aanwijzingen dat positieve emoties, bevrediging van basisbehoeften, intrinsieke motivatie, individuele sterke kanten en betrokkenheid de relatie van welbevinden en academische prestaties mogelijk beïnvloeden

## **1. Introduction**

This introduction first illustrates the rise of positive psychology as a new field of psychology and presents the concept of wellbeing as a core element of this movement. In the following section the role of wellbeing and positive emotions in the educational system is outlined and a short overview of positive psychology interventions at school is given. The section ends up with an outline of the practical relevance of the study at hand that underlines the necessity to get a deeper insight in the relationship between wellbeing and academic achievement to improve positive school interventions in the future. Based on this intention three research questions are formulated.

### **1.1 Positive Psychology**

Until the millennium shift 16 year ago, the mental health sector was mainly dominated by the so called medical model. According to this model, (mental) health is defined by the absence of dysfunctions and symptoms of illness. The health care system was focused on treating illness by reducing its symptoms and negative effects (Seligmann & Csikszentmihaly, 2000). In this context Maddux (2002) introduces the term “Disease ideology” that underlines the great importance that was accredited to abnormal and deviating elements of diseases. The mental health sector was so strongly dominated by negative aspects of diseases that the promotion of positive aspects of functioning was nearly neglected in the process of treatment (Maddux, 2002). Already in the year 2000 Seligman & Csikszentmihaly advised against the risk of reducing people to their problems and disabilities as a consequence of the illness focused approach. In this regard they underline the basic necessity for a radical shift in the field of psychology. This shift resulted in a more holistic framework of mental health, wherein the promotion of mental health and positive functioning is an important aspect. In this connection it becomes obvious that the definition of mental health as the absence of illness is too limited and needs to be broadened (Seligmann & Csikszentmihaly, 2000). In addition, the World Health Organization renews its definition of mental health in 2005: Mental health is “A state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully and is able to make a contribution to his or her community.”(WHO, 2005, p. 5). Mental Health is not just the absence of mental illness but is also expressed by wellbeing and positive functioning. As a reaction on the above mentioned paradigm shift, away from exclusively focusing on negative aspects of human functioning, to a more holistic framework that emphasizes the role of strengths and positive functioning, the field of positive psychology, as a science of

wellbeing and positive emotions has emerged (Seligman and Csikszentmihaly, 2000). The concept of wellbeing is a core element of positive psychology. This makes it important to investigate the role of wellbeing in mental health promotion.

Various studies have examined the impact of wellbeing on mental health and psychopathology. According to Diener & Chan (2011) wellbeing is associated with a longer and healthier life. Furthermore, a study of Lamers (2012) shows that wellbeing serves a protective factor against psychopathology. An example is its protective function against burn-out (Bakker, Demerouti & Euwema, 2005). According to Cohn, Fredrickson, Brown, Mikels & Conway (2009) people who experience more wellbeing are better able to deal with daily struggles and stressful life events.

These findings indicate that wellbeing plays a crucial role in the process of achieving and maintaining mental health. Therefore, it is necessary to take a closer look at the conception of wellbeing.

### **1.1.1 Wellbeing as a multidimensional concept**

As the above mentioned definition of mental health of the WHO (2005) has already indicated, wellbeing is a multidimensional construct consisting of psychological, emotional and social aspects of functioning. In the following the three dimensions of wellbeing are outlined in detail.

#### Psychological wellbeing

Psychological wellbeing is made up of several components at 6 dimensions: A person with a high level of psychological wellbeing strives for an aim in life (purpose in life), experiences continuously personal development (personal growth) and got the impression to be able to influence his environment (environmental mastery) (Ryff & Singer, 2006). Furthermore, people, scoring high on psychological wellbeing, have a positive view against oneself (self-acceptance), experience independency and self-determination regarding their thoughts and actions (autonomy) and have close relationships with others, based on mutual trust (positive interpersonal relationships). Ryff & Singer (2008) revealed that psychological wellbeing is systematically related to a higher social economic status (SES) in terms of educational attainment.

#### Social wellbeing

This component of wellbeing refers to optimal functioning in society. According to Keyes

(1998) social wellbeing consists of 5 dimensions. Social wellbeing is characterized by a positive attitude towards other people, the belief in growth of society, understanding of society, participation in society and identification with society. Findings of Keyes (1998) and Keyes & Shapiro (2004) illustrate that social wellbeing is related to social economic status (SES) and higher education.

### Emotional wellbeing

Emotional wellbeing refers to the individual experience of wellbeing. The combination of positive and negative emotions as well as satisfaction with the own life together determine the unique degree of emotional wellbeing (Diener, 1984). Research has indicated that emotional wellbeing is related to better health and longer life (Diener & Chan, 2011).

The above outlined focus on the promotion of wellbeing has been applied in several interventions at different dimensions of society. In this study it is focused on positive psychology interventions in the educational system. The following paragraph gives a short overview of already implemented positive interventions at school and underlines the important role of positive emotions in the context of learning.

## **1.3 Positive Psychology at school**

Pels (2011) defines the individual personal development as an important function of school. Students at school should develop abilities and competences in terms of academic achievement, but on the other hand the development of strengths and the development of abilities regarding the determination of the own life, the construction of positive relationships with others and regarding coping with misfortune, are just as important.

The focus on wellbeing and personal strengths in positive psychology is in line with the aims of education formulated by Delors (1996): Learning to know, learning to do, learning to be and learning to live together. Research has already indicated that the promotion of wellbeing and resilience can heighten satisfaction with life and can support creative thinking as well as better learning (Seligman, Gillham, Reivich & Linkins, 2009).

### **1.3.1 The importance of positive emotions at school**

The experience of positive emotions is related to more creative thinking (Fredrickson, 1998, 2004). This is what makes them important in the context of education. Here positive emotions can promote the process of inventive and empathetic thinking (Seligman et al., 2009).

Also in terms of motivation positive emotions play an important role in education. Froiland, Oros, Smith & Hirchert (2012) claim that intrinsic motivation is determined by positive emotions. A higher level of intrinsic motivation is in turn related to greater involvement at school, what is identified as a crucial determinant of academic achievement (Archambault, Janosz, Fallu & Pagiani, 2009).

The crucial function of positive emotion in the context of learning can be best understood in terms of the “Broaden-And-Built-Theory” of Barbara Fredrickson (1998, 2004). According to Frederickson (1998, 2004) does the experience of negative emotions lead to a reduction in attention. This limitation in attention resulted in turn in a linkage between certain negative emotions and specific patterns of behavior. In contrast positive emotions lead to a spread of attention, cognitions and behaviors. Positive emotions are not directly linked to certain behaviors but rather stimulate diverse behavioral reactions. This is what Fredrickson (1998, 2004) names the “broaden-effect” of positive emotions. The build-effect in Fredrickson’s theory refers to the longtime effects of positive emotions. These kinds of emotions stimulate the development of effective and long-lasting resources in terms of problem solving. These resources are more constant than the positive emotion self and can be effective in the process of problem solving in the future, too. Together the broaden- and the build-effect of positive emotions lead to increased wellbeing (Fredrickson, 1998, 2004).

The promotion of positive emotions is one central element of the positive school intervention “Lectures of happiness”. Besides it is also focused on personal strengths and positive relationships towards each other. The program is aimed at creating a new climate at school that is characterized by empathetic relationships towards each other and the awareness that happiness is achievable (Stichting Lessen In Geluk, 2016). Research has indicated that the intervention has a positive effect on academic achievement in terms of grades. It is possible that the lectures of happiness have lead to more wellbeing and more social interactions what in turn has a positive influence on school performance (Boerfijn & Bergsma, 2011). At the Geelong Grammar School the principles of positive psychology are applied in a so called “Whole school approach”, wherein students and teachers are involved to create a positive school climate. In trainings students and teachers are amongst others stimulated to get a deeper insight in their own positive emotions, to be able to recover and to keep them. Moreover a strengths approach wherein individual character strengths are identified and effectively used is applied. Students are motivated to use own strengths to achieve positive outcomes for themselves and for others (Geelong Grammar School, 2016).



#### **1.4 Objective of the present study**

Seligman, Gillham, Reivich & Linkins (2009), claim that wellbeing as an important concept in positive psychology, also needs to be seen as a core element of education. Several studies have illustrated that positive interventions at school are effective at different dimensions. Findings of Durlak, Weissberg, Dymnicki, Taylor & Schellinger (2011) indicate that these kinds of interventions have positive effects on social behavior and academic achievement. Furthermore a meta-analysis of 23 positive interventions, implemented at school, shows that positive interventions promote wellbeing and resilience of students. Students in the intervention group show more effective coping- and problem solving strategies compared to the control group (Van der Linden, 2012). The registered effects of these interventions are mostly small or middle (Van der Linden, 2012; Brunwasser, Gillham, & Kim, 2009). The findings indicate that positive psychology at school is a promising field of research and underline the necessity to implement positive psychology interventions at school as well as to make those interventions more effective. But what is already known about the effects of promoting wellbeing on academic achievement?

Examining scientific literature in this context let see that the field of wellbeing of children at school and its relationship with academic achievement lacks a scientific base. As above outlined, several studies indicate that positive psychological interventions at school have a positive effect on several student variables such as wellbeing and academic achievement (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011, Van der Linden, 2012). However less is known about the direct relationship between wellbeing and academic achievement in this context. This branch of positive psychology at school is just at its beginning and the effects of promoting wellbeing on academic achievement need to be researched further (Bohlmeijer, Bolier, Westerhof & Walburg 2015). Consolidated knowledge in this research area is needed to make positive school interventions more effective and purposive.

In addition, the objective of the current study is to give an overview of existing scientific literature that examines the relationship between wellbeing and academic achievement. This objective results in three research questions introduced in the following paragraph.

## **1.5 Research question and sub-questions**

1. What is known about the relationship between wellbeing and academic achievement in scientific literature today?

To answer this question the following sub-questions are taken into account:

2. Which concepts of wellbeing are related to academic achievement in these studies?
3. Which factors might moderate or mediate the relationship between wellbeing and academic achievement?

## **2. Method**

In this section the procedure of the systematic literature review is described. The used databases, the developed search strategy and the process of study selection are outlined and illustrated.

In December 2016 a systematic literature review has been conducted to answer the above mentioned research questions. The scientific databases Scopus and Web of Science are used to search systematically for relevant literature.

### **2.1 Search strategy and search terms**

In the databases it is systematically searched for studies that examine the relationship between wellbeing and academic achievement. Several search items, related to these two main concepts (synonyms), have been used. These terms have also been entered in the databases. It is made use of the function “AND”/ “OR” to find combinations of the search items in the title, in the abstract or in the keywords (Scopus) or in reference to the articles topic (Web of science). This strategy should heighten the chance to find topic relevant articles. The search items that have been used are illustrated in table 1 and table 2.

Table 1 Used search items

Main search item	Related search items Synonyms
academic achievement (OR)	school performance, grades
wellbeing (OR)	social wellbeing, psychological wellbeing, emotional wellbeing
school (OR)	primary school, secondary school

Chosen synonyms for the main search term “academic achievement” are “school performance” and “grades”. Next to the global term wellbeing, also its three components, social, psychological and emotional wellbeing are integrated into the search string. This is mainly important in reference to the second research question. Other related terms as life satisfaction or happiness are not taken into account, because the study at hand is exclusively focused on the relationship between the concepts of wellbeing and academic achievement. To specify the context of the studies of interest, the item “school” has been added to the search string. The terms primary and secondary school are chosen to concretize this item. The major target group of this study is namely represented by students of primary or secondary schools.

In table 2 the basic search string is split of by synonyms of the search term “academic achievement” to illustrate the different underlying search actions.

Table 2 Used commands and combinations of search items

Used commands	Combination of search items
AND, OR	<p>academic achievement AND wellbeing OR psychological wellbeing OR social wellbeing OR emotional wellbeing AND school OR primary school OR secondary school</p> <p>school performance AND psychological wellbeing OR social wellbeing OR emotional wellbeing AND school OR primary school OR secondary school</p> <p>grades AND wellbeing psychological wellbeing OR social wellbeing OR emotional wellbeing AND school OR primary school OR secondary school</p>

## 2.2 Selection of studies

The criteria to determine which studies have been included for further analysis are summarized in the following section. The process of selection is also pictured in a flowchart.

### 2.2.1 Inclusion and exclusion

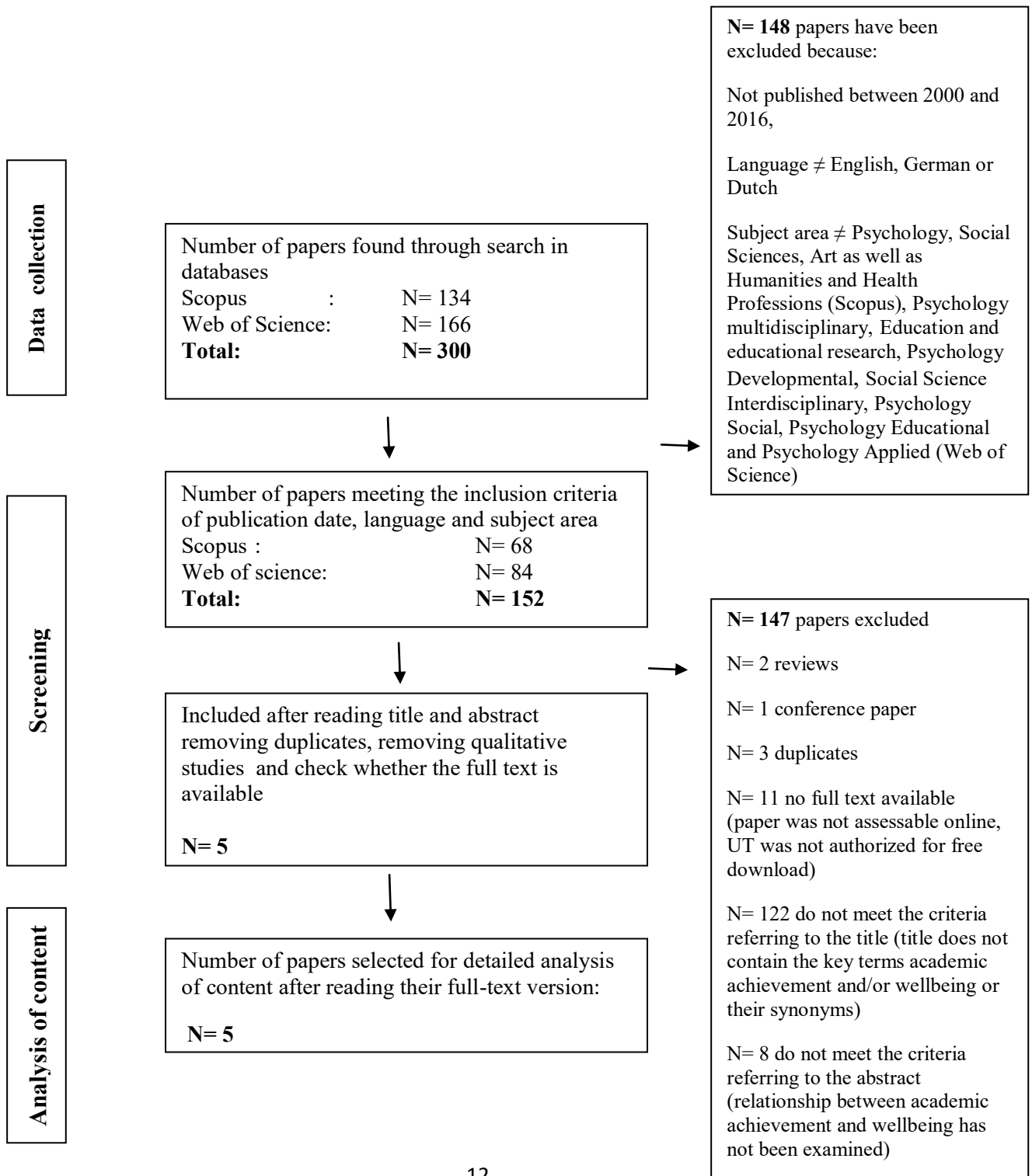
Studies that are included for the further selection process need to be published in English, Dutch or German in the period between the year 2000 and 2016. Selected studies need to be categorized in one of the following research areas Psychology, Social Sciences, Art as well as Humanities and Health Professions (Scopus) and Psychology multidisciplinary, Education and educational research, Psychology Developmental, Social Science Interdisciplinary, Psychology Social, Psychology Educational and Psychology Applied (Web of science), because this thesis is focused on psychological and social aspects of the relationship between wellbeing and academic achievement.

The first search resulted in a pool of 300 studies. Studies not written in English, Dutch or German have been excluded. Only studies, meeting the above mentioned criteria of inclusion have been selected. This leads to a collection of 152 studies. The title and the abstract of these studies have been scanned to check whether the main concepts of the thesis at hand (wellbeing and academic achievement of primary or secondary students and/or moderators) are topic of interest. To be included the key terms academic achievement and/ or wellbeing (as well as their synonyms) need to be included in the title of the paper. Furthermore it is outlined in the abstract of the included paper that it is intended to examine the relationship between wellbeing and academic achievement (research question 1, 2) or to examine next to the relationship between wellbeing and/ or academic achievement, also their

relationship with other concepts in the context of school (research question 3) in a quantitative way. 11 papers have been excluded because there was no free full text available. 3 duplicates, 2 reviews and 1 conference paper have been removed. Besides 130 studies do not meet the criteria referring to title and/or abstract. This results in a total collection of 5 studies that are chosen for further, detailed analysis of content.

The whole selection process is illustrated in the following flowchart.

Figure 1: Flowchart selection of studies



### **2.3 Data extraction**

The full text of the chosen papers is elaborated in detail and its content has been extracted according to the following criteria: Title, authors, year of publication, participants, study design, results, aim of the study, assessment of wellbeing, assessment of academic achievement and possible mediators/ moderators of the relationship between wellbeing and academic achievement. The extracted data is represented in table 4 in the following section of results.

## **3. Results**

This section starts with a description of the selected studies that have been analyzed according to the above mentioned criteria of extraction, to get a deeper insight in the relationship between wellbeing and academic achievement. Furthermore the different concepts of wellbeing, used in the selected studies, have been categorized in reference to the three components of wellbeing, outlined in the introduction. In the following it is made an attempt to answer the research questions based on the provided information and findings.

### **3.1 Characteristics of the selected studies**

In sum 5 studies, published between the year 2008 and 2014 in 4 different countries (Finland, South Africa, Chile, United Kingdom) have been selected for this systematic review. The time span and the various countries of publication indicated that, in line with the rise of positive psychology in the last 17 years, also the field of wellbeing at school has become topic of interest in international scientific research. The papers at hand (5) were quantitative studies. The study population was represented by primary students (2 studies) and (upper) secondary students (3 studies). In almost all studies, academic achievement has been assessed by measures of grades and grade-point-averages. In one study academic achievement was measured by determining the Key Stage Levels in Math and English. In another study academic achievement was assessed by determining mean scores of a language and math test at the end of grade 9 and at the end of grade 10. Another interesting characteristic finding was that in the papers at hand various different concepts of wellbeing have been analyzed and related to academic achievement. These concepts were elaborated in detail in the following paragraph. The extracted main characteristics of the included papers were summarized in Table 3.

Table 3 Characteristics of the selected studies

Author (1 <sup>st</sup> author)	Year of publication	Participants	Study design	Results	Assessment wellbeing	Assessment academic achievement	Possible mediators/moderators for the relationship of wellbeing and academic achievement	Aim of the study
Berger, C.	2011	Grade 4 and 3 students	Cross-sectional	<p>r socioemotional wellbeing + academic achievement : 0,23 **</p> <p>r socioemotional wellbeing+self-esteem student: 0,60 **</p> <p>r self-esteem student+ academic achievement:0,27 **</p>	SSWBS	GPA for the whole previous academic year	Self-Esteem	Examine the relationship between socio-emotional variables and Academic achievement
Elovainio, M.	2011	Secondary and upper secondary students	Cross-sectional	<p>r academic achievement+ dissatisfaction with school : -0,28***</p> <p>r poor academic performance perceived potential to be heard at school: -0,13***</p> <p>COR (95%CI) poor procedural justice staff+ pupils dissatisfaction with school : -1,16</p>	<p>Single-item question: "How do you like school right now?" (1=very much, 2=quite much, 3= quite little, 4=very little)</p> <p>3 Statements that can be rated with 1=totally agree, 2=agree, 3=disagree</p>	GPA of the last report	Organizational justice (composed of procedural and relationshipal justice)	Examine the relationship between organizational justice, perceived by academic staff, with student's perceptions of the psychosocial environment at school, their health, wellbeing and academic achievement

Author	Year of publication	Participants	Study design	Results	Assessment wellbeing	Assessment Academic achievement	Possible moderators/mediators of the relationship between wellbeing and academic achievement	Aim of the study
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COR (95%CI) poor procedural justice staff+ poor perceived potential to be heard at school : 1,23

COR (95%CI) poor relationshipal justice staff+ academic performance students: -1,30

COR (95%CI) poor relationshipal justice +frequent psychosomatic symptoms: -1,15

COR (95%CI) poor relationshipal justice+ depressive symptoms: -1,13

4=totally disagree

Example: "Teachers encourage me to express my opinion in classroom."



Author (1 <sup>st</sup> author)	Year of publication	Participants	Study design	Results	Assessment wellbeing	Assessment academic achievement	Possible moderators/mediators of the relationship between wellbeing and academic achievement	Aim of the study
Miller, S.	2013	Grade 1-4 students	Cross- sectional	Estimated regression coefficient wellbeing +achievement: 0,281 (SE: 0,188), no p-value available	KIDSCREEN (subscales Psych.Health, School Envi- ronment, Auto- nomy, Parent. relationships, Peer relationship- ships)  Self-Perception Profile for Children (subscale Global Self Worth)  Attitudinal scale (subscale Liking School)	Key Stage level for Math and English		Explore the relationship between student wellbeing and educational achievement and test whether wellbeing is moderated by gender and socioeconomic deprivation

Author (1 <sup>st</sup> author)	Year of publication	Participants	Study design	Results	Assessment wellbeing	Assessment academic achievement	Possible moderators/mediators of the relationship between wellbeing and academic achievement	Aim of the study
Pietarinen, J.	2014	Grade 5 and 7 students	Cross-sectional	<p>r thriving in school (pos. component of wellbeing at school) +GPA: 0,34**</p> <p>r wellbeing school+ emot. engagement in peer group: 0,22**</p> <p>r wellbeing school emot. engagement in student-teacher relationship: 0,59**</p> <p>emot. engagement explained wellbeing at school: <math>R^2=0,46^{**}</math></p> <p>emot. engagement in teacher-student relations +wellbeing school explained cogn. engagement: <math>R^2=0,70^{**}</math></p>	ECW-questionnaire	GPA	<p>Emotional engagement</p> <p>Cognitive engagement</p>	Examine the interrelationship between student's experienced emotional and cognitive engagement, academic achievement and school-related wellbeing

Author (1 <sup>st</sup> author)	Year of publication	Participants	Study design	Results	Assessment wellbeing	Assessment Academic achievement	Possible moderators/mediators of the relationship between academic achievement and wellbeing	Aim of the study
				academic achievement is explained by cog. engagement: $R^2=0,38^{**}$				
Van Petergem, K.	2008	Grade 10 students	Cross-sectional	<p>Relationship between wellbeing + academic achievement at the end of grade 10: <math>\beta=0,30^{*****}</math></p> <p>Positive relationship of wellbeing at grade 9 and at the end of grade 10: <math>\beta=0,127^{**}</math></p> <p>Pos. relationship academic achievement at the end of grade 9+ wellbeing at the end of grade 10 :<math>\beta=0,142^{**}</math></p> <p>Pos. relationship. motive interest+ student's wellbeing at the end of grade 10: <math>\beta=0,115^{**}</math></p>	WISE	Mean scores of math and language tests	<p>Student's perception of teachers interpersonal behavior</p> <p>Student's motives for attending school</p>	Examine the relationship between actual wellbeing and current academic achievement and pre-measurements of them

Year of publication	Participants	Study design	Results	Assessment wellbeing	Assessment Academic achievement	Possible moderators/mediators of the relationship between wellbeing and academic achievement	Aim of the study
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Student's wellbeing at the end of grade 10 increases when school is not perceived as obligation:  $\beta = -0,102$  \*

Pos. relationship DC teacher (acad. subjects) +student's wellbeing:  $\beta = 0,107$ \*

Neg. relationship DO teacher (acad. subjects) +student's wellbeing:  $\beta = -0,249$ \*\*\*

DO-teacher = Dominant-Opposite teacher, DC-teacher = Dominant-Cooperative teacher, WISE = Wellbeing Inventory Secondary Education, SSWBS = Self Reported Socio-Emotional Wellbeing Scale, GPA = Grade Point Average, SWLS = Satisfaction With Life Scale PANAS = Positive Negative Affect Scale, PANAS-C= Positive Negative Affect Scale-Child, ECWQ = Survey to measure comprehensive school students 'experienced emotional and cognitive engagement and school-related wellbeing, SLSS = Student's Life Satisfaction Scale, PWBQ = Psychological Wellbeing Questionnaire  
 \* $p < 0,05$ ; \*\* $p < 0,01$ ; \*\*\* $p < 0,001$ ; \*\*\*\* $p = 0,06$ ; \*\*\*\*\*not significant

### 3.2 The relationship between the three dimensions of wellbeing and academic achievement

In the selected papers various concepts of wellbeing have been related to academic achievement. For the further analysis the extracted different concepts of wellbeing, assessed in the selected studies, have been categorized according to the definition of wellbeing as a three-dimensional construct, made up psychological, emotional and social wellbeing. The results of this categorization by study were represented in Table 5. In the following the relationship of each dimension with academic achievement has been elaborated.

*Table 4: Different concepts of wellbeing categorized into the three dimensions of wellbeing*

Study (1st author)	Emotional Wellbeing	Psychological Wellbeing	Social Wellbeing
Berger, C.	Socio-emotional wellbeing		
Elovainio, M.	Satisfaction with school	Potential to be heard at school	
Miller, S.		Academic buoyancy	
Pietarinen, J.	School-related wellbeing		
Van Petegem, K.	Student wellbeing		
<b>Total</b>	<b>4</b>	<b>2</b>	

Table 4 illustrates that the most concepts of wellbeing (4), assessed in the included studies, were categorized into the dimension of emotional wellbeing. Only “Academic buoyancy” (Miller, Connolly & Maguire, 2013) and “Potential to be heard at school” (Elovainio, Pietikäinen, Luopa, Kivimäki, Ferrie, Jokela & Virtanen, 2011) were related to psychological wellbeing. Social wellbeing has not been assessed in any of the included studies.

#### 3.2.1 The relationship between emotional wellbeing and academic achievement

All concepts of wellbeing, mentioned in this section, have been assigned to the dimension of emotional wellbeing.

Berger, Alcalay, Toretti & Milicic (2009) illustrated the relationship between student's - emotional wellbeing and academic achievement. The results implied that emotional wellbeing correlated positively with academic achievement. Pietarinen, Soini & Pyhältö (2014) examined amongst others the relationship between school-related wellbeing and academic achievement. The correlation analysis indicated that the positive component of student's school related wellbeing (thriving in school) correlated positively with academic achievement (Pietarinen, Soini & Pyhältö, 2014).

The results of the study of Elovainio, Pietikäinen, Luopa, Kivimäki, Ferrie, Jokela & Virtanen (2011), implied that there was a negative relationship between academic achievement and dissatisfaction with school. Higher levels of academic achievement were related to lower dissatisfaction with school.

In contrast to the previous mentioned findings, a study of Van Petegem, Creemers, Aelterman & Rosseel (2008), illustrated that there was no significant relationship between wellbeing and academic achievement measured at the same point of time. Rather the results showed that there was a positive relationship between wellbeing measured at grade 9 and academic achievement measured at the end of grade 10. Furthermore wellbeing measured at grade 9 and wellbeing measured at the end of grade 10 were positively correlated.

### **3.2.2 The relationship between psychological wellbeing and academic achievement**

In this section the relationship between the conceptions of wellbeing that have been categorized into the dimension of psychological wellbeing and academic achievement is illustrated.

Miller, Connolly & Maguire (2013) claimed that the relationship between wellbeing and academic achievement lacks a consistent theoretical framework. Striking findings in this research field could be explained by focusing on different, inconsistent indicators of wellbeing (Miller, Connolly & Maguire, 2013). In their study they used the conception of academic buoyancy, to assess wellbeing at school. The study outcomes indicated that there was a strong positive relationship between wellbeing (academic buoyancy) and academic achievement. Students with high wellbeing scores also showed higher achievement scores (Miller, Connolly & Maguire, 2013). Furthermore findings of Elovainio et al. (2011) indicated that potential to be heard at school and academic achievement were correlated. Less potential to be heard at school was associated with lower grades.

### **3.3 Possible moderators and mediators of the relationship between academic achievement and wellbeing**

As already pointed out, there was a positive relationship between wellbeing of students and their school performance. To define possible influencing factors of this relationship, in this section research findings that typify the influence of different school related concepts on student's wellbeing are outlined. Most selected studies did not directly research moderation effects or mediation effects on the relationship between wellbeing and academic achievement. But based on the mentioned findings it was possible to draw conclusions about concepts that need to be taken into account in the attempt to promote wellbeing to improve student's academic achievement.

#### **3.3.1 Engagement**

Pietarienen, Soini & Pyhältö (2014) found out that emotional engagement (quality of student-teacher relationships and peer-relationships at school) was positively correlated with wellbeing at school. Further analysis indicated that experienced wellbeing at school was significantly explained by emotional engagement. Together wellbeing and emotional engagement in student-teacher relationship determined cognitive engagement (Pietarinen, Soini & Pyhältö, 2014). Pietarinen, Soini & Pyhältö (2014) further illustrated that academic achievement was significantly explained by cognitive engagement.

#### **3.3.2 Self-esteem**

Berger et al. (2011) have illustrated that there was a positive relationship between emotional wellbeing and self-esteem, as well as between self-esteem and academic achievement.

#### **3.3.3 Interpersonal relationship with teachers**

Students of academic subjects, who perceived their teachers as leading and helpful and whose teachers created a friendly relationship with their students, experienced higher levels of wellbeing. In contrast the wellbeing of students, who perceived their teacher as strict and dominant, decreased (Van Petegem, Aelterman, Roseel & Creemers, 2008).

#### **3.3.4 Organizational justice at school**

In a study of Elovainio et al. (2011) the influence of the psychosocial work climate at school (perceived by academic staff) on, amongst others, academic achievement and wellbeing of students has been examined. The psychosocial work climate was represented by the conception of organizational justice. Organizational justice was represented by a well-balanced relationship between demands and benefits, received at work. Furthermore it was

characterized by fair rules and fair treatment. Supervisors were experienced as trustworthy. It was made up of procedural justice and relational justice. Procedural justice referred to accurate procedures at work, to collect useful information, to make consistent decisions, wherein all staff members are involved. Relational justice was represented by fair and trustworthy treatment of subordinates by supervisors.

A low level of perceived procedural justice among teachers was related to lower levels of satisfaction with school of students and low levels of experienced potential to be heard at school. A lack of experienced relational justice of academic staff was in turn related to lower academic achievement and higher levels of psychosomatic and depressive symptoms at student level (Elovainio et al., 2011).

### **3.3.5 Student's perceptions of school and motives for attending school**

Van Petegem et al. (2008) illustrated in their study that there was a positive relationship between the motive "interest" for attending school and wellbeing at the end of grade 10. Furthermore wellbeing of students who did not perceive school as an obligation increased at the end of grade 10, in comparison to the pre-measurement at grade 9.

## **4. Discussion**

### **4.1 Findings**

The selected studies indicate that there is a positive relationship between wellbeing and academic achievement. Higher levels of emotional and psychological wellbeing were related to higher levels of academic achievement. The relationship between social wellbeing and academic achievement has not been explored in the included studies. Overall the research findings may imply that wellbeing serves as a protective factor for academic achievement. Furthermore several factors that may influence the relationship between wellbeing and academic achievement have been explored. These factors can be classified into two categories, namely internal factors (student's engagement, self-esteem, student's perception of school, student's motives for attending school, student's interpersonal relationship with teachers) and external factors (organizational justice). Internal factors directly refer to the individual experience and behavior of the student self. External factors refer to the school environment. This distinction is crucial, because it underlines the importance to promote student's wellbeing at a micro level and a macro level.



The positive relationship between emotional wellbeing and academic achievement can be explained by taking the broaden-and-built theory of Barbara Fredrickson (2004) into account. According to the broaden-and-built theory does the experience of positive emotions stimulate creative thinking and leads to a spread of attention and the broadening of behavioral resources (broaden-effect). Emotional wellbeing is directly linked to the experience of positive emotions. The enlargement of the behavioral and cognitive repertoire in turn promotes the development of long-lasting, effective coping strategies (built-effect) that support resilience and thus serves as a longitudinal resource against stress (Fredrickson, 2004).

The above outlined broaden-effect of positive emotions may also have positive influence on children's learning behavior. A possible explanation of the positive relationship between emotional wellbeing and academic achievement is that the broaden-effect of positive emotions leads to a spread of attention, open-minded thinking and more cognitive flexibility (Fredrickson, 2004), what may facilitate the acquisition of new knowledge. The built-effect of positive emotions in turn supports the development of effective coping strategies and resilience what in turn again promotes the experience of more positive emotions (Fredrickson, 2004). So the experience of positive emotions leads to an increase of the probability of the experience of positive emotions in the future (Isen 1990; Aspinwall, 1998). This kind of upwards spiral caused by positive emotions underlines the predictive power of actual wellbeing and academic achievement on future wellbeing. These underlying processes are possibly mirrored in the positive relationship between emotional wellbeing and student's academic achievement.

The positive relationship between psychological wellbeing and academic achievement can be explained in terms of the self-determination theory of Deci & Ryan (1985). According to the self-determination theory is the fulfillment of basic needs is the main driving force of human motivation. These basic needs are "Competence" (the need to effectively deal/control the environment) "Relatedness" (the need to feel related to others) and "Autonomy" (the need to be able to act self effective and to realize own values). For optimal functioning and positive mental health, these needs need to be fulfilled (Deci & Ryan, 1985). Furthermore research has indicated that the satisfaction of basic needs predicts psychological wellbeing (Deci & Ryan, 2008). Thus higher levels of psychological wellbeing are supposed to mirror the fulfillment of basic needs. Besides Ryan & Deci (2000) differentiate between intrinsic motivation (autonomous motivation) and extrinsic motivation (controlled motivation). Intrinsic motivated students engage in learning tasks because of the excitement they bring. Intrinsic motivation is

represented by the striving to proof the own abilities and to search for new challenges. It is linked to the extent of experienced self-determination. Extrinsic motivated students perform certain tasks in order to achieve rewards and with the intention to behave according to certain rules (Ryan & Deci, 2000). Next to the positive relationship between the fulfillment of basic needs and psychological wellbeing, a positive relationship between the satisfaction of basic needs and intrinsic motivation has been proved (Taylor, Jungert, Mageau, Schattke, Dedic, Rosenfield & Koestner, 2014). The positive relationship between psychological wellbeing and academic achievement can be explained by taking the underlying conception of basic needs into account. Higher levels of psychological wellbeing can be seen as an indicator for sufficient fulfillment of basic needs according to the self-determination theory of Deci & Ryan (1985). In turn this satisfaction of basic needs promotes intrinsic motivation. Finally intrinsic motivation again has been proven to have a reciprocal positive relationship with academic achievement. (Taylor et al., 2014).

In current scientific literature less is known about possible moderators and mediators of the relationship between wellbeing and academic achievement. Rather a lot of factors that may influence this relationship by fostering student's wellbeing have been explored, namely student's engagement, self-esteem, student's perception of school, student's motivation for attending school, student's interpersonal relationship with teachers and organizational justice. Student's engagement refers to emotional engagement and to cognitive engagement. Both influence the interplay of wellbeing and academic achievement. Emotional engagement is supposed to influence experienced wellbeing at school, whereas cognitive engagement is supposed to be fostered by student's wellbeing and in turn promotes academic achievement. Findings of Lewis, Huebner, Malone & Valois (2011) also imply that there is a significant positive relationship between cognitive engagement and academic achievement.

The influence of engagement on wellbeing and academic achievement might be explained by taking positive emotions into account: Reschly, Huebner, Appleton & Antaramian, (2008) showed that high engagement in school (cognitive and emotional) is related to the experience of more positive and less negative emotions. So one possible explanation may be that engagement stimulates emotional wellbeing what in turn promotes academic achievement via the broaden-and-build-effect of positive emotions.

Furthermore self-esteem, organizational justice, potential to be heard at school and cognitive engagement can be related to the concept of self-efficacy of Bandura (1977). Self-

efficacy refers to the application of own strengths and abilities to meet requirements. It is represented by the belief to be able to act self-determined even in complex situations (Bandura, 1977). As outlined in the introduction, the focus on individual personal strengths is central to positive psychology and is already applied in several interventions aimed at promoting wellbeing at school (Stichting Lessen In Geluk, 2016; Geelong Grammar School, 2016).

The concepts student's motives for attending school, student's perception of school, self-esteem, organizational justice, potential to be heard at school and cognitive engagement also reflect aspects of the three basic needs of the self-determination theory of Deci & Ryan (1985). The influence of the above mentioned concepts on academic achievement can consequently be explained by their promotional effect on intrinsic motivation.

#### **4.2 Strengths, limitations and implications for further research**

A strength of this review is that it has been executed in a systematic way according to the approved guidelines for systematic reviews of PRISMA. So each step in the research process is clearly defined and can be replicated. Besides only scientific databases have been used to find relevant articles for this systematic review. This resulted in an overview of available current research findings regarding the relationship between wellbeing and academic achievement on scientific level.

This study also has various limitations. The number of studies, included in this systematic review is, with N=5 very small. This can have several reasons. At first scientific literature was only searched in two different databases. So there is a high probability of missing relevant articles, published in other databases. The formulation of various criteria of exclusion (language, publication date, research area) has similar effects on the number of selected studies. Besides the selection of studies that are included in this systematic review has been executed by one single researcher. It is consequently questionable whether another researcher would select the same studies for the analysis and would come to the same conclusions.

#### Implications for further research

Most of the selected studies only consider correlation effects between academic achievement, wellbeing and potential influencing factors. So the possibility to draw conclusions about the direction of the relationship between wellbeing and academic achievement as well as the role of possible moderators and mediators of this relationship is limited. Here additional research,

to be able to draw reliable conclusions about cause and effect in this context, is needed. Besides the relationship between social wellbeing and academic achievement needs to be explored further.

To get a more sophisticated insight in the positive relationship between academic achievement and wellbeing additional, longitudinal research is needed. This would also offer the possibility to get a deeper insight in the changeability of wellbeing over time. An experimental design with repeated measures, wherein one variable is controlled would offer the possibility to clarify cause and effect by using appropriate statistical analysis. It is advised to test the influencing power of the above defined possible moderators and mediators on the positive relationship between academic achievement and wellbeing.

To get a more holistic overview over what is known about the relationship between wellbeing and academic achievement this systematic review needs to be replicated within a greater period of time. This would offer the possibility to include more databases in the literature search procedure and to use less specific search items. Furthermore it is advised to execute a similar study with at least two researchers, to enhance its reliability.

### **4.3 Conclusion**

It can be concluded that the application of principles of positive psychology at school in order to promote student's wellbeing and academic achievement is a promising field of research. The findings provided in the paper at hand can serve as starting point for more specific research in the field of mental health promotion in the educational sector and its influence on academic achievement.

## References

- Arambault, I., Janosz M., Fallu, J.S., & Pagiani, L.S. (2009). Student engagement and its relationship with early high-school drop-out. *Journal of Adolescence*, 32, 651-670.
- Aspinwall, L. G. (1998). Rethinking the role of positive affect in self-regulation. *Motivation and Emotion*, 22, 1-32
- Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology*, 10, 170-180.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological review*, 84(2), 191.
- Berger, C., Alcalay, L., Torretti, A., & Milicic, N. (2011). Socio-emotional well-being and academic achievement: Evidence from a multilevel approach. *Psicologia: Reflexão e Crítica*, 24(2), 344-351.
- Boerfijn J. & Bergsma A. (2011). Geluksles verbetert schoolprestaties. *Tijdschrift voor Orthopedagogiek*, 50, 110-121.
- Bohlmeijer, E., Bolier, L., Westerhof, G., & Walburg, J. A. (2015). *Handboek positieve psychologie. Theorie\* Onderzoek\* Toepassingen*. Uitgeverij Boom, Amsterdam.
- Brunwasser, S. M., Gillham, J. E., & Kim, E. S. (2009). A meta-analytic review of the Penn. Resiliency Program's effect on depressive symptoms. *Journal of Consulting and Clinical Psychology*, 77(6), 1042
- Cohn, M.A., Fredrickson, B.L., Brown S.L, Mikels J. A. , & Conway A.M. (2009). Happiness unpacked: Positive emotions increase life satisfaction by building resilience. *Emotion*, 9, 361-368.
- Deci, E. L., & Ryan, R. M. (2008). Self-Determination Theory: A Macrotheory of Human Motivation, Development, and Health. *Canadian Psychology*, Vol. 49, No. 3, 182-185

- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.
- Delors, J. (2016). *Learning: The treasure within. Report to UNESCO of the International Commission on Education for the Twenty-First Century*. Paris: Unesco Publishing.
- Diener E., & Chan M.Y. (2011): Happy people live longer: subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-being 2011*, 3: 1–43.
- Diener, E. (1984). Subjective wellbeing. *Psychological Bulletin*, 95, 542-575.
- Durlak, J. A. , Weissberg R. P., Dymnicki, A. B., Taylor, R. D. , & Schellinger, K. B. (2011). The Impact of Enhancing Student’s Social and Emotional Learning: A Meta-Analysis of School-Based-Universal Interventions. *Child Development*, 82 (1), 405-432.
- Elovainio, M., Pietikäinen, M., Luopa, P., Kivimäki, M., Ferrie, J. E., Jokela, J. & Virtanen, M. (2011). Organizational justice at school and its associations with pupils’ psychosocial school environment, health, and wellbeing. *Social Science & Medicine*, 73(12), 1675-1682.
- Fredrickson, B. L. (1998). What Good Are Positive Emotions? Review of General Psychology. *Journal of Division 1, of the American Psychological Association*, 2(3), 300–319.
- Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *Philosophical Transactions-Royal Society of London Series B: Biological sciences* 359 (1449), 1367–1378.
- Froiland, J. M., Oros, E. , Smith, L., & Hirschert, T. (2012). Intrinsic Motivation to Learn: The Nexus between Psychological Health and Academic Success. *Contemporary School Psychology*, 16, 91-100.

Geelong Grammar School (2016). Retrieved from URL:

<https://www.ggs.vic.edu.au/School/Positive-Education/What-is-Positive-Education-Our-Positive-Education-Model>

Isen, A. M. & Daubman, K. A. (1984). The influence of affect on categorization. *Personality Social Psychology* 47, 1206–1217

Isen, A. M. (1990). The influence of positive and negative affect on cognitive organization: Some implications for development. In N. Stein, B. Leventhal & T. Trabasso (Eds.), *Psychological and biological approaches to emotion* (pp. 75–94). Hillsdale, NJ: Erlbaum

Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, 61, 121-140.

Keyes, C. L. M. & Shapiro A. D. (2004). Social well-being in the United States: A descriptive epidemiology. In O.G. Brim , CD. Ryff & R. C. Kessler (Eds.), *How healthy are we: A national study of well-being at midlife* (pp. 350-373). Chicago: University of Chicago Press.

Lamers, S.M.A. (2012). Positive mental health: Measurement, relevance and implications. Enschede, the Netherlands: University of Twente.

Lewis, A. D., Huebner, E. S., Malone, P. S., & Valois, R. F. (2011). Life satisfaction and student engagement in adolescents. *Journal of Youth and Adolescence*, 40(3), 249-262.

Linden, M. van der (2012). De positieve schoolinterventie-Een meta-analyse naar de effectiviteit van schoolinterventies ter bevordering van veerkracht en welbevinden (Masterscriptie). Nijmegen: Radboud Universiteit Nijmegen.

Maddux, J. E. (2002). Stopping the “Madness”: Positive Psychology and the Deconstruction of the Illness Ideology and the DSM. In Snyder C. R. , & Lopez S. J. (Eds.), *Handbook of Positive Psychology*, (pp. 13 -25). Oxford University Press.

- Miller, S., Connolly, P., & Maguire, L. K. (2013). Wellbeing, academic buoyancy and educational achievement in primary school students. *International Journal of Educational Research*, 62, 239-248.
- Ojanen, T., M., & Salmivalli, C. (2005). An interpersonal circumplex model of children's social goals: Links with peer-reported behavior and sociometric status. *Developmental Psychology*, 41(5), 699.
- Pels, T. (2011). *De pedagogische functie van het onderwijs*. Utrecht: Verwey-Jonker Instituut.
- Petegem, K. van, Creemers, B., Aelterman, A., & Rosseel, Y. (2008). The importance of pre-measurements of wellbeing and achievement for students' current wellbeing. *South African Journal of Education*, 28(4), 451-468.
- Pietarinen, J., Soini, T. & Pyhältö, K. (2014). Students' emotional and cognitive engagement as the determinants of wellbeing and achievement in school. *International Journal of Educational Research*, 67, 40-51.
- Reschly, A. L., Huebner, E. S., Appleton, J. J., & Antaramian, S. (2008). Engagement as flourishing: The contribution of positive emotions and coping to adolescents' engagement at school and with learning. *Psychology in the Schools*, 45(5), 419-431.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.
- Ryff, C. D., & Singer, B. H. (2006). Best news yet on the six-factor model of well-being. *Social Science Research*, 35(4), 1103-1119.
- Ryff, C. D. & Singer, B. (2008). Know thyself and become what you are: A eudemonic approach to psychological well-being. *Journal of Happiness Studies* 9, 13-39.
- Seligman, M.E.P. & Csikszentmihalyi, M. (2000). *Positive psychology: An introduction* (Vol.55, No.1, p. 5). American Psychological Association.



Seligman, M.E.P., Ernst, R., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education*, 35, 293-31.

Stichting Lessen In Geluk (2016). Retrieved from URL:  
<http://www.lesseningeluk.nl/lessen-in-geluk/>

Taylor, G., Jungert, T., Mageau, G. A., Schattke, K., Dedic, H., Rosenfield, S., & Koestner, R. (2014). A self-determination theory approach to predicting school achievement over time: The unique role of intrinsic motivation. *Contemporary Educational Psychology*, 39(4), 342-358.

Wentzel, K. R., & Caldwell, K. (1997). Friendships, peer acceptance, and group membership: Relations to academic achievement in middle school. *Child development*, 68(6), 1198-1209.

World Health Organization, (2005). Promoting mental health: Concepts, emerging evidence, practice. Geneva: WHO.