

Development of the Australian Student Wellbeing Survey



Measuring the key aspects of social and emotional wellbeing during middle childhood

Report prepared for Department for Education and Child Development
December 2015

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A COLLABORATION BETWEEN



Acknowledgements:

We would like to thank all of the students and schools who have participated in the trial of the student wellbeing survey between 2013 and 2015. We would also like to thank Peggy Kern for sharing early drafts of her EPOCH validity paper and descriptive statistics and distributions that have helped evaluate the EPOCH scales. Finally, we would like to thank Alice Bednarz who has provided suggestions on earlier drafts of this report, and help with interpreting the student wellbeing data.

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Suggested citation:

Gregory, T., & Brinkman, S. (2015). Development of the Australian Student Wellbeing survey: Measuring the key aspects of social and emotional wellbeing during middle childhood. Published by the Fraser Mustard Centre. Department for Education and Child Development and the Telethon Kids Institute Adelaide.

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Executive Summary

Although literacy and numeracy will remain the corner stone of education systems, it is now well recognised that the social and emotional skills of students and their general wellbeing are equally fundamental to learning and lifelong opportunities. Early adolescence, with the onset of puberty, and the transition to high school can be a difficult time period and is often characterized by changes in the role of social relationships with peers and adults. A lack of continuity in social relationships, support, and engagement in activities presents a particular risk to students during this period. Accordingly, it is important for schools to understand their student's wellbeing during the middle years.

“Schools play a vital role in promoting the intellectual, physical, social, emotional, moral, spiritual and aesthetic development and wellbeing of young Australians, and in ensuring the nation’s ongoing economic prosperity and social cohesion” [2].

The Department for Education and Child Development have collected information on the wellbeing of South Australian students over the past three years (2013-2015). As of December 2015, student wellbeing data has been collected from approximately 52,000 South Australian students in Grades 6, 7, 8 and 9. Over 700 school reports have been completed and delivered to schools. Conducting a “census” of student's wellbeing rather than completing small scale surveys provides information on students from every school, community, and region and allows this data to be incorporated into the DECD Partnership review process and to provide schools with data on how their students are doing and how they can best support them.

Measuring students' social and emotional wellbeing provides valuable contextual information that can be used in conjunction with students' scores on NAPLAN assessments to get a better sense of how the student is doing in a more holistic sense. As such, the Department has linked the information collected on student wellbeing with NAPLAN results for 2,800 individual students, and results suggest that modifiable factors including perseverance, eating breakfast and academic self-efficacy predict NAPLAN results. In 2016, school level results from the student wellbeing survey will be incorporated into the DECD Partnership review process.

Given the important work that has been done to date, and the momentum within the education system to continue to collect student wellbeing data, it is imperative to review whether we are measuring the right aspects of student wellbeing and whether the scales that we are using are working effectively.

As part of the Fraser Mustard Centre collaboration, the department commenced work to measure the wellbeing of students in the middle years in 2012. At that time, the Middle Years Development Instrument (MDI) was assessed to be the most appropriate survey tool available which met a range of validity and reliability tests and could be implemented in a normal classroom lesson for minimal cost. Since this time there have been further developments in the evidence base concerning the measurement of wellbeing and there are now several waves of data available which show how the survey items ‘work’ in the South Australian population. The department commissioned this review from the Fraser Mustard Centre for the purpose of informing future decisions around which aspects

of wellbeing should be measured at scale within schools and the quality of the tools available to do this. Importantly, given the growing interest throughout education systems in improving the skills, attitudes and wellbeing of all children, not only those with mental health problems, survey items can accurately measure high and low wellbeing are required. Where items or scales show a ceiling effect whereby the majority of students score very highly, this makes it difficult to detect later changes over time and thereby reduces the potential value for evaluation and monitoring.

The focus of this review was on the social and emotional aspects of student wellbeing¹. The ten social and emotional constructs that are currently measured in South Australia are shown below. The review considered each of the constructs at two levels. At the first level, we explored the constructs (e.g. happiness) and at the second level we explored the test/instrument. First, we considered whether the construct was an *important predictor* of life outcomes including health, education, social relationships, workforce, psychological wellbeing, and second whether it was *modifiable* during the middle years of schooling. The overarching premise behind this work is that student wellbeing is modifiable and that programs and policies within the Department for Education and Child Development can be evaluated for their ability to improve students' wellbeing. As such, it is imperative that we measure aspects of student wellbeing that are both important and modifiable.

Happiness	Engagement	Empathy
Sadness	Optimism	Pro-social skills
Worries	Perseverance	Self-esteem
Life Satisfaction		

After determining the aspects of wellbeing that are both predictive of later outcomes and modifiable, we then reviewed existing scales available to measure those aspects. In particular we determined the reliability and validity of these scales and their sensitivity to detect changes at a classroom, school and community level. When the Department for Education and Child Development ('the Department') allocates funding to programs to improve student wellbeing, it is imperative to have scales that can detect changes if they occur. If the scales are not sensitive enough, then we will not be able to detect improvements in student wellbeing even if the programs are effective. In the same way that the questions within NAPLAN tests are selected based on psychometric testing and rescaling to make sure they are comparable over time, we need to be confident that the student wellbeing scales have good psychometric properties so that they can also be used to make well-informed decisions within schools and the Department more broadly.

¹ Future work should explore other aspects of student wellbeing including school engagement and student relationships/connectedness.

In summary, the evidence base shows that the wellbeing of young people can be measured in a scientifically valid way and within a typical classroom environment. However, the science is new and further developments have occurred since the department commenced this work in 2012.

The department's aim is to collect and act on the best available information. Whilst it had initially adapted and trialled the Middle Years Development Instrument (MDI), it commissioned this review to determine if improvements could be made to how it measures wellbeing, both in terms of the specific items and scales used and the different constructs or areas of wellbeing it measures.

Based on our literature review and review of the psychometrics properties of each of the scales, we propose six recommendations to improve the student wellbeing survey.

- **RECOMMENDATION 1:** Add the 4-item EPOCH Happiness scale
- **RECOMMENDATION 2:** Remove the 4-item EPOCH Engagement scale, and instead create a module on school engagement that better meets the needs of the Department
- **RECOMMENDATION 3:** Remove the 3-item Empathy scale
- **RECOMMENDATION 4:** Replace the 3-item worries (anxiety) scale with items that measure worries at school and home, rather than just worries about peer problems.
- **RECOMMENDATION 5:** Remove the 3-item Self-Esteem scale.
- **RECOMMENDATION 6:** Add a short Emotion Regulation scale.

If these six recommendations were adopted, this would provide a set of seven social and emotional wellbeing scales with the following attributes:

1. able to measure important aspects of social and emotional wellbeing that predict health, education, social relationships, workforce, and/or psychological wellbeing in later life;
2. are modifiable during the middle years of schooling;
3. are sensitive to changes in wellbeing over time;
4. can be collected within a classroom setting in an online or paper and pencil format; and
5. can be used without licencing requirements and free of charge.

These modifications to the instrument would present a significant improvement and help to address the concerns of schools about the length of the survey. We would also advise a review be conducted on the other aspects of student wellbeing that are currently being measured (students' relationships/connectedness, school experiences, physical health and wellbeing, after school activities) with the aim of removing redundant items to shorten the survey. There are only a few other scales within the rest of the survey – most are single item questions – but it is important to ensure that these also have adequate psychometric properties and are sensitive to detect change over time in student wellbeing.

Project aims and background

For the past three years (2013-2015), the South Australian Department for Education and Child Development have conducted a wellbeing survey with students in the middle years (Grades 6 – 9). An Australian adaptation of the Middle Years Development Instrument (MDI) has made up the core items within the wellbeing survey, with the addition of the Perseverance and Engagement scales from the EPOCH Measure of Adolescent Well-Being. In 2015, a group of schools in the Northern suburbs of Adelaide also completed the other three scales from the EPOCH – optimism, relationships and happiness. The survey has received widespread support from students, teachers and schools, and the sample of participating students has increased each year from about 5,000 in 2013 to close to 30,000 in 2015. However, one piece of consistent feedback from schools is that the survey is too long and that if it could be delivered within one class period (rather than two) this would reduce a significant barrier for non-participating schools and be easier from a logistics perspective.

In addition to survey length, several other key issues have arisen with the survey in its current form. First, the MDI is a licenced instrument, making it very difficult to make any modifications that might be needed within a local context (e.g. removing scales to shorten the survey). Second, a licence fee is charged for use of the MDI for each 12-month period, and the data must be provided back to the University of British Columbia as part of the licence agreement. Third, some of the scales are highly skewed (i.e. many children receive the highest score possible), limiting the ability of the scales to differentiate between children and to monitor population changes over time. Fourth, the constructs included within the MDI have not been reviewed for their suitability to meet the needs of the Department for Education and Child Development. Specifically, it is not clear whether all of these factors impact on important educational outcomes (i.e. academic achievement, school completion), and other life outcomes such as health, psychological wellbeing and workforce participation, and whether the factors are modifiable through interventions during the middle years.

Given these limitations, the aim of this report is to review the *constructs* that are currently measured within the wellbeing survey against two key criteria (see Figure 1). First, that the construct (e.g. perseverance) predicts important life outcomes including educational attainment, employment, mental and physical health and social relationships. Second that the skills, habits or aptitudes underpinning the construct can be modified during the period of middle childhood. One of the key purposes of the student wellbeing survey is to provide outcome measures that can be used to evaluate interventions and to track student wellbeing over time. Are the programs and policies implemented within DECD successfully improving student wellbeing? Is the wellbeing of South Australian students improving over time? If the constructs included within the student wellbeing survey develop in early childhood and are fixed by middle childhood then it will be impossible to “shift” them by any intervention during the middle years (see p.10 for more detail).

In Stage 2, we will review the *scales* from the MDI and EPOCH to see whether they meet a second set of criteria. First, the scales need to have adequate reliability and validity for use with students in the middle years. Second, the scales need to be suitable for use across the whole population (i.e. not for a specific clinical group, for example children with ADHD) and be sensitive enough to detect change over time (see p.11 for more detail). The final criterion is that the scale needs to be feasible

and pragmatic to collect in a class room setting. Specifically, the scale cannot be too long and should be freely available without licencing requirements.

Stage 1: Review the construct

1. For each construct, what is the strength of the evidence that it:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing); AND
 - b. is modifiable during the middle / adolescent years?

Stage 2: Review the scale

2. For the constructs that pass the review at Stage 1, are there measures/scales available which:
 - a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents
 - b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level
 - c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

Figure 1. Criteria for evaluating constructs and scales in the Student Wellbeing Survey

The Middle Years Development Instrument (MDI) includes items and scales on five specific areas:

- 1) Social and emotional wellbeing,
- 2) Connectedness to adults and friends,
- 3) School experiences,
- 4) Physical health and wellbeing, and
- 5) Use of after school time.

This review is limited to reviewing the *social and emotional wellbeing* constructs within the MDI. In addition, this review will cover four of the five constructs measured within the EPOCH Measure of Adolescent Well-Being, which are described as five “pillars” of wellbeing in adolescents: Engagement, Perseverance, Optimism, and Happiness. The 10 constructs that will be reviewed in this report are listed in Figure 2 below.

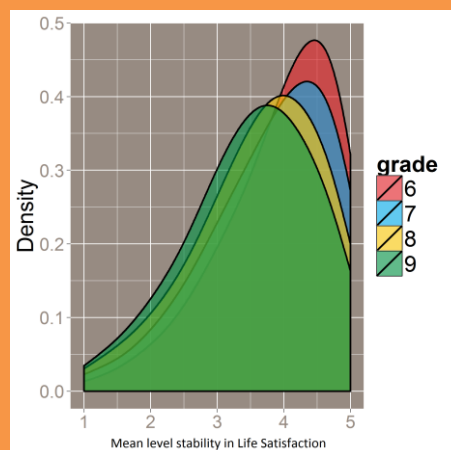
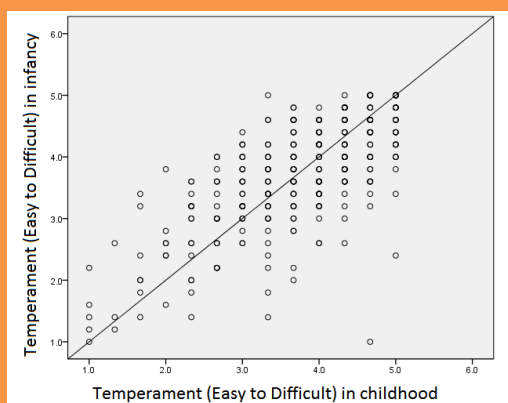
Happiness	Engagement	Empathy
Sadness	Optimism	Pro-social skills
Worries	Perseverance	Self-esteem
Life Satisfaction		

Figure 2. Constructs under review

How do we know if the constructs are “modifiable” over time?

One of the criteria for evaluating the constructs in the student wellbeing survey is that it should be modifiable during the middle years. Put another way, the constructs should not be stable or set from an early age but be changeable during the middle years. They are two key types of stability that we can look at to help answer this question.

Rank order stability: Some infants are calm, happy, and easy to settle, while others are fussy, cry a lot, and are generally more difficult. If the easiest infants tended to also be the easiest children and adolescents, then temperament would be considered stable over time (i.e. not modifiable). This type of stability is referred to as **rank-order stability**. If the easiest infants tend to be the easiest children then their ranks (1=easiest, 10 = most difficult) in infancy and childhood will be highly consistent, suggesting that the trait is stable over time, or there is high rank order stability. In reality, most traits do not become fixed until adulthood. Before this time individuals shift around from the low to the high end of the distribution of scores. Exploring the rank order stability of different constructs (see figure below left) gives a sense of how stable they are, and whether interventions might be successful at moving individuals at the low end to the high end of the distribution of scores.



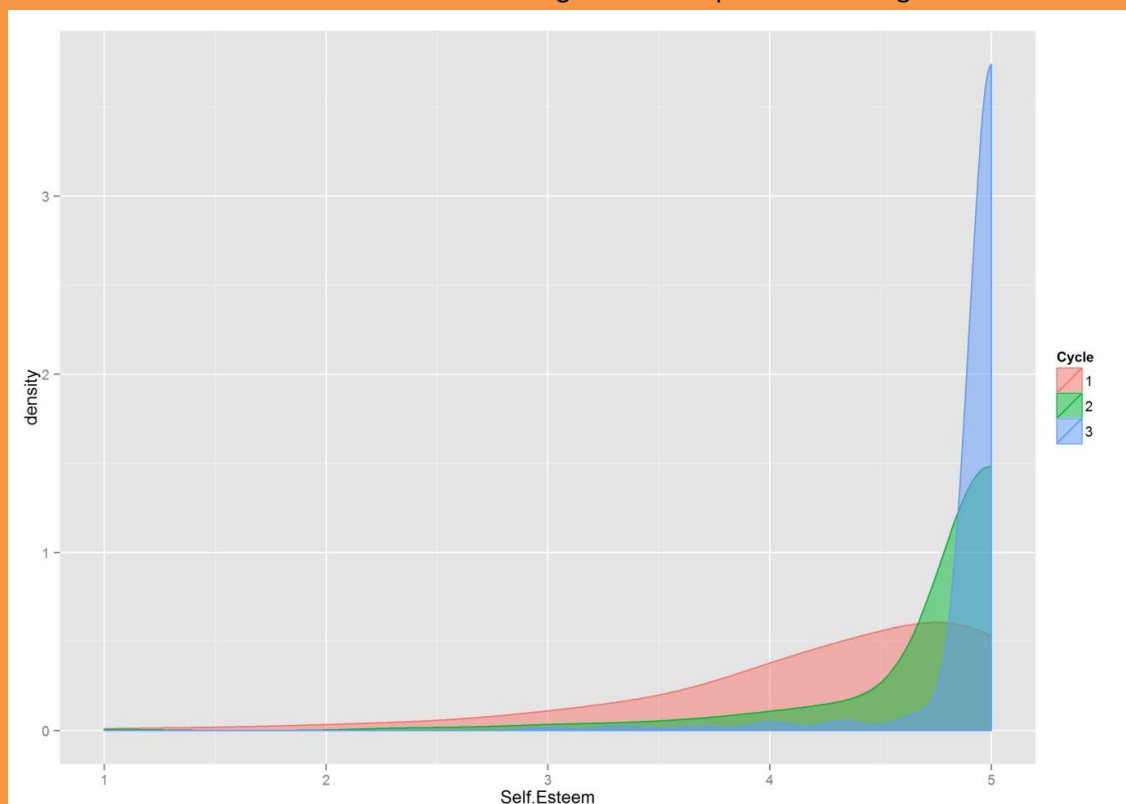
Mean level stability: In practice we are interested in more than just shuffling people around in their rank orders. We want to shift the entire distribution up by improving the mean (average) level of happiness, life satisfaction or optimism for students. Even if the rank order of students stayed exactly the same over time (i.e. the most dissatisfied students at the end of primary school remained the most dissatisfied students at the end of high school), we would still want to increase the level of life satisfaction for all students. This type of stability is referred to as **mean level stability**. Exploring the stability of mean scores for different constructs over time provides insights into how stable they are, and constructs that are less stable provide opportunities to intervene and improve scores for the whole population. The figure above (right) shows that the mean level of life satisfaction drops as children mature from Grade 6 to Grade 9, so this indicates that life satisfaction is not stable during the middle years.

Are the scales sensitive to change?

In his *Building the State of Wellbeing Report*, Martin Seligman talks about implementing programs that can increase the wellbeing of entire populations [1]. If the constructs are not measured effectively then even if we do improve the wellbeing of a population, we will not be able to detect this change on our scales. We need scales that are *sensitive to change*.

Why do distributions matter?

The figure below shows the distribution of scores on the Self-esteem scale from the MDI. The first curve (red) shows scores for the Grade 6 students who completed the MDI in 2013. The second curve (green) shows the scores that would occur if we had an intervention that could improve the self-esteem of all of these Grade 6 students by 1 point. Anyone who scored the maximum score on 5 on the scale in 2013 would still score 5 after the intervention even if their real level of self-esteem improved because they have got no-where to move on the scale. The third curve (blue) shows the scores that these students would receive if a subsequent intervention had the same impact. Already we have more than 90% of the children receiving the maximum score on the self-esteem scale. A scale of this nature would not be *sensitive to change* because too many students are already receiving the top scores. We need scales with normal distributions to be able to detect changes in both a positive and negative direction.



Brief review of wellbeing theories

In the study of psychological wellbeing, there are two main theoretical traditions referred to as *hedonic* and *eudemonic* wellbeing. Some of the constructs listed in Figure 2 come from the hedonic wellbeing tradition, and others come from the eudemonic wellbeing tradition, so it is useful to have a basic understanding of the two approaches.

Hedonic wellbeing

Hedonic wellbeing focuses on the subjective experience of happiness and life satisfaction. Hedonic wellbeing, also referred to as subjective wellbeing, is made up of 1) a cognitive judgement about life satisfaction, 2) the presence of positive affect, and 3) the absence of negative affect. A person with high subjective wellbeing should experience positive emotions frequently, negative emotions infrequently, and be satisfied when they make an assessment of their life [3].

Within the hedonic wellbeing tradition, three key constructs need to be measured to understand an individual's wellbeing. These are:

1. **Life satisfaction.** This is the *cognitive* aspect of subjective wellbeing and involves a judgement about how satisfied the individual is with their life. This construct is generally measured by items such as "So far I have gotten the important things I want in life" and "if I could live my life over, I would have it the same way".
2. **Positive affect.** The positive affective component involves measuring the degree to which individual experience positive emotions, such as happiness, joy and excitement (e.g. I often feel happy).
3. **Negative affect.** The negative affective component involves measuring the degree to which individuals experience negative emotions (e.g. I feel upset about things, or I worry a lot).

In the Middle years Development Instrument, there is a life satisfaction scale and two scales that measure negative affect (sadness, worries) but there is no scale that measures positive affect (happiness). A scale measuring happiness is necessary to be able to measure subjective wellbeing properly within the hedonic approach. There is a happiness scale in the EPOCH and, providing this has adequate psychometric properties, could be used to round out this aspect of student wellbeing.

One of the criticisms of the hedonic approach is that maladaptive behaviours (such as drug abuse) can change the amount of positive and negative affect that an individual experiences in the short-term and the judgements that they make about their life without improving their overall wellbeing. As such there must be factors other than positive and negative affect and life satisfaction that are central to the concept of wellbeing that are not being captured in these hedonic measures of subjective wellbeing.

Eudemonic wellbeing

The second perspective on wellbeing - *eudemonic wellbeing* - moves away from a focus on happiness towards a focus on human needs. The idea is that humans have key psychological needs such as a sense of meaning in their lives, autonomy, connectedness to others and a sense of control, and that if these are met then the individual can achieve a sense of wellbeing [4]. Other authors have suggested that wellbeing stems from identifying your skills, talents and strengths and cultivating these to make the world a better place [5]. Within these models, constructs like meaning, connectedness, accomplishment are considered essential for an individual's wellbeing even if they do not lead to any positive affect or happiness.

The eudemonic concept of wellbeing helps to address the limitations of the hedonic model highlighting that people need to satisfy a whole range of needs to achieve wellbeing beyond just the need to experience happiness and avoid negative emotions. Maladaptive behaviours like drug abuse cannot lead to true wellbeing because they do not satisfy any of these other human needs such as the need to connect with other people and to feel a sense of meaning about one's life.

From this perspective, wellbeing would be defined by the presence of key factors such as engagement, meaning, accomplishment and positive relationships, all of which are measured within Seligman's PERMA Theory of Wellbeing [6]. Indeed the PERMA Theory of Wellbeing could be thought of as a hybrid of both the hedonic and eudemonic wellbeing approaches because it also measures positive affect as the first of the five key dimensions of wellbeing.

PERMA Theory of Wellbeing

P	Positive Emotion
E	Engagement
R	Relationships
M	Meaning
A	Accomplishment

In earlier iterations of Seligman's wellbeing theory, such as that described in his 1999 book "Authentic Happiness" he talked about happiness and used life satisfaction as the key outcome measure. However, in his later work he describes the word happiness as an unscientific term and moves away from the hedonic approach by incorporating other constructs that are important for wellbeing even if they do not increase happiness. In his 2000 review paper, he discusses three different aspects of happiness: 1) the pleasant life, 2) the engaged life, and 3) the meaningful life. Later still he recognises that this model is incomplete because some people strive to achieve for the sake of it, even if this does not produce happiness or meaning in their life and if it is not particularly engaging. At this point, Seligman incorporates an Accomplishment factor into his model. Finally, in line with many of the other eudemonic theories, a factor recognising the importance of relationships is added to the theory wellbeing model.

The PERMA Theory of Wellbeing posits that there are five positive characteristics that help support higher levels of wellbeing: positive emotions, engagement, relationships, meaning and accomplishment. Importantly, Seligman argues that all five of these characteristics are modifiable and that effective interventions and programs should be able to improve an individual, class, school or community’s overall wellbeing through improving one or more of the five constructs.

The PERMA theory was developed with adults. Some of these constructs can be measured appropriately with children and adolescents. However, other constructs may not make sense to measure from a developmental perspective.

The EPOCH Measure of Adolescent Wellbeing was created to provide a developmentally appropriate instrument to measure the constructs of Seligman’s PERMA theory of wellbeing [7]. Three of the constructs – positive emotions (happiness), relationships (connectedness) and engagement – are measured in a similar manner for children, adolescents and adults. However, the constructs of Meaning and Accomplishment may not mean the same thing for children and adolescents that they do for adults, and are replaced in the EPOCH by developmental precursors to these constructs [8].

E	Engagement
P	Perseverance
O	Optimism
C	Connectedness (Relationships)
H	Happiness (Positive emotion)

Meaning is defined as by items such as “I live my life with purpose” and “I lead a meaningful life”. In the EPOCH measure, meaning has been replaced with optimism.

Accomplishment is measured by items such as “Most days I feel a sense of accomplishment for what I do” and “I often feel that I am making progress towards accomplishing my goals”. In EPOCH, accomplishment has been replaced with perseverance, with the idea that students who have higher perseverance in adolescence will be more likely to have high accomplishment in adulthood.

Happiness	Engagement	Empathy
Sadness	Optimism	Pro-social skills
Worries	Perseverance	Self-esteem
Life Satisfaction		

The constructs in the left hand column are from the *hedonic wellbeing* approach, the constructs in the middle are from the *eudemonic wellbeing* approach. These seven constructs and the three on the far right will now be reviewed, according to the criteria described in Figure 1 above.

Review of constructs and scales

Happiness

Of all of the constructs covered within this review, happiness is perhaps the most difficult to define. Happiness has been explored in popular culture in films (“The Pursuit of Happiness”), books (the Dali Lama’s “The Art of Happiness”), music (Pharrell Williams’ hit song “Happy”), and scholars and philosophers have explored the concept of happiness for many hundreds of years. Within the academic literature there are two main ways that happiness is defined. The first is to define a happy person as someone who frequently experiences positive emotions, including excitement, contentment, affection, pride, and joy [9]. The second way to define a happy person is someone who frequently experiences positive emotions and infrequently experiences negative emotions, and to calculate the balance of positive and negative emotions to create a happiness score. In this review, we define happiness as frequently experiencing positive emotions because we are going to review sadness and worries separately, and aim to keep the constructs as distinct as possible.

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

It is important to note that happiness is considered an important outcome, in and of itself. As described earlier, the hedonic approach purports that the pursuit of pleasure and happiness is the way to achieve a good life, and many parents and students would agree with the statement that “I just want my children to be happy”. Nonetheless, the question of whether happy people are more successful and accomplished across different life domains has been studied extensively over the past 30 years, with strong evidence in favour of this idea.

Lyubomirsky, King and Diener (2005) conducted an extensive meta-analytic study exploring the evidence from cross-sectional, longitudinal and experimental studies on the impact of happiness on life success [9]. Happier people had better employment outcomes including being more likely to secure job interviews, being evaluated more positively by supervisors, having higher productivity, and being less likely to experience job burnout. The mean effect size for employment outcomes was .27 for cross-sectional studies and .24 for longitudinal studies. There was also strong evidence that happier people had larger social networks, more friends, more social support and experienced more successful interpersonal relationships, with mean effect size² of .27 in cross-sectional studies, and .21 in longitudinal studies. Happiness had a medium positive effect ($r = .32$) on physical and mental

² An effect size indicates the magnitude of the relationship between two variables (e.g. happiness and employment outcomes) or the difference between groups on an outcome (i.e. difference between boys and girls happiness levels in adolescence). Correlations between two variables (i.e. happiness and employment) can be classified into small effects ($r = .10$ to $.29$), medium effects ($.30$ to $.49$) or large effect ($r = .50+$), see Cohen, 1990 for further information [10].

health outcomes including mortality, suicides, mental health problems, pain levels, heart disease, stroke, and recovery after surgery. However, a small effect ($r = .18$) was detected in longitudinal studies, consistent with the idea that there is a bi-directional relationship between health and happiness that is difficult to tease out in cross-sectional research (i.e. health states impact happiness as well as happier people being healthier).

While the association between happiness and health is well established, it does not follow that the relationship is causal or that increasing an individual's happiness would improve their health outcomes. Rather, it is through a range of indirect mechanisms that happy people are thought to experience benefits to their health. Friedman and Kern [11] provide a nice summary of literature on positive emotion and health.

“Actions or interventions to improve well-being might indirectly improve a person’s physical function but not act directly. This is an important distinction. To take some obvious examples, people can feel happier by watching TV comedies, eating sugary foods, riding a Ferris wheel, taking cocaine, or partying. But they would not be healthier. On the other hand, taking long walks through the park each day, thriving at work, and maintaining high-quality intimate relationships with loved ones probably will have a long-term impact on both happiness and physical health” [11, p.725].

In short there is strong evidence that happier people have a range of positive outcomes including better employment outcomes, better physical and mental health and better social relationships. While some researchers argue that these effects are causal [12] others believe that these effects are indirect and that interventions to improve happiness will not necessarily have a positive impact on other life outcomes [11].

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

Individual differences between children and adolescents in their happiness levels are thought to be the result of both innate differences in their pre-disposition to experience positive emotions, and differences in their life circumstances and intentional activities that they engage in [9]. Evidence for the innate differences in happiness come from temperament research, which shows large variation in infants' and children's level of positive affect [13] and from twin studies that show that identical twins reared apart have more similar happiness levels than non-identical twins reared within the same household, suggesting a strong genetic component to happiness [14]. However, even these more innate components of happiness change over time, with rank order stability coefficients for temperamental traits increasing significantly with age from .45 for children aged 6-11 years, .47 for children aged 12-18, .62 for adults in their 30s, and .75 for adults in their 50s [15].

With respect to environmental factors, many studies have established that changes in behaviour can lead to improvements in mean happiness levels. As an example, Al Nima et al. [16] explored the impact of eight different happiness-increasing strategies in adolescents on their happiness at the end of the school year. Results suggested that three of the strategies - mental control (e.g. “trying not to think about being unhappy”), direct attempts (e.g. “act happy/smile”) and active leisure (e.g. exercise) – were associated with higher happiness scores at the end of the year.

2. Are there measures/scales available which:
 a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

The EPOCH³ Measure of Adolescent Wellbeing contains a four-item happiness scale that is suitable for use with children in the middle years. The reliability and validity of the scale have been established in ten different samples from Australia and the US [7]. The main findings are summarised in below.

EPOCH Happiness scale	
1	I feel happy
2	I have a lot of fun
3	I love life
4	I am cheerful person

Internal consistency of the scale	The happiness scale had the highest internal consistency of all five EPOCH scales with a Cronbach’s alpha of .83 in the combined sample of 2,893 participants.
Construct validity	All four items loaded highly on the happiness factor with factor loading ^{4,5} ranging from .73 to .80.
Convergent validity	The happiness scale correlated highly with other theoretically similar scales including optimism (r = .70) and life satisfaction (r = .83), and correlated negatively with depressive symptoms (r = -.53).
Divergent validity	The happiness scale showed a lower correlation with theoretically distinct scales such as engagement (r = .43) and perseverance (r = .51).
Test retest reliability	The test-retest reliability of the scale was high over a 3-week period (r = .71).

³ All the EPOCH scales were scored on a five point likert scale

⁴ The construct validity was established using factor analytic methods. Factor analysis aims to take a large number of items or variables, and reduce them down to a smaller number of factors, also referred to as latent (unobserved) constructs. Factor loadings are scores between -1.0 and 1.0 that denote the strength of the association between the item and the latent construct. High factors loadings (.70 or higher) indicate that the construct (e.g. happiness) strongly affects the item/variable, or that the two are strongly related.

⁵ The factor loadings reported for the EPOCH scales were based on confirmatory factor analyses on four samples of adolescents who completed the 20-item EPOCH questionnaire [7]. These analyses explored the model fit and factor loadings for the pre-established factor structure based on prior analyses of the 25-item EPOCH scale.

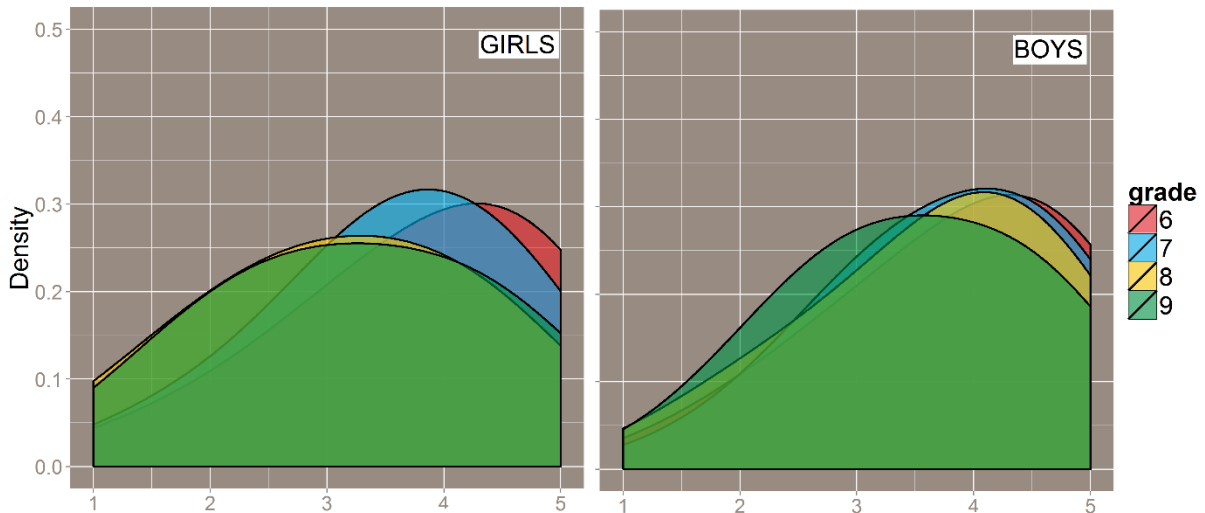


Figure 3. Distribution of score on the EPOCH Happiness scale (4-items)

2. Are there measures/scales available which:
 - b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

Students attending schools within the Northern Connections group completed the EPOCH scale, in addition to the MDI in 2015 ($n = 2,093$). Figure 3 shows the distributions on the EPOCH Happiness scale for students from Grade 6 to 9 split by gender. The scale appears to measure happiness across the whole spectrum from low to high. There is some skewness with ceiling effects for students in Grade 6 but the scale is much more normally distributed for students in Grade 8 and 9, particularly for girls. The trend of decreased happiness as children mature⁶ and become adolescents is picked up with this scale, suggesting that it is sensitive to changes over time, and would likely be sensitive enough to detect changes at a school, community or classroom level over time.

2. Are there measures/scales available which:
 - c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

The EPOCH Happiness scale is short (4-items) with good psychometric properties and is pragmatic to use in a classroom setting. The trial of EPOCH with students in Grade 6 to 9 did not raise any issues in measuring happiness via an online system. Peggy Kern who created the EPOCH has advised the Department previously that they are able to use the EPOCH scale for free without any licencing conditions. As such, there would not appear to be limitations using the scale in the future.

⁶ These data compare happiness levels for different groups (i.e. cohorts) of children in Grade 6,7,8 and 9. If the EPOCH Happiness scale is collected in the future, then it will be possible to explore changes over time in the same sample of children, which will provide more powerful evidence of the malleability of the construct over time, and the ability of the scale to detect these changes.

HAPPINESS	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
... impacts on later outcomes?	HIGH
... is modifiable during the middle years?	MEDIUM
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	YES
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	YES
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	YES
RECOMMENDATION	
Include the four-item EPOCH Happiness scale within the student wellbeing instrument	

Sadness, worries and emotion regulation

Experiencing negative emotions such as sadness, fear and anger is a normal part of life, and learning skills to manage these negative emotions is an essential part of children's emotional development. When children do not have the skills to deal with negative emotions in an adaptive way, maladaptive responses can be formed that may lead to a range of negative consequences. Children may worry excessively in a manner that affects their ability to function at school, at home and in social situations and impacts their mental and physical health. There is not a body of literature on "sadness" or "worries" per se, but there is a wealth of information on the negative impacts of depression and anxiety.

Within the Student Wellbeing Survey, the goal is not to measure depression and anxiety using a clinical instrument that will identify students who meet the clinical cut-off for a mental disorder. If such instruments were used, students scoring beyond this cut-point would need to be referred onto psychological or counselling services, and we would not be able to assure students of the confidentiality of their responses. This would likely reduce the high participation rate of the student wellbeing survey. As an alternative, the Middle Years Development Instrument measures sadness (e.g. "I feel upset about things") and worries (e.g. "I worry about being teased") using 3-item non-clinical scales. This presents some challenges here because most of the research focuses on the impacts of *clinical* depression and anxiety on education, health, and workforce outcomes, and the malleability of *clinical* depression and anxiety over time. Where possible, we also explore whether sub-clinical levels of depression and anxiety have important life impacts, and are malleable over time.

In addition to sadness and worries, we explore the construct of emotion regulation⁷. Emotion regulation (emotional control) can be defined as the intra- and interpersonal modulation of emotions through a variety of cognitive and behavioural strategies [18, 19]. Emotion regulation involves the ability to regulate both positive emotions (joy, excitement) and negative emotions (anger, anxiety, sadness) when the expression of the emotions is problematic or inappropriate. Emotional regulation is a fundamental skill that children need to master in order to develop and maintain social relationships with other children, and their ability to inhibit emotional outbursts such as crying or anger is essential within a classroom setting. This body of research suggests that it is not the intensity of emotional experience that is paramount but whether children have the skills to recognise these emotions in themselves and others and to manage, modulate and inhibit emotional reactions that impact life success.

⁷ Emotion regulation was originally considered for inclusion within the Middle Years Development Instrument but was ultimately left out. We think it is worth reconsidering its inclusion, particularly given the big increase in research in this areas over the past 10 years (see Gross 2013), and the strong focus in the literature on the impact of so called "non-cognitive skills" including self-regulation on a range of different life outcomes [17].

Sadness (Depression)

Experiencing sadness during a difficult period (“I feel upset about things”) is very different to experiencing a depressed mood over a sustained period of time that impacts on normal functioning at home, school or in social situations [20]. Major depressive disorder is diagnosed when children or adolescents experience five or more symptoms of depression for at least a two week period [21], including depressed mood, weight loss or gain, loss of appetite, insomnia/hypersomnia, restlessness, fatigue and loss of energy, feelings of worthlessness and attention problems. Recent Australian statistics suggest that 4.3% of males and 5.8% of females aged 12 to 17 years of age had experienced major depressive disorder in the past 12-months [22].

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

Children and adolescents with clinical depression experience impairments in school performance, social relationships, increases in suicidal behaviour, and abuse of alcohol and other drugs in later adolescence and adulthood [23]. However, it was not clear whether the studies included within the review adjusted for confounding variables such as SES, which is risk factor for both mental health problems [24], and other life outcomes (e.g. poor school performance, drug and alcohol abuse).

A New Zealand birth cohort study found that 13% of the sample had depression between 14 and 16 years old and this group were at a significantly higher risk of major depression, anxiety disorders, nicotine dependence, alcohol abuse, suicide attempt, educational underachievement, unemployment and early parenthood in young adulthood. Adjustment for maternal education, IQ, and neuroticism attenuated most of these effects but the increased risk of major depression (OR⁸ = 3.8) and anxiety disorder (OR = 2.8) in later life remained significant [25]. Other researchers have showed that the presence of sub-clinical levels of depression in adolescence significantly increased the risk of clinical depression (OR = 3.5) and substance abuse (OR = 1.6) in early adulthood [26].

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

There is ample evidence that individual and group clinical therapies are efficacious in treating depression in children and adolescents [27]. The more difficult question is whether universal prevention programs can help reduce depressive symptoms. In a comprehensive review of universal school based interventions, Durlak et al. reviewed a total 213 programs involving about 270,000 children ranging from kindergarten to high school students [28]. These programs had a significant

⁸ An odds ratio (OR) is a measure of the association between an exposure (e.g. adolescent depression) on an outcome (e.g. substance abuse). An odds ratio of 1.6 indicates that adolescents with depression have 1.6 times higher odds of substance abuse in later life than adolescence who do not have depression.

positive impact on students' levels of emotional distress ($ES = 0.24$) after the intervention ended and at follow up 6-months or more later ($ES = .15$). This suggests that depressive symptoms are malleable during the middle years of schooling.

2. Are there measures/scales available which:
 a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

The MDI contains a 3-item sadness scale designed to measure depressive symptoms. The items were selected from the 10-item Depression sub-scale in the *Seattle Personality Questionnaire* [29]. The psychometric properties of the full 10-item scale is not relevant, given that just 3 items have been used in our survey. We report on the psychometric properties of the 3-item version published in the MDI validity paper, and explore the distribution of scores in the 17,536 South Australian students who completed the MDI in 2014.

MDI Sadness scale	
1	I feel upset about things
2	I feel that I do things wrong a lot
3	I feel unhappy a lot of the time

Internal consistency of the scale	The internal consistency is acceptable with a Cronbach's alpha of .70, and an ordinal alpha of .75.
Construct validity⁹	Factor loadings on the sadness factor range from .63 to .78, suggesting that they measure a single construct
Convergent validity	The sadness scale in the MDI has a strong correlation with the worries scale in the MDI ($r = .48$), which is a theoretically similar construct as they both measure the presence of internalising problems.
Divergent validity	The sadness scale correlates less than .20 with theoretically distinct constructs including empathy and prosocial behaviour.
Test retest reliability	<i>Not available</i>

⁹ The construct validity of the MDI scales was explored using the results of confirmatory factor analyses reported in Study 4 by Schonert-Reichl, et al. [30]. To summarise briefly, the factor structure for the social and emotional development domain was first tested using exploratory factor analyses (reported as Study 3 in the paper). Subsequently, the model fit and factor loadings were explored using confirmatory factor analyses. Factor loadings were only reported in full for the confirmatory factor analyses, so these are reported in the table above.



Figure 4. Distribution of score on the MDI Sadness scale (3-items)

2. Are there measures/scales available which:

- b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

Figure 4 shows the distribution of scores for girls and boys on the sadness scale (higher scores indicate more sadness). The distributions are normal with limited signs of skewness. There is a mean shift towards higher levels of sadness in girls as they get older, which is consistent with studies of the prevalence of depression in adolescent girls [31]. However, the mean level of depressive symptoms on the MDI scale for boys is equal in Grade 6 to 9, despite small increases in the prevalence for depression in bigger epidemiological studies for male adolescents [31]. This sensitivity to changes with maturation (in girls at least), and the normal distribution suggest that the scale is likely to be sensitive to changes at a school, community or classroom level.

2. Are there measures/scales available which:

- c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

The MDI Sadness scale is a short (3-item), normally distributed scale with good psychometric properties and is feasible and pragmatic to use in a classroom setting. The scale can be collected using a paper and pencil or an online collection system. This Fast Track Project team have provided permission for DECD to use these items within the PISA wellbeing project at no cost, so we do not foresee any issues in gaining approval to use them for the Student Wellbeing survey.

SADNESS (DEPRESSION)	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
... impacts on later outcomes?	HIGH
... is modifiable during the middle years?	MEDIUM
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	YES
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	YES
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	YES
RECOMMENDATION	
The 3-item MDI sadness scale should be included	

Anxiety (Worries)

Anxiety, unlike major depression, is not a single disorder but a group of disorders. Individuals experiencing anxiety disorders experience “*persistent excessive worry or fears that typically interfere with their ability to carry out their day tasks or take pleasure in day-to-day life*” [22, p.41]. In middle childhood, excessive worrying can stop children participating in school, sports, after school activities and socialising with their friends. A recent Australian study examined the prevalence of the four most common anxiety disorders – social phobia, separation anxiety, generalised anxiety and obsessive-compulsive disorder – and found that 6.3% of males and 7.7% of females aged 12 to 17 years of age had experienced one or more of these anxiety disorders in the past 12-months [22]. As such, anxiety disorders impact a significant proportion of Australia’s young people.

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

The impact of anxiety disorders are broad and far reaching. Children and adolescents with anxiety disorders are at a high risk of adult mental health issues [32, 33]. Anxiety disorders increase the risk of dropping out of school, and academic under-achievement [34, 35]. For example, a retrospective Canadian study recruited adults with anxiety disorders and found that 49% reported leaving school early and 24% of these indicated that anxiety was the main reason for this decision [35]. Children and adolescents with anxiety disorders also experience a higher risk of suicide attempts, antisocial behaviour, poor employment outcomes, reduced social support and social interaction [36].

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

Adults who have an anxiety disorder at one point in time are highly likely to maintain that diagnosis in the longer term [37, 38]. However, for children and adolescents the stability of anxiety disorders over time is much lower. A study with children and adolescents aged 5-19 years, found that 80% no longer met the criteria for their originally diagnosed anxiety disorder 3 to 4-years later at follow up [32]. As mentioned earlier, anxiety is a class of disorders, and while there appears to be low stability within specific anxiety disorders (e.g. obsessive compulsive disorder), adolescents who have been diagnosed with one anxiety disorder are more likely to experience future mental illness than those who have not. For example, a longitudinal study with adolescents (14-17 year olds) found that only 19.7% of all adolescents who were diagnosed with an anxiety disorder at baseline meet the diagnostic criteria for that *same* disorder at the two-year follow up appointment [33]. While there was low stability within the specific disorders, the vast majority of adolescents (73%) who had an anxiety disorder between 14 and 17 years were diagnosed with an anxiety or depressive disorder at subsequent assessments.

2. Are there measures/scales available which:
- a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

The 3-item worries scale in the MDI was designed to measure anxiety symptoms (see below). These items were taken from the six-item anxiety symptomology scale in the *Seattle Personality Questionnaire* [29]. We report on the psychometric properties of the 3-item scale from the MDI validity paper, and explore the distribution of scores in the 17,536 South Australian students who completed the MDI in 2014.

MDI Worries scale	
1	I worry a lot that other people might not like me
2	I worry about being teased
3	I worry about what other kids might be saying about me

	MDI Worries scale
Internal consistency of the scale	The internal consistency of the scale is high with a Cronbach's alpha of .80, and an ordinal alpha of .85.
Construct validity	Factor loadings range from .76 to .86 suggesting all items measure a single construct
Convergent validity	The worries scale in the MDI has a strong correlation with the sadness (worries) scale in the MDI ($r = .48$), which is a theoretically similar construct as they both measure the presence of internalising problems.
Divergent validity	The worries scale has low correlations with theoretically distinct factors including .05 with empathy and .05 with pro-social behaviour.
Test retest reliability	<i>Not available</i>

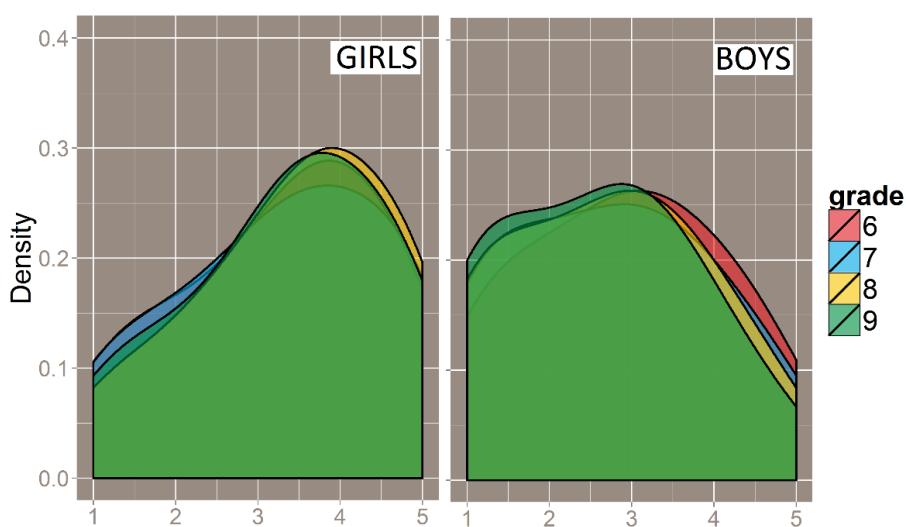


Figure 5. Distribution of score on the MDI Anxiety scale (3-items)

2. Are there measures/scales available which:
- b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

Figure 5 shows the distribution of scores on the worries scale. Scores are approximately normally distributed with some clear gender differences where girls are experiencing more worries than boys. There are minimal changes over time as children mature, which is inconsistent with the literature on the increased prevalence of anxiety disorders with age, particularly for girls [39]. This suggests that it is not behaving as expected and may be tapping something other than broad anxiety symptoms.

2. Are there measures/scales available which:
- c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

At face value, the worries items are much more specific in focus than the sadness items. The sadness items (see. p.20) focus on experiencing feelings of being unhappy or upset *in general*, whereas the worries items focus on worrying about interpersonal relationships. They do not cover the wide range of worries that children and adolescents might experience including their academic work and worries at home (e.g. relationships with parents, financial problems at home, and mental and/or physical health issues in the family). Children may not have worries about their peer relationships but have big worries in in other areas of their life, and receive a low score.

	Our items
1	I worry a lot about things at home
2	I worry a lot about things at school
3	I worry a lot about mistakes that I make

We recommend replacing the current scale with a short scale on the presence of *general* anxiety symptoms rather than within a specific domain. Some possible items are listed above. Alternatively, we could use a subset of items from the Strengths and Difficulties Questionnaire (“I have many fears, I am easily scared”), or the Spence Children’s Anxiety scale (“I worry about things”, “I worry that something bad is going to happen to me”).

WORRIES (ANXIETY)	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
... impacts on later outcomes?	HIGH
... is modifiable during the middle years?	MEDIUM
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	YES
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	YES
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	YES
RECOMMENDATION	
The MDI worries scale is too narrow to should be replaced with a broader scale	

Emotion regulation

“Have you ever felt so sad that you had to force yourself to put on a smile when interacting with others? Or so angry with someone in authority that you had to inhibit the urge to tell him what you really thought of him? Or felt so amused by an inappropriate comment that you had to bite your lip to keep from laughing out loud? If your answer to any of these questions is yes, then you know first-hand about emotion regulation...” [40, p. 8].

Emotional regulation is a fundamental skill that children need to master in order to develop and maintain social relationships with other children and adults, and their ability to regulate both positive and negative emotional outbursts such as excitement, crying or anger is essential for success within a classroom setting. As highlighted by the quote above, emotion regulation plays a key role in conflict resolution with the ability to regulate anger and frustration essential to resolving conflicts with friends, teachers, university professors, employers, bank managers, police, insurance companies ect. Poor emotion regulation, particularly anger, plays a key role in a range of big social issues from domestic violence to road rage to drunken assaults in pubs and on our streets, and this skill has its roots in childhood and adolescence.

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

Children who have trouble regulating negative emotions such as sadness, anger and frustration might be expected to have trouble in the classroom from a learning and social perspective. Howse et al (2003) found that emotion regulation was significantly related to literacy ($r = .28$), maths ($r = .40$) and listening skills ($r = .37$) in the first year of school, and that these correlations remained significant after adjusting for maternal education and child’s IQ [41]. Other studies have explored the mechanisms for this association and suggested that the impact of emotional regulation on academic outcomes is mediated through better attentional skills, rather than better student-teacher relationships or peer relationships [42]. That is, children who are able to regulate their emotions are less distracted in the classroom and are better learners as a result.

Poor emotion regulation is implicated in many psychological disorders, and is the *central feature* of anxiety disorders, mood disorders (e.g. major depression) and borderline personality disorder [19]. Children who cannot regulate and control their anger and frustration are more likely to exhibit externalising behaviour including conduct disorder, hyperactive and aggressive behaviours. On the other hand, children who have feelings of sadness and fear are more likely to exhibit anxious and depressive symptoms (internalising behaviours). As such, emotion regulation is a key precursor of a range of mental health disorders. Recent research has also linked emotion regulation to reduced risk of health attack and coronary heart disease in adulthood, after controlling for a range of coronary risk factors [43].

People regulate their emotions using a range of different strategies from avoiding or modifying emotion provoking situations, to consciously suppressing their emotions, to using cognitive strategies to change their perspective about a situation in order to shift their emotional response [19]. While each of the strategies can be useful in specific situations, some are clearly more adaptive than others. For instance, if you are having a disagreement with a friend or partner, removing yourself from the situation may be helpful in the middle of a heated argument but avoiding them is probably not an effective long-term strategy. A substantial literature has explored the differential consequences of frequently using emotional suppression compared with cognitive reappraisal strategies to regulate ones' emotions [19, 44].

- **Emotional suppression** involves changing your behaviour so that other people cannot see how upset, angry or frustrated that you really are. For example, *“my boss/parent/partner is being totally unreasonable and it is making me so angry but I’m not going to give them the satisfaction of showing them how upset I am”*). This strategy of internalising feelings does not stop you feeling upset, angry or frustrated, and may also inhibit other people’s ability to help you in dealing with the problem
- **Cognitive reappraisal** involves changing the way you think about the situation that is causing the emotional reaction in an attempt to change the way you feel about it. For example, *“my boss/parent/partner is being totally unreasonable and it is making me so angry but if I try to think about where they are coming from, I guess they do have a valid point, and I’m sure they are not intentionally trying to upset me”*.

A series of studies by Gross and John [45] suggest that people who frequently use emotional suppression to regulate their emotions experience fewer positive emotions and more negative emotions, including depressive symptoms, tend to avoid close relationships and have less positive relationships with others than people who frequently use cognitive reappraisal to regulate their emotions. The main point is that it doesn’t just matter whether children are able to regulate their emotions, but whether the strategies that they are using are adaptive or maladaptive for their mental health and social relationships.

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

The types of strategies that are used to regulate emotions change as children develop and mature. In middle childhood and adolescence, increases in cognitive capacity allows students to use cognitive strategies to appraise the situation differently and change their emotional state [46]. The changing face of emotion regulation with maturation provides opportunities to intervene and to teach students to use more adaptive rather than maladaptive methods to regulate their emotions.

2. Are there measures/scales available which:
- a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

There are a couple of emotion regulation scales that have been validated for use with children in the middle years but the majority of validated scales focus on the developmental period of infancy, early childhood and adulthood [47]. One scale that offers some promise to use within the Student Wellbeing Survey is the *Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA)* [47], which is a 10-item questionnaire with two scales measuring different emotion regulation strategies - emotional suppression and cognitive reappraisal (see below).

Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA)	
COGNITIVE REAPPRAISAL SCALE	
1	When I want to feel happier, I think about something different
2	When I want to feel less bad (e.g. sad, angry or worried), I think about something different
3	When I'm worried about something, I make myself think about it in a way that helps me feel better
4	When I want to feel happier about something, I change the way I'm thinking about it
5	I control my feelings about things by changing the way that I think about them
6	When I want to feel less bad (e.g. sad, angry or worried) about something, I change the way that I'm thinking about it
EMOTIONAL SUPPRESSION SCALE	
7	I keep my feelings to myself
8	When I am feeling happy, I am careful not to show it
9	I control my feelings by not showing them
10	When I'm feeling bad (e.g. sad, angry, worried), I'm careful not to show it

The *ERQ-CA* was validated on a sample of 827 students aged between 10 and 18-years of age from 15 schools in Melbourne, Australia [47]. Psychometric results are presented for boys and girls, and for the different age groups (10-12 years, 13-15 years, and 16-18 years). Where available, we present the psychometrics for the 10-12 and 13-15 year olds, as these most closely match the age groups who will complete the Student Wellbeing Survey. The items from the adult version were modified to make the wording simpler, and the response scale was reduced from 7-point scale to a 5-point scale (1 = strongly disagree to 5 = strongly agree). Students also completed a Depression scale, and the Big Five Personality Questionnaire to explore the convergent validity of the *ERQ-CA*.

The psychometric properties of both scales – Cognitive Reappraisal and Emotional Suppression – are acceptable. The cognitive reappraisal scale is a little better with higher internal consistency and factor loadings. Test-retest reliability was only available over a 12-month period in the adolescent sample, but was acceptable for both the CR scale (0.67) and the ES scale (0.71) in an adult sample over a 2-month period [48].

	Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA)	
	Cognitive reappraisal Scale	Emotion suppression scale
Internal consistency of the scale	The internal consistency of this scale was high for students (n =567) aged 10–15 years with a Cronbach’s alpha of .82	The internal consistency of this scale was a little lower than the reappraisal scale ranging from .69 (10–12 year olds) to .79 (16-18 year olds) but was still acceptable.
Construct validity	The two factor model (reappraisal and suppression) provides a good fit to the data. Factor loadings ranged from .58 to .76 for the reappraisal scale, and .46 to .88 for the emotion suppression scale.	
Convergent validity	Higher scores on the CR scale were associated with lower depression scores (r = -.26), and lower neuroticism scores (r = -.21) in the expected direction but the correlations were weak	Higher scores on the ES scale were associated with higher levels of depression (r = .37), and neuroticism (r = .26) in the expected direction but the correlations were weak
Divergent validity	The CR and ES scales have a very low correlation with one another (r = -.13) suggesting that they measure very different aspects of emotion regulation	The CR and ES scales have a very low correlation with one another (r = -.13) suggesting that they measure very different aspects of emotion regulation
Test retest reliability	The test-retest reliability was acceptable in an adult sample over a 2-month period (0.67) but was not available for the adolescent sample ¹⁰	The test-retest reliability was acceptable in an adult sample over a 2-month period (0.71) but was not available for the adolescent sample ¹¹

2. Are there measures/scales available which:

- b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

Both the cognitive reappraisal (CR) scale and the emotion suppression (ES) scale are designed to measure emotional regulation across the whole spectrum. The average score on the CR scale is 21.53 (SD =3.86) on a scale of 6 to 30, which suggest there are unlikely to be serious issues with skewness. The average score on the ES scale is 10.49 (SD =2.91) on a scale of 4 to 20, which similarly suggests that the average score lies in the middle of the range of possible scores. These properties of the scales suggest that it should be sensitive to detecting changes in both a positive and negative direction.

¹⁰ Stability coefficients over a 12-month period were reported for the Cognitive reappraisal scale ranging from .37 (13-15 year olds) to .47 (16-18 year olds).

¹¹ Stability coefficients over a 12-month period were reported for the Emotion Suppression scale ranging from .40 (10-12 year olds) to .63 (16-18 year olds).

2. Are there measures/scales available which:
- c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

The *Emotion Regulation Questionnaire for Children and Adolescents* appears to be feasible and pragmatic to use in a class room setting. It may not be feasible to include all 10-items within the student wellbeing measure, given the push from teachers and schools to cut down the survey. However, the 6-item cognitive reappraisal scale may be feasible to collect. This scale measures the “positive” emotion regulation strategies, associated with lower depression, higher happiness and better social interaction within the literature. As such, it might fit well with the other positive psychological constructs measuring within the student wellbeing survey. Eleonora Gullone (lead author of the ERQ paper) has advised that the instrument can be used without licencing requirements.

EMOTION REGULATION	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
... impacts on later outcomes?	Medium
... is modifiable during the middle years?	Medium
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	Yes
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	Yes
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	Yes
RECOMMENDATION	
Consider adding the 6-item cognitive reappraisal scale to the Student Wellbeing survey and the 4-item emotional suppression scale subject to the overall length of the instrument.	

Life satisfaction

As described in the broad review of wellbeing theories, subjective wellbeing is thought to be made up of three components: positive affect, negative affect and a cognitive judgement about how satisfied people are with their lives, referred to as life satisfaction [3]. Life satisfaction can be studied from a global perspective or domain specific perspective (e.g. how satisfied individuals are with their social relationships, school life, health or employment). However, research generally shows that satisfaction with different areas of life are highly related to one another, defining a higher order “global” life satisfaction construct, and that global life satisfaction is more highly related to other psychological outcomes than any of the domain specific satisfaction levels are [49]. As such, this review focuses on global life satisfaction.

Life satisfaction is defined as an overall judgement of an individual’s life as a whole [50] and is measured with items such as “so far I have gotten the important things I want in life” and “if I could live my life over, I would have it the same way”. Life satisfaction has been studied in adults for many decades but research into life satisfaction with children and adolescents is more recent, in part due to the fact that validated instruments for use with children are relatively recent [49, 51].

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

Like happiness, life satisfaction is considered an important outcome in and of itself. The majority of research into life satisfaction explores the impact of factors such as health, income, marriage, age, education, and employment on life satisfaction, rather than the impact of life satisfaction on outcomes [3]. Theoretically, life satisfaction probably has a bi-directional relationships with many outcomes. For example, a cross-sectional study with high school students showed that suicide behaviours, suicide ideation and mental illness predicted life satisfaction [52]. However, it is also highly likely that poor life satisfaction would impact mental health and suicide behaviour.

There are some longitudinal studies exploring the impact of life satisfaction on later outcomes. For instance, life satisfaction during adolescence has been linked to better mental health - lower internalising and externalising problems [53], lower social stress, depression and anxiety [49] - one to two years later. Life satisfaction has also been linked to health outcomes measured at a later date. For example, an Australian study using data from the HILDA survey explored the impact of life satisfaction measured at Wave 1 on a variety of health outcomes measured three-years later after adjusting for a range of confounders (age, smoking status, alcohol consumption, gender, marital status, education, income and employment) in 9,981 adults [54]. Compared to adults who were dissatisfied with their lives, adults who were satisfied had 1.62 times higher odds of reporting good health (95% CI = 1.27-2.08), and had 1.51 times higher odds of having no limiting long-term health problems (95% CI = 1.25-1.82) three years later.

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

Studies with adolescents have found that the rank order of life satisfaction is very stable over short periods of time, with correlations of about .80 over a four week period [55, 56], .50 over 1-year period [57] and .59 over 2-years [57]. This suggesting that the rank order of students from high to low life satisfaction is a quite stable even during adolescence when there are a range of physical, cognitive, social and psychological adjustments. However, there is evidence that, mean levels of satisfaction with life decreases over time during adolescence. For example, a US study found a decrease in global life satisfaction of about 0.25 SD points (4.49 to 4.43) from Grade 8 to 10 [57]. To the degree that mean levels of life satisfaction decrease during the middle years, it follows that interventions to halt this decline might be effective, and that life satisfaction is probably modifiable during this life period.

2. Are there measures/scales available which:
 - a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

The Satisfaction with Life Scale for Children (SWLS-C) is a 5-item life satisfaction scale created by Anne Gadermann and Martin Guhn at the University of British Columbia [51]. The SWLS-C was adapted from Ed Diener’s Satisfaction with Life Scale [58], which is one of the most frequently used measures of life satisfaction with adults. The SWLS-C was originally validated in a sample of 1,266 students in Canada who were aged between 9 and 14 years of age. Students were sampled from communities with low, medium and high vulnerabilities on the Early Development Instrument (EDI), with the intention of getting a representative sample. The psychometric properties of the scale from the validation study are presented on the next page.

Satisfaction with Life Scale for Children (SWLS-C)	
1	In most ways my life is close to the way I would want it to be
2	The things in my life are excellent
3	I am happy with my life
4	So far I have gotten the important things I want in life
5	If I could live my life over, I would have it the same way

Internal consistency of the scale	All five items were highly correlated with one another ($r = .56$ to $.75$). The scale had high internal consistency: Cronbach's alpha = $.86$, Ordinal alpha = $.90$.
Construct validity	The five items loaded on a single factor suggesting a unidimensional construct, and all items had high factor loadings ranging on this factor from $.70$ to $.87$
Convergent validity	The scale displayed convergent validity (i.e. high correlations with theoretically related constructs) with medium to high correlations with optimism ($r = .65$) and self-esteem ($r = .57$)
Divergent validity	The scale displayed discriminant validity (i.e. low correlations with theoretically distinct constructs) with small correlations between SWLS-C and empathy scales ($.27$ to $.29$).
Test retest reliability	-
Other	Discriminant Item functioning analysis showed that the scale measured life satisfaction in the same way for boys vs. girls, ESL vs. non-ESL children, and children in Grades 4,5,6 and 7

2. Are there measures/scales available which:
 b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

The SWLS-C is included within the MDI, and the distribution of scores on this scale has been explored in the SA children who completed the MDI in 2014 ($n = 17,536$). The SWLS-C aims to measure life satisfaction across the whole spectrum from dissatisfaction to high satisfaction with life. Figure 6 shows the distribution of scores on the SWLS-C for SA students are skewed for children in Grade 6 but become more normally distributed as children get older and their life satisfaction decreases. The different distributions for children in different grades, suggests that the scale is sensitive to changes in children's life satisfaction with maturation. It follows that the SWLS-C should be able to detect changes at an individual, school, community or classroom level if an effective intervention was able to improve life satisfaction.

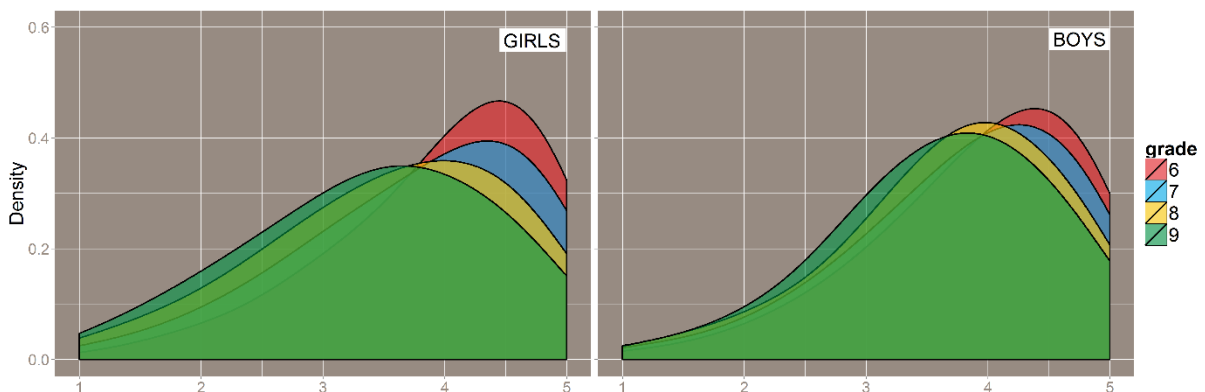


Figure 6. Distribution of score on the Satisfaction with Life Scale – Adapted for Children (SWLS-C)

2. Are there measures/scales available which:
- c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

The SWLS-C has been collected as part of the MDI survey in South Australia with students in Grades 6 to 9 over the past three years. There have been no issues from a pragmatic perspective for students completing this scale, in either an on-line or paper and pencil format, within a classroom setting. We would need to seek permission for DECD to use the SWLS-C in their student wellbeing survey. It is not expected that there would be any licencing requirements or costs involved.

LIFE SATISFACTION	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
.... impacts on later outcomes?	MEDIUM
... is modifiable during the middle years?	HIGH
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	YES
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	YES
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	YES
RECOMMENDATION	
Include the five-item SWLS-C scale within the student wellbeing instrument	

Engagement

Engagement is a construct within Seligman's PERMA Theory of Wellbeing [6] and is also measured with the EPOCH Measure of Adolescent Wellbeing [7]. Engagement refers to the capacity to become absorbed in and focused on what one is doing, as well as involvement and interest in life activities and tasks [7]. Seligman and Peterson note that their concept of engagement was strongly influenced by Csikszentmihalyi's ideas about flow [5]. Flow can be described as a psychological state that accompanies highly engaging activities where time passes quickly, attention is fully focused on the task at hand and time seems to disappear [59]. Within the EPOCH, engagement is measured by items such as "I get so involved in activities that I forget about everything else" and "When I am learning something new, I lose track of how much time has passed". As such, the construct represents a general trait or tendency to become absorbed in tasks/activities and is not task specific.

It is worth mentioning the overlap (or lack of overlap) between the concept of engagement in the PERMA model and the concept of student engagement in school, which has received a lot of attention for its association with school dropout and academic performance [60, 61]. Student engagement is a multi-faceted construct made of up three domains: emotional, cognitive and behavioural [62, 63].

- *Emotional engagement* refers to the way students feel about their teachers and school both positive and negative, whether they like their school and whether they have a sense of belonging. Emotional engagement is captured within the Middle Years Development Instrument with measures of school belonging ("I feel like I belong in this school") and school climate ("Teachers and students treat each other with respect in this school").
- *Behavioural engagement* refers to involvement in academic, social and extracurricular activities at school, and also involves behaving in a way that is consistent with school expectations (i.e. not skipping school, being suspended or expelled). Behavioural engagement could be inferred to some degree from the behaviour management data held within DECD on suspensions, expulsions and absenteeism. Behavioural engagement can also be observed by teachers (e.g., students paying attention, completing work on time, becoming distracted, etc.).
- *Cognitive engagement* refers to student's willingness to put in the effort needed to master skills and succeed academically at school, and has a strong motivational component. This concept is not currently measured within the student wellbeing survey.

It is important to note that none of the three domains of student engagement are synonymous with Seligman's concept of flow/engagement. However, designing learning tasks and feedback in such a way as to match a student's abilities to the challenges they are presented with (in line with the concept of 'flow') is generally believed to result in higher school engagement [64].

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

There is literature about the impact of school engagement on high school dropout, academic achievement, participation in tertiary studies and employment outcomes [60, 61, 65]. For instance, Archambault et al [60] found that behavioural engagement predicted school dropout amongst high school students. Johnson et al. [61] explored the impact of IQ, engagement, externalising problems, depression, and family SES on academic achievement and changes in academic achievement between age 11 and 17 in a cohort of students in the US. School engagement and IQ at age 11 predicted school grades from age 11 to 17, to a similar extent with correlations ranging from .39 to .56. The question remains whether Seligman's engagement predicts these same outcomes.

In the EPOCH validity paper, engagement was the *weakest* of all of the EPOCH factors in predicting physical vitality, physical activity, self-rated academic performance, and teacher rated effort. Engagement was also more weakly related to the other EPOCH factors ($r=.39$ to $.46$) than they were to one another. Correlations between the other four EPOCH factors ranged from $.48$ between perseverance and connectedness to $.70$ between happiness and optimism. This suggests that engagement is measuring something quite different to the other four constructs, and may not load on a higher order "wellbeing" factor. In addition, there are various examples of situations where high engagement or flow might be detrimental to an individual. The documentary, "Second Skin", describes the lives of young men who spend countless hours playing online role playing games. They play for days often neglecting sleep, physical activity, proper nutrition, and interaction with their partners and children. While these individuals are highly engaged in the game and could be described as being in a state of flow, this would not be considered by most to be a state of wellbeing.

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

Given that engagement is operationalised quite differently in Seligman and Kern's models than in other research, there is not a lot of research on the stability of engagement. The EPOCH validity paper provides information on the correlation of each of the EPOCH scales over time. Test-retest reliability measured over a 3-week period was similar for the Engagement scale to the other EPOCH scales at $.63$. However, this scale was much less stable over a 4-month period ($r = .23$) than the other scales, which ranged from $.36$ for Connectedness to $.61$ for Perseverance. This suggests that the rank order of students in their level of engagement over time changes quite substantially. Mean levels of engagement (see Figure 7) are very stable over time between Grade 6 and 9, suggesting that there are not systematic changes in engagement with maturation but it still might be amenable to interventions to improve engagement.

2. Are there measures/scales available which:
 a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

The EPOCH Measure of Adolescent Wellbeing contains a four-item engagement scale that is suitable for use with children in the middle years. The reliability and validity of the scale have been established in ten different samples from Australia and the US [7].

EPOCH Engagement scale	
1	When I do an activity, I enjoy it so much that I lose track of time
2	I get completely absorbed in what I am doing
3	I get so involved in activities that I forget about everything else
4	When I am learning something new, I lose track of how much time has passed

Internal consistency of the scale	The engagement scale had the lowest internal consistency of all five EPOCH scales with a Cronbach’s alpha of .74 in the combined sample of 2,893 participants. Values above .70 are considered acceptable.
Construct validity	All four items loaded highly on the engagement factor with factor loading ranging from .66 to .71.
Convergent validity	The engagement scale showed a modest correlation with school engagement ($r = .40$), the most similar construct theoretically, confirming that Seligman’s “engagement” is quite different to school engagement.
Divergent validity	The engagement scale correlated most highly with perseverance and optimism ($r = .46$), which are theoretically distinct scales. Correlations between engagement and the 30+ other scales measured in the validity paper were all below .50, suggesting it is not strongly related to life conditions, health, psychological symptoms, academic performance or related wellbeing constructs.
Test retest reliability	The test-retest reliability was acceptable over a 3-week period ($r = .63$).

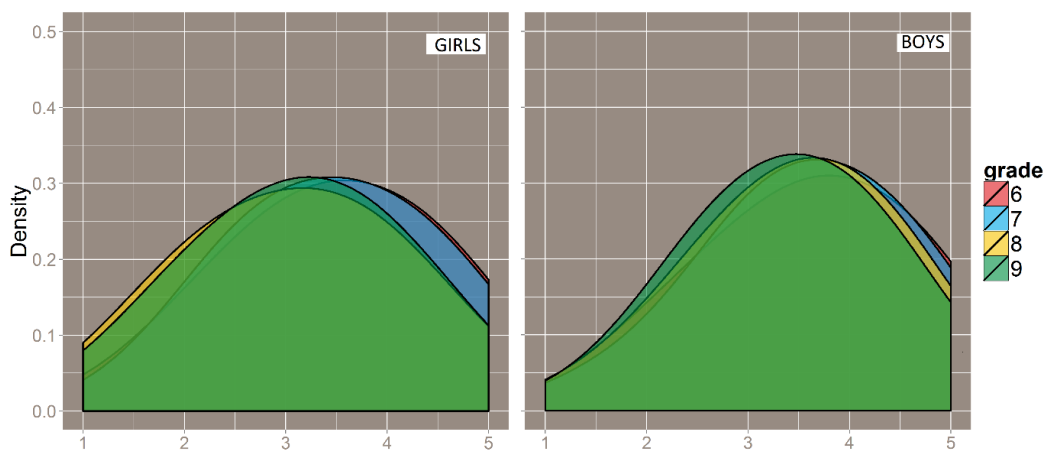


Figure 7. Distribution of score on the EPOCH Engagement scale (4-items)

2. Are there measures/scales available which:
 b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

Students attending schools within the Northern Connections group completed the EPOCH scale, in addition to the MDI in 2015 (n = 2,093). Figure 7 shows the distributions on the EPOCH Engagement scale for students from Grade 6 to 9 split by gender. The scale appears to measure engagement across the whole spectrum from low to high, and could be used to measure the full continuum of engagement. There is almost no change in engagement as children mature from Grade 6 to 9, and therefore it is not clear whether the scale would be sensitive to detect changes at a school, community or classroom level. This is contrasted with measures of school engagement, which show strong declines as children progress through high school and is predictive of school dropout.

2. Are there measures/scales available which:
 c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

There are no problems using the EPOCH Engagement scale from a pragmatic perspective in a classroom setting. No issues were raised during the 2015 trial in the Northern Connections schools and Peggy Kern has advised the Department previously that they are able to use the EPOCH scale for free without any licencing conditions.

ENGAGEMENT	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
... impacts on later outcomes?	Weak
... is modifiable during the middle years?	Weak
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	No
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	No
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	Yes
RECOMMENDATION	
Do not use the EPOCH Engagement scale. Consider examining the validity of the school belongingness and school climate scales from the MDI and alternate measures of school engagement that might meet the needs of DECD.	

Optimism

Optimism refers to a tendency towards positive expectation for the future and confidence in one's ability to cope with challenges [11]. Optimism is one of the five constructs measured within the EPOCH Measure of Adolescent Wellbeing, which are described as "positive psychological characteristics that might foster wellbeing, physical health, and other positive outcomes in adulthood" [7, p.1]. It is also measured within the Middle Years Development Instrument. For the EPOCH tool, Kern et al. extend the definition of optimism to recognise that optimistic people tend to evaluate negative events in their lives as temporary, external and specific to situations. Pessimists, on the other hand, expect that bad things will happen to them so interpret negative events as resulting from internal causes and as part of a generalised pattern rather than situation specific. As such there is a clear overlap between optimism, locus of control and growth mindset [66].

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

There is strong evidence that optimistic people experience a host of positive life outcomes. Within childhood and adolescence, higher optimism has been linked to lower rates of depression and anxiety [67], better academic achievement [68], and higher peer acceptance [69]. In the research investigating the validity of EPOCH, optimism was related to life satisfaction, school engagement, lower levels of school misconduct, and academic achievement [7]. In adulthood, optimism has been linked to better physical health including cardiovascular health, immune function, mortality, survival, cancer, physical symptoms and pain levels [70].

As with much of the positive psychology literature, there is conjecture about whether there are any direct, causal impacts of optimism on outcomes, or whether the effects are indirect (i.e., a result of optimistic people behaving in ways that are beneficial to their health) [71, 72]. We agree with Coyne and Tennen [71] that claims from some researchers that more positive thinking will slow the growth of cancer cells and cure disease, for example, is misleading as there is no plausible mechanism presented for how thoughts change specific cellular activity. However, there is a substantial literature that supports the idea that optimists appraise situations differently, use more adaptive coping strategies and tend to have stronger social networks, and these indirect pathways may make optimists more successful in multiple areas of life [72]. As an example, a meta-analysis, found that optimists were more likely than pessimists to use approach adaptive coping strategies aimed at eliminating, reducing or managing stress, and were less likely to use maladaptive avoidance coping strategies like ignoring, avoiding or withdrawing from the stressor. As described in Carver's review of optimism research [73, p.882],

"People who are confident about eventual success continue trying, even when the going is hard. People who are doubtful try to escape the adversity by wishful thinking, they are drawn into temporary distractions that don't help to solve the problem, and they sometimes even stop trying"

This quote highlights the positive relationship between optimism and perseverance, such that optimistic people tend to also show higher levels of perseverance ($r = .61$ across six samples of adolescents using the EPOCH scales [7]). If an individual believes that they have control over events in their lives and will eventually succeed then it is more likely that they will study for their test or exam, do extra reading for the assignment, work to build and develop relationships, put in the extra hours at work, and follow the doctor's instructions after surgery. In summary, people who score highly on the trait of optimism think and behave in a manner that is highly adaptive, which offers them advantages across a range of different life outcomes.

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

Consistent with other traits, optimism tends to be very stable in adulthood with a study of middle aged women finding a high correlation for optimism of $.71$ over a 10-year period [74]. However, optimism is far less stable during childhood and adolescence suggesting that a child low on optimism relative to his peers at end of primary school may be highly optimistic relative to his peers in middle high school. Kern et al. explored correlations of the optimism scale from the EPOCH in three different adolescent samples [7]. Correlations were $.51$ over a four-month period ($n = 62$) in samples of US adolescents, suggesting that optimism is quite stable over short period of time (i.e. less than 6-months). However, in a sample of 118 boys from an Australian high school, correlations over a three year period were a just $.24$ suggesting optimism is not very stable over longer time periods during adolescence. This suggests that optimism may be modifiable during this period.

Twin studies also suggest that optimism is much more influenced by environment (i.e. less heritable) than many other traits. For instance, Plomin et al [75] explored the similarity between optimism levels of identical and non-identical twins reared together and apart, and found that both identical and non-identical twins raised together had much more similar optimism levels that twins reared apart. These findings add further weight to the idea that optimism is modifiable to the environmental circumstance and that interventions may be able to improve optimism for children and adolescents.

2. Are there measures/scales available which:
 a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

	MDI Optimism Scale	EPOCH Optimism scale
1	I have more good times than bad times	I am optimistic about my future
2	I believe more good things than bad things will happen to me	I think good things are going to happen to me
3	I start most days thinking I will have a good day	I believe that things will work out, no matter how difficult they seem
4	-	In uncertain times, I expect the best

MDI Optimism Scale: The MDI contains a 3-item Optimism scale that has been completed by students in the 2013, 2014 and 2015 trials. When looking at the reliability and validity of the MDI Optimism scale, we used the figures reported in the MDI validity paper [30], which was based on a sample of 3,026 Grade 4 students (mean age = 9.7 years, SD = 0.3).

EPOCH Optimism Scale: The EPOCH contains a 4-item Optimism scale that was completed by students from the Northern Connections schools in 2015. When looking at the reliability and validity of this scale we use the figures from the EPOCH validity paper, which presents results from ten different samples from Australia and the US [7] with a combined sample of 2,893 participants.

	MDI Optimism Scale	EPOCH Optimism scale
Internal consistency of the scale	The scale has adequate internal consistency with a Cronbach's alpha of .66 and an ordinal alpha of .70	The optimism scale has high internal consistency with a Cronbach's alpha of .81
Construct validity	Confirmatory factor analyses show that all three items loaded moderate to highly on the optimism factor with factor loading ranging from .59 to .72.	All four items loaded highly on the optimism factor with factor loading ranging from .65 to .79.
Convergent validity	The optimism scale correlated highly with theoretically similar scales such as life satisfaction ($r = .57$)	The optimism scale correlated highly with theoretically similar scales including happiness ($r = .70$), life satisfaction ($r = .64$), and meaning/purpose ($r = .57$) ¹² .
Divergent validity	The optimism scale showed a lower correlation with theoretically distinct scales such as empathy ($r = .36$) and pro-social behaviour ($r = .21$)	The optimism scale showed a lower correlation with theoretically distinct scales such as engagement ($r = .46$).
Test retest reliability	<i>Not available</i>	The test-retest reliability of the scale was high over a 3-week period ($r = .70$)

¹² Meaning/purpose is the PERMA construct that was replaced with optimism in the EPOCH because optimism is viewed as a developmental pre-cursor of meaning/purpose.

The reliability and validity of the MDI and EPOCH Optimism Scales are similar. Test-retest reliability was not available for the MDI scale but was acceptable for the EPOCH scale. Internal consistency was a little better in the EPOCH scale (.81 vs. .70) and the factor loadings were also a little higher. However, based on these results both scales have acceptable psychometric properties.

The MDI scale has one item fewer than the EPOCH scale, so for the sake of keeping the survey short it has a slight advantage. The wording within the MDI scale is also simpler than in the EPOCH scale, which may be advantageous for students in the lower grades. In a recent study with Grade 7 and 8 students in DECD schools, some students did not understand the word “optimistic”, which is another reason for using the MDI scale rather than the EPOCH scale.

2. Are there measures/scales available which:
- b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

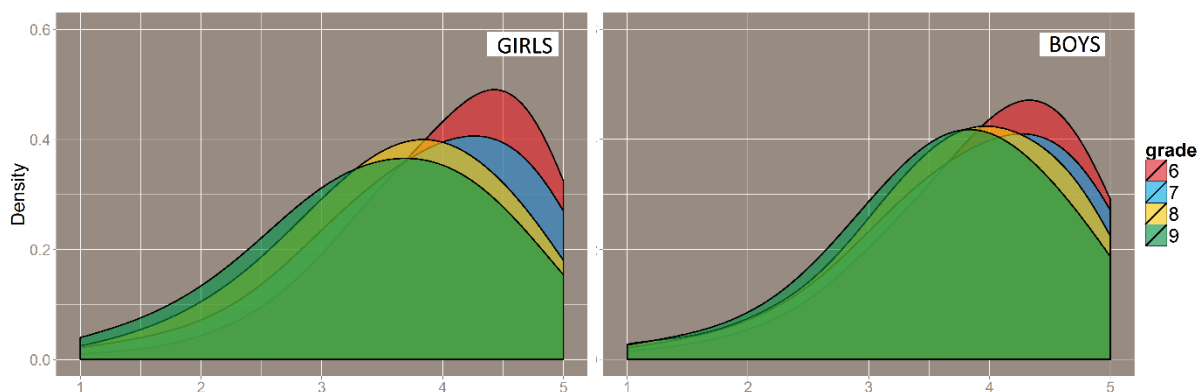


Figure 8. Distribution of score on the MDI Optimism scale (3-items)

Figure 8 and Figure 9 show the distribution of scores for boys and girls in Grades 6 to 9 on the MDI and EPOCH Optimism scales. Both scales are sensitive to the decrease in optimism as students mature from Grade 6 to 9, and to the stronger decrease in girls compared to boys. The EPOCH scale is less skewed for younger students, and in this way has some advantages over the MDI scale. However, the MDI scale appears to be more sensitive to changes between students across grades with less overlap between the distributions for students of different ages, particularly for the girls.

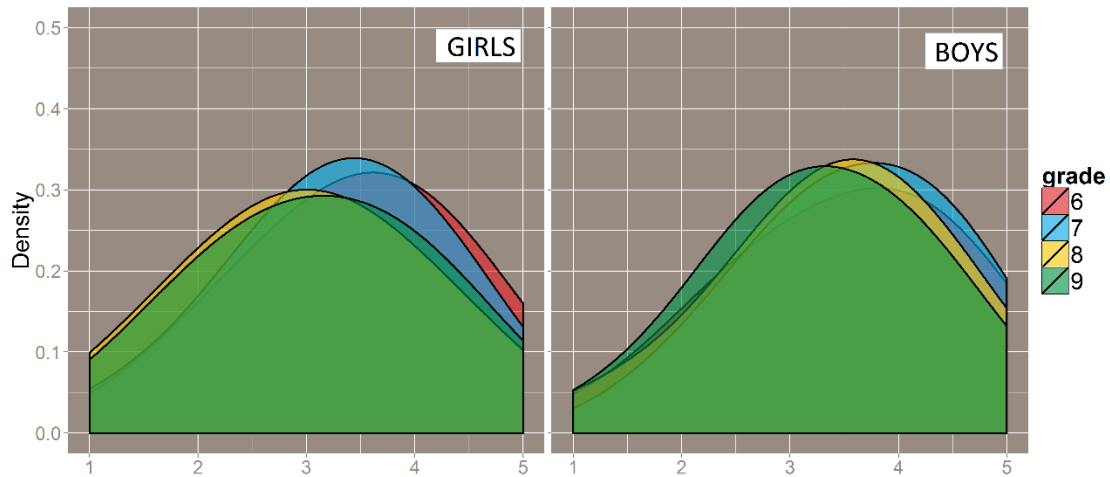


Figure 9. Distribution of score on the EPOCH Optimism scale (4-items)

2. Are there measures/scales available which:
- c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

Both scales are feasible and pragmatic to use in a classroom setting and online collection system. The MDI Optimism scale was taken from the Resilience Inventory [76]. These questions are in the public domain and can be used without any licencing requirements or costs [77]. As the with other EPOCH scales, the Optimism scale is able to be used without licence or cost, as advised by Peggy Kern. Given that the MDI scale is shorter and has simpler language, and most of the other psychometrics are similar, we would recommend utilising the 3-item MDI scale.

OPTIMISM	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
... impacts on later outcomes?	MEDIUM
... is modifiable during the middle years?	MEDIUM
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	YES
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	YES
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	YES
RECOMMENDATION	
Retain the 3-item MDI Optimism scale rather than the 4-item EPOCH Optimism scale	

Perseverance

Perseverance refers to the ability to pursue one's goals to completion in the face of difficulty and delay. Similar concepts are a core component of both temperament and personality theories. Within temperament research, the term *persistence* is used to describe whether the child works on an activity for long periods of time or tends to lose interest quickly, and differences in this trait can be observed very early in life. Within adult personality theory, the concept of *self-discipline* - the ability to begin tasks and carry them through to completion despite boredom and distraction - is strongly related to the concept of perseverance [78]. Self-disciplined individuals are motivated to complete tasks that they begin and are not easily discouraged when they face challenges. Within this section, the terms *perseverance*, *persistence* and *self-discipline* will be used synonymously.

Perseverance involves an attentional component where children need to be able to attend to stimuli for a prolonged period of time to be able to complete a task, and an emotional component where children need to be able to stay calm and on track when they face challenges and frustrations in completing a task. As such, perseverance is related to concepts such as self-regulation, self-control, task attentiveness, effortful control, emotional regulation and executive functioning.

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

Much of the research into the impacts of perseverance on later outcomes focuses on the broader personality construct of *Conscientiousness*, one of the Big 5 personality traits, of which self-discipline is one of the sub-facets [78]. Conscientiousness has been associated with numerous positive outcomes throughout the life span, including academic success, relationship success, life satisfaction and better health [79]. However, these findings cannot be taken as evidence for the importance of perseverance, per se, because it might actually be other aspects of conscientiousness (i.e. deliberation), that impact on health, education and workforce outcomes. A smaller number of studies have explored perseverance specifically.

Kern et al. [7] explored the relationship between each of the EPOCH constructs and a range of outcomes in their validity paper. Data from 10 individual studies were combined with a total sample of 4,480 adolescents aged 10 to 18 years from the US and Australia. Of the five EPOCH constructs, perseverance was the most strongly related to academic outcomes ($r = .53$ for self-rated academic performance, $r = .21$ for objective academic performance, and $r = .36$ for teacher rated effort).

Duckworth and Seligman [80] explored the relative importance of self-discipline and IQ for a range of educational outcomes in two samples of eighth grade students in the US. Self-discipline was a strong predictor of time spent on homework, standardised test scores, school attendance, and student's grade point average (GPA). IQ was also significantly related to most of these outcomes but the correlations were much weaker. For instance, students' final GPA was much more strongly related to their level of self-discipline ($r = .67$) than to their IQ ($r = .32$).

Duckworth also studies a related construct referred to as *grit*, defined as a combination of perseverance and passion for long-term goals [81], which has been shown to impact education, workforce, and social relationships. In a recent paper, Eskreis-Winkler et al [82] found that grit predicted completion of a gruelling 24-day military training course, after accounting for IQ and physical fitness. Grit also predicted job retention within the sales industry, high school completions and grittier men (but not women) were more likely to stay married and less likely to divorce.

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

Personality traits such as persistence have traditionally been considered to be innate in nature and relatively stable over time. Although the ability to persist at tasks increases over time as children mature, there has been a generally held belief that a child who has low persistence compared to his or her peers is likely to grow up to be an adolescent with relatively low perseverance (i.e. high rank order stability). However, recent research has shown that this may not be the case.

There is compelling research that personality is stable in adulthood and is relatively fixed by about 30 years of age. Stability coefficients (correlations over long time frames) between .60 and .80 are often reported for the Big 5 Personality traits [83]. However, individual differences in these traits are much less consistent when measured in children over time. Roberts et al. [15] explored the consistency of a range of temperament and personality traits over time in children. Task persistence in children aged under 12 years of age was not very stable at all with an estimated stability coefficient of just 0.36, suggesting that children's rank order from high to low persistence within a group shifts quite a bit during childhood.

A recent study using data from the Longitudinal Study of Australian Children explored the impact of task attentiveness in children between ages 2 and 7 on their academic achievement at age 7. The authors describe task attentiveness as "children's ability to regulate their attention in order to persist with tasks without distraction" [84, p. 743]. Results showed that improvements in task attentiveness between ages 2-3 and 6-7 were associated with higher scores on literacy and mathematics tests, after adjusting for baseline levels of task attentiveness, IQ, and child and family level confounders. This paper highlights that there are large individual differences between children in their trajectories of persistence over time, suggesting that this skill is highly unstable over time and that interventions to improve perseverance may be effective.

2. Are there measures/scales available which:
 a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

The perseverance scale that has been trialled over the past few years in South Australia is from the EPOCH Measure of Adolescent Wellbeing. During the past three to four years, Peggy Kern and her colleagues have tested both a 25-item and a 20-item version of the EPOCH, and the 20-item version is currently recommended. The reliability and validity of the 4-item scale is detailed below.

EPOCH Perseverance scale	
1	I finish whatever I begin
2	I keep at my school work until I'm done with it
3	Once I make a plan to get something done, I stick to it
4	I am a hard worker

Internal consistency of the scale	The perseverance scale had the highest internal consistency of all five EPOCH scales with a Cronbach's alpha of .80 in the combined sample of 2,893 participants.
Construct validity	All four items loaded highly on the perseverance factor with factor loading ranging from .67 to .79.
Convergent validity	The perseverance scale correlated highly with other theoretically similar scales including grit ($r = .78$) and optimism ($r = .61$).
Divergent validity	The perseverance scale showed a low correlation with theoretically distinct scales such as engagement ($r = .46$) and life satisfaction ($r = .51$).
Test retest reliability	The test-retest reliability of the scale was high over a 3-week period ($r = .69$).

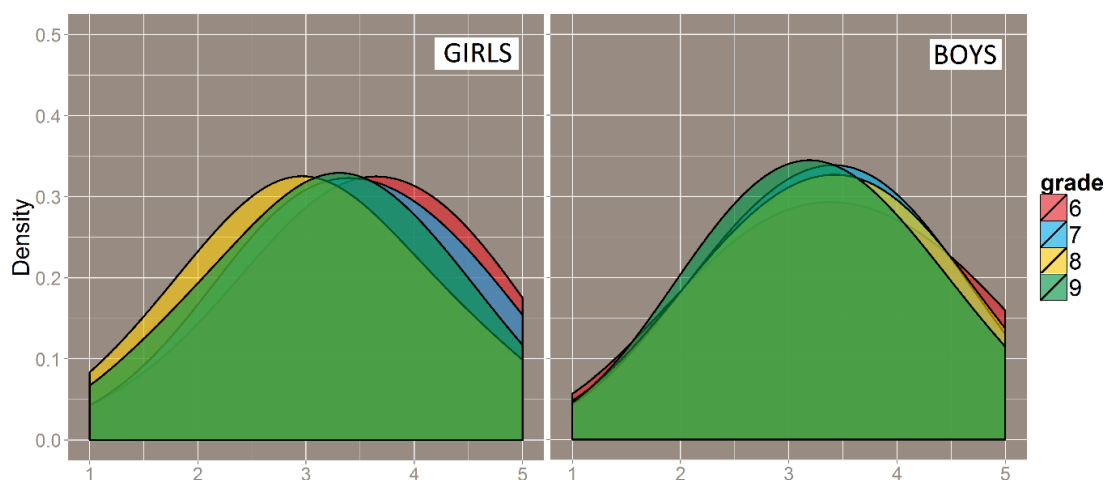


Figure 10. Distribution of score on the EPOCH Perseverance scale (4-items)

2. Are there measures/scales available which:
 b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

The 25-item EPOCH (with a 5-item Perseverance scale) was originally included within the student wellbeing instrument. In 2015, schools in the Northern Connections area completed the 20-item EPOCH scale (with a 4-item Perseverance scale). Given that the 20-item EPOCH scale is currently recommended and is a shorter scale, we explore the distributions of the 4-item scale (see Figure 10).

The distribution is normal and covers the whole range from low to high perseverance and should be sensitive enough to detect changes in both a positive and negative direction at the school, classroom or community level. For girls there are small decreases in perseverance between Grade 6 and 8 and then an increase in Grade 9 perhaps as students become more focused on their academic work and have more homework. For boys there are very small changes in mean perseverance levels over time but there may be large changes (from high to low perseverance) for students within grades.

2. Are there measures/scales available which:
 c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

The four-item perseverance scale is feasible and pragmatic to use in a classroom setting. Given that the 20-item EPOCH scale has been recommended over the 25-item scale, we would recommend collecting the 4-item scale rather than the 5-item scale. As the with other EPOCH scales, the Perseverance scale is able to be used without licence or cost, as advised by Peggy Kern.

PERSEVERANCE	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
... impacts on later outcomes?	High
... is modifiable during the middle years?	Medium
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	Yes
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	Yes
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	Yes
RECOMMENDATION	
Use the 4-item Perseverance scale from EPOCH	

Empathy

Empathy is defined as having an emotional reaction to another person's emotional state or situation where you experience the emotion vicariously as though you were personally going through the situation [85]. Empathy is thought to involve both cognitive and affective components, where an individual needs to have a capacity to understand the other person's perspective (*cognitive*) before they can experience an emotional reaction to the other person's situation (*affective*). In some situations, empathy has been linked to more pro-social behaviour but the results have been mixed and it seems to depend on the type of affective empathetic response that the person experiences.

There are thought to be two main types of affective empathic responses that children and adults experience: sympathy/empathic concern and personal distress [85]. Empathic concern is associated with a desire to help the other person - "*I feel so upset for you that you lost your home in the fire. What can I do to help?*" Whereas personal distress is unfavourable experience and is only associated with a desire to help the other person if that is perceived as the best way to alleviate the unpleasant feelings - "*I can see that you are sad that you lost your home, and that is really distressing for me. What can we do to fix this?*" Helping behaviours for a person experiencing personal distress are egoistically driven rather than motivated by altruism [86].

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

Most of the research on the impact of empathy on later life outcomes focuses on social benefits including pro-social skills and relationships. The basic premise is that people who are more empathetic are more aware of the impacts of their actions on others so are less likely to engage in bullying, aggressive behaviour, or hurtful behaviours, and are more likely to engage in prosocial behaviours such as listening to other people's problems and offering assistance, and therefore have stronger networks of friends and more successful relationships. However, findings are mixed and studies do not tend to adjust for individual and family level confounders.

A longitudinal study in Germany measured empathy in about 2,000 adolescents each year from ages 12 to 16, and explored their empathy and various social outcomes when they were 35 years of age [86]. At age 35, empathy had only weak relationships with communication skills ($r = .26$), social integration ($r = .18$), relationships satisfaction ($r = .18$) and relationship conflicts ($r = -.09$), and empathy in adolescence (12-16 years) was an even weaker predictor of these outcomes (all $r < .15$).

Many researchers have posited that poor empathy skills play a key role in aggressive behaviours, and if children could be taught better empathy skills they would be less likely to act out in an aggressive manner towards others. Low levels of empathy have been linked to anti-social behaviours including aggressive and violent behaviours, bullying and conflicts with others [87], but these effects were only present in boys and not girls. A recent review article found consistent negative relationships between empathy and aggression in adolescents but not in children, and also found much stronger results when behavioural measures of empathy were used compared to self-report measures [88]. An earlier review found that empathy had a small relationship with criminal offending but that relationship was strongest with the cognitive aspect of empathy ($d = -0.48$) than the affects aspects of empathy ($d = -0.11$) and that these relationship disappeared after adjusting for IQ and SES [89].

Research on the links between empathy and academic achievement, health and workforce outcomes is much scarcer. In a small study Feshbach et al [90] found that higher empathy in 8-9 year olds was related to better reading and spelling test scores 2 years later in girls ($r = .64$ and $r = .60$) but not boys ($r = -.17$ and $r = -.12$). Correlations between empathy and maths were not significant for boys or girls. Cross-sectional correlations between empathy and academic achievement were much lower than longitudinal associations, which is counterintuitive, and the study failed to adjust for any potential confounding variables.

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

Empathy can be measured in a range of different ways including questionnaire items completed by the child/adolescent, their parent or teacher, physiological responses to watching a video (e.g. heart rate, skin conductivity) or viewing different photographs and being asked to describe emotions etc. In this section, we focus on the malleability of empathy based on self-report questionnaire scales. In the German study described earlier [86], empathy was measured by an 8-item scale including “When my friend is nervous, I can immediately feel that” and “I can easily feel if my parents worry about my school grades, even if they don’t say anything”. Correlations between empathy scores measured 1-year apart were low ranging from .30 to .57, suggesting that children’s rank order position (high or low empathy) changes quite a bit during this period. In addition, there were small mean increase in empathy over this period representing an increase of 0.44 SD points over the 4-year period. This suggests that there is an overall increase in empathy during the middle years and that children shift around quite a bit from high to low empathy depending on their experiences during this time. Both of these suggest that empathy is modifiable during the middle years.

2. Are there measures/scales available which:
 a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

There is a 3-item empathy scale within the MDI. The three empathy items were sourced from the 28-item Interpersonal Reactivity Index [91], which is made up of four sub-scales measuring (1) perspective taking, (2) fantasy, (3) empathetic concern and (4) personal distress. The Interpersonal Reactivity Index is an adult scale and the MDI items seem to have been adapted to be more suitable for children. The three items in the MDI seem to have been taken from the empathetic concern sub-scale of the Interpersonal Reactive Index, which includes items such as “when I see someone being treated unfairly, I sometimes don’t feel very much pity for them (R)” and “I often have tender, concerned feelings for people less fortunate than me”.

MDI Empathy scale	
1	I feel sorry for kids who don’t have the things that I have
2	When I see someone being treated mean it bothers me
3	I am a person who cares about the feelings of others

Internal consistency of the scale	The internal consistency is a little lower than the rule of thumb level of 0.70 with a Cronbach’s alpha of .65, and an ordinal alpha of .73.
Construct validity	Factor loadings on the empathy factor range from .60 to .83, suggesting that the 3 items are strongly correlated and measure a unidimensional construct.
Convergent validity	The empathy scale in the MDI does not show a strong correlation with the pro-social behaviour scale ($r = .36$), which is it the most similar construct from a theoretical perspective, so the convergent validity is poor.
Divergent validity	The empathy scale correlates less than .35 with all other social and emotional development scales suggesting it measures something quite distinct from them.
Test retest reliability	-

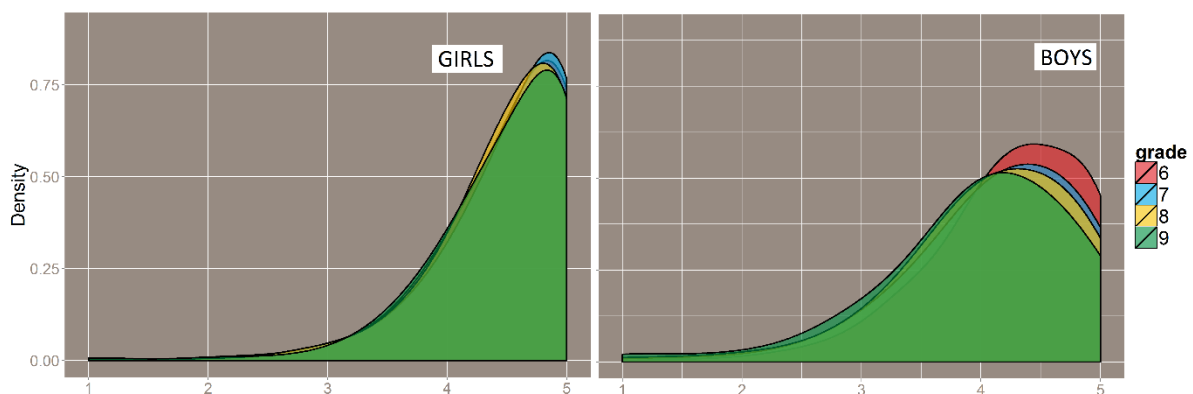


Figure 11. Distribution of score on the MDI Empathy scale (3-items)

2. Are there measures/scales available which:
 b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

Figure 11 shows the distribution of scores on the MDI Empathy scale for girls and boys in different grades. The scale is highly skewed to the left for girls with very little differentiation between girls in Grade 6, 7, 8 and 9 with almost all girls selecting “agree” or “agree a lot” to the three items. There is more differentiation among boys with decreased empathy for boys in the older grades but the scale is still highly skewed. This restriction in the range of responses may contribute to the limited correlations between empathy and other constructs discussed in the section above. The gender differences may reflect real differences in girls and boys levels of empathy but might also reflect gender stereotypes where boys are not expected to express emotions, particularly as they approach adolescence. There is also a strong social desirability aspect to empathy where children know that it would be bad to disagree to items such as “I am a person who cares about the feelings of others” regardless of how they really feel. Either way, the skewness of these scales presents significant challenges in detecting positive changes in empathy at a school, community or classroom level.

2. Are there measures/scales available which:
 c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

Given that the MDI empathy items have been changed quite a bit, we would need to get permission from the University of British Columbia rather than seeking permission from the original creator of the adult Interpersonal Reactivity Index. Therefore there may be licencing and cost implications of using this scale.

EMPATHY	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
.... impacts on later outcomes?	Low
... is modifiable during the middle years?	Medium
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	No
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	No
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	Yes
RECOMMENDATION	
Do not measure empathy within the student wellbeing survey	

Prosocial behaviour

The concept of a “prosocial personality” is often discussed in the literature suggesting there are innate, individual differences between people in their tendency to think and behave in prosocial ways. Prosocial personality has been defined as “*an enduring tendency to think about the welfare and rights of other people, to feel concern and empathy for them, and to act in a way that benefits them*” [92, p. 526]. The tendency to *feel* concern for other children and people is covered in the previous section on empathy. In this section, we focus on the tendency to *behave* in a pro-social manner including sharing books, toys, and games with other children, helping other children who are sick, hurt or upset, standing up for children who are being bullied, and trying to stop arguments and fights between other children.

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

A study published in the *American Journal of Public Health* in November 2015 is highly relevant because they explored the impact on early prosocial skills on a range of outcomes (education, employment, financial independence, criminal conduct and drug use) many years later using a longitudinal study design [93]. Jones et al. [93] explored teachers ratings of children’s prosocial skills at school entry and key measures of life success in early adulthood 13 to 19 years later, after adjusting for child, family and contextual variables. Children with higher prosocial skills had a range of benefits across multiple domains including:

- *Education*: less likely to repeat any grades in high school, more likely to graduate from high school and more likely to complete a college education;
- *Employment*: more likely to obtain stable employment and to be employed full time;
- *Financial Independence*: less likely to be waiting for public housing, or receiving public funding assistance;
- *Criminal justice system*: less likely to have any involvement with the police during adolescence, to have ever been arrested or to have ever been in a detention facility; and
- *Drug use*: less likely to binge drink and/or use marijuana.

There are also quite a few studies that have explored the link between prosocial skills and academic achievement during the primary and high school years. Caprara et al. [94] assessed the prosocial skills of 294 students in Grade 3 (mean age 8.5 years) using student, peers and teacher ratings of their helpfulness, sharing, kindness and cooperativeness and explored whether these prosocial skills were related to academic achievement measured five years later in Grade 8. Structural equation modelling showed that children with better prosocial skills had higher academic achievement in early high school, with prosocial skills explaining about 35% of the variance in academic achievement. A second model, in a subset of children, showed that this relationship held after adjusting for Grade 3 academic achievement. Neither of these models adjusted for possible confounding variables, but a cross-sectional study by Wentzel [95] found that prosocial skills were significantly related to academic achievement ($r = .54$) and these effects remained significant after

adjusting for possible confounders including IQ, family structure, gender, ethnicity and days absent from school. Children with strong prosocial skills tend to have a bigger group of friends and better social relationships with teachers and other adults, and these relationships are thought to provide a strong support base that can be utilised for help and guidance with school work and academic challenges [94]. These relationships may also help protect children from disengaging with school and their academic studies as they mature into adolescence. The effects of prosocial skills on academic achievement are generally thought to be indirect, as students who have better prosocial skills are less distracted by emotional issues and peer problems in the classroom and therefore remain engaged in their learning and have better academic outcomes as a result [96].

1. What is the strength of the evidence that this domain:
 - b. is malleable during the middle / adolescent years?

Nantel-Vivier et al [97] measured prosocial skills in two large samples of children aged 10 years old at baseline and followed them up at age 11, 12, 13 and 14 to explore how their prosocial skills changed over time. Prosocial skills were assessed using three different informants – self, teacher and mother – and different trajectory patterns were identified. One of the main aims of the study was to test a commonly held belief within developmental psychology that prosocial skills increase in frequency as children grow older. The results were not consistent with this idea, rather they suggested that the majority of children had developmental trajectories that were stable or declining with a small group of children (<10%) showing increasing prosocial behaviours from 10 to 14 years.

Eisenberg and colleagues conducted a long term study of prosocial skills following children up into their early 20s [98]. Prosocial helping behaviour at age 13-14 years correlated weakly with prosocial behaviour at ages 21-26 years ($r = .33$ to $.40$). However, the relationship was stronger between prosocial skills measured at age 17-18 years with the adult measures at 21-26 years ($r = .49$ to $.54$).

These two studies suggests that while prosocial skills tend to be stable or declining between age 10 and 14, these skills are much less stable at age 13-14 than they are for older age groups (17-18 years). Neither of these studies involved interventions so it remains possible that prosocial skills may still be sensitive to interventions during this time.

A meta-analysis by Durlak et al. [28] reviewed the impact of 213 universal school-based social and emotional development program on social and emotional skills, attitudes towards self and others, positive social behaviour (prosocial skills), and academic achievement for kindergarten to high school students. The mean effect size for these programs on prosocial skills was 0.24, suggesting that prosocial skills are modifiable during this period and that prosocial skills can be developed through school based programs, although the size of the effects in programs undertaken to date are relatively small.

2. Are there measures/scales available which:
- Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

The MDI contains a 3-item pro-social scale that was taken from the Positive Behaviour scale used by the Developmental Studies Centre in their Youth Outcome Measures for After School KidzLit survey [99]. When looking at the internal consistency and factor structure of pro-social scale, we used the figures reported in the MDI validity paper [30]. To explore the convergent and divergent validity, we explored correlations between scales in the 2015 SA cohort ($N = 29,510$).

MDI Pro-social skills scale	
1	Since the start of this school year, I cheered someone up who was feeling sad
2	Since the start of this school year, I helped someone who was being picked on
3	Since the start of the school year, I helped someone who was hurt

Internal consistency of the scale	This scale has strong internal consistency with Cronbach's alpha of .82 and an ordinal alpha of .85.
Construct validity	All three items had strong factor loadings (.76 to .84) on the pro-social skills construct in a confirmatory factor analysis.
Convergent validity	Empathy is the most theoretically similar construct to pro-social skills within the MDI but the correlation between the two constructs was low ($r = .36$) in the validity paper, and in the 2015 SA sample ($r = .32$). The pro-social skills scale also had a low correlation with friendship intimacy ($r = .18$), peer belonging ($r = .13$) and bullying ($r = .20$).
Divergent validity	This scale correlates to a small degree with theoretically distinct scales including the self-esteem ($r = .11$) and life satisfaction ($r = .10$), so the divergent validity is acceptable.
Test retest reliability	<i>Not available</i>

The psychometric properties of this scale are acceptable but it is a little concerning that it does not correlate more highly with theoretically related constructs such as empathy, friendship intimacy, peer belonging and bullying. On the other hand, we know that the empathy scale is problematic (highly skewed), and the other three scales are also quite skewed so the lack of correlation might reflect a problem with the other scales, rather than the pro-social scale.

The pro-social items ask whether the child has displayed specific pro-social behaviours "since the start of the year". This could be problematic because the child may have a general tendency towards pro-social behaviour but not have had an opportunity to display this behaviour (e.g. helping someone who was picked on) since the start of the year. Alternatively worded items that ask about children's behaviours without focusing on specific instances of the behaviour (e.g. "I am helpful if someone is hurt, upset or feeling ill" from the Prosocial scale of the Strengths and Difficulties Questionnaire) might present a better alternative.

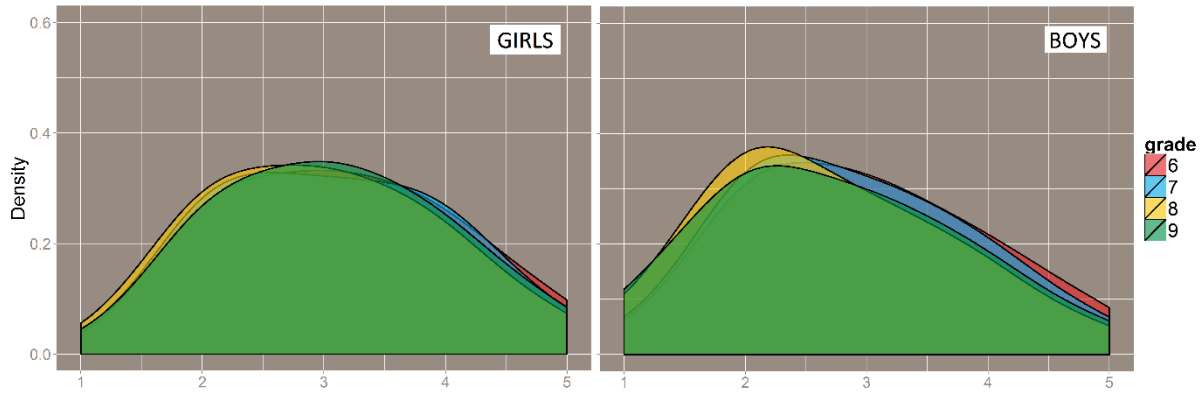


Figure 12. Distribution of score on the MDI Pro-social scale (3-items)

2. Are there measures/scales available which:

b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

Figure 12 shows that the pro-social skills scale is normally distributed and captures both high and low levels of pro-social skills in the population. Scores for boys are skewed towards the lower level, which may be related to gender stereotypes with boys being less likely to have helped someone who is hurt or feeling sad than girls. The distributions mean that they should be sensitive to detect increases or decreases in pro-social skills at a school, community or classroom level.

2. Are there measures/scales available which:

c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

The three items within the MDI prosocial scale were taken from the *Youth Outcome Measures for After School KidzLit survey* [99]. This organisation have provided permission for DECD to use these items within the PISA wellbeing project at no cost, so we do not foresee any issues in gaining approval to use them for the Student Wellbeing survey.

Given that the pro-social scale does not correlate as expected with other related scales it may be worth exploring whether the pro-social scale from the Strengths and Difficulties Questionnaire might present a better alternative but this is not viewed as an essential modification to the student wellbeing instrument. The five item SDQ Pro-social scale is shown below.

Strengths and Difficulties Pro-social scale	
1	I try to be nice to other people
2	I usually share with others
3	I am helpful if someone is hurt
4	I am kind to younger children
5	I often volunteer to help others

PRO-SOCIAL SKILLS	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
.... impacts on later outcomes?	High
... is modifiable during the middle years?	Medium
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	Yes
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	Yes
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	Yes
RECOMMENDATION	
Measure pro-social skills using either the 3-item Pro-social scale from the MDI or the 5-item Pro-social scale from the Strengths and Difficulties questionnaire	

Self-esteem

Self-esteem can be defined as a subjective feeling of a person's overall worthiness [100]. Parents play a vital role in the early development of self-esteem with strong attachment to the primary care giver thought to instil a sense of self-worth in the child. At a broad level, self-esteem develops through relationships with other people and individuals learn to view themselves as worthwhile based on the positive reactions that they receive from other people, including peers within their social group and adults in their lives. While the quality of the parent-child relationships is a key determinant of a child's self-esteem, the strength of these relationships reduces over time as the child matures and relationships with peers become more important [101]. In addition to relationships, self-esteem develops as children face academic challenges in the classroom, and as they master new skills and abilities their self-esteem and confidence in their own skills builds. The terms *self-esteem*, *self-worth* and *self-concept* are often used interchangeably within the literature.

1. What is the strength of the evidence that this domain:
 - a. impacts on later outcomes (health, education, social relationships, workforce, psychological wellbeing);

A comprehensive review published in 2002 explored the impact of self-esteem on a range of key life outcomes including school performance, job success, relationships, happiness, depression, delinquent behaviour, and eating disorders [102]. The review found:

- Strong evidence that individuals with high self-esteem were happier, and individuals with low self-esteem were more likely to experience depressive symptoms. One longitudinal study found that level of self-esteem at age 12 and decreases in self-esteem between 12 and 16 years of age were predictive of depressive symptoms at age 35 [103].
- High self-esteem was protective against eating disorders, specifically bulimia in girls.
- Low self-esteem was linked to delinquent behaviour in adolescence.
- High self-esteem individuals were more persistent in the face of challenges and failure, and that this might indirectly improve a variety of life outcomes.
- There was limited evidence for a causal association between self-esteem and school performance, with several studies suggesting that academic successes promoted higher self-esteem rather than the other way around [104].
- There was also limited evidence that individuals with higher self-esteem were more successful in their jobs or relationships.

One longitudinal study published since the review article warrants mentioning. The Dunedin Multidisciplinary Health and Development Study followed up a complete birth cohort measuring self-esteem during adolescence and a range of life outcomes up to 26 years of age [105]. After adjusting for a range of confounders including SES, adolescent mental health and IQ, adolescents with low self-esteem were at an elevated risk of developing:

- mental health problems (major depression, anxiety disorder),
- drug dependence (smoking, marijuana and alcohol),
- physical health problems (cardiovascular health),
- dropping out of high school, and
- coming into contact with the criminal justice system.

1. What is the strength of the evidence that this domain:
 - b. is modifiable during the middle / adolescent years?

A meta-analysis by Haney and Durlak [106] reviewed 120 intervention studies aimed at improving self-esteem, either specifically or as one of many outcomes, for children aged between age 3 to 18 years. Interventions aimed specifically at self-esteem had an effect size (ES) of 0.57, suggesting that improving self-esteem by one standard deviation would improve the other outcomes measured by just over half a standard deviation. However, effect sizes varied significantly depending on whether the program was targeted at children with no pre-existing problems (ES = 0.09), children with internalising problems (ES = 0.24) or children with externalising problems (ES = 0.75). Similarly programs aimed at treating low self-esteem (treatment studies) were much more efficacious than programs aimed at improving self-esteem for groups of children (prevention studies). This meta-analysis suggests that targeted interventions to help children with low self-esteem can work, but there is limited evidence that population-wide programs to improve self-esteem are successful.

One other point is worth noting here. There are multiple types of “high” self-esteem - some that are adaptive and others that are not. Some students have high self-esteem because they have made an accurate appraisal of their skills and abilities and recognised that they are doing well in a range of different areas. However, other students might have high self-esteem that is not reflective of their actual social or academic skills, and this type of high self-esteem has been linked to narcissism and a range of negative side effects for the student and those around them (e.g. bullying). The authors of the review [102] conclude that intervening directly on self-esteem may indeed increase self-esteem but will not in and of itself make young people perform better in school, get along better with their friends, and generally exhibit more favourable behaviour. Instead, they suggest that individuals should develop a favourable sense of themselves *because* they are working hard, achieving at school and behaving in a moral and socially acceptable manner. Fostering these skills and attributes in students will improve their self-esteem and this probably makes more sense than directly intervening on self-esteem.

2. Are there measures/scales available which:
 a. Demonstrate reasonable reliability and validity for use with middle years children and/or adolescents

The MDI contains a 3-item self-esteem scale that was taken from the *Self-Description Questionnaire* [107]. When looking at the internal consistency and factor structure of the MDI self-esteem scale, we used the figures reported in the MDI validity paper [30], which was based on a sample of 3,026 Grade 4 students (mean age = 9.7 years, SD = 0.3). To explore the convergent and divergent validity, we explored correlations between scales in the 2015 SA cohort (n = 29,510).

MDI Self-esteem scale	
1	In general, I like being the way I am
2	Overall, I have a lot to be proud of
3	A lot of things about me are good

Internal consistency of the scale	This scale has strong internal consistency with Cronbach’s alpha of .72 and an ordinal alpha of .79.
Construct validity	All three items had strong factor loadings (.73 to .76) on the construct in a confirmatory factor analysis.
Convergent validity	Self-esteem was positively related to other similar positive psychological constructs such as optimism (r = .58) and life satisfaction (r = .57)
Divergent validity	Scores on the self-esteem scale had low correlations with scales measuring theoretically unrelated constructs such as empathy (r = .34) and pro-social behaviour (r = .23).
Test retest reliability	<i>Not available</i>

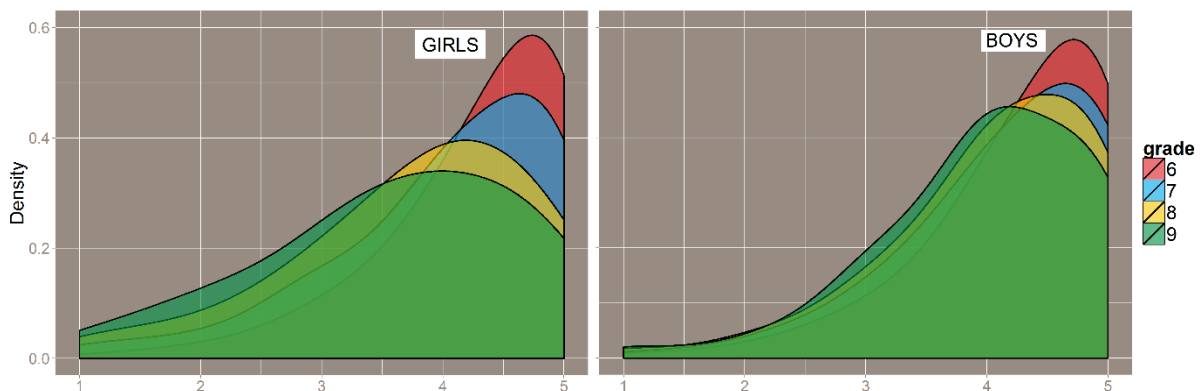


Figure 13. Distribution of score on the MDI Self-esteem scale (3-items)

2. Are there measures/scales available which:
 b. Would appear to be suitable for use across the whole population (i.e. the scale aims to measure a continuum of skills/functioning/wellbeing) AND/OR is sensitive to detect change at a school, community or classroom level

The self-esteem scale is skewed to the right with students in Grade 6 showing very high levels of self-esteem for both boys and girls. This presents major problems for using this scale as an outcome measure because it would be very difficult to detect any positive effects of interventions to improve self-esteem with such high scores at baseline. The scale is sensitive to decreases in self-esteem, which are evident for both girls and boys as they mature and start high school. However, even in grade 9 the scores for boys are still quite skewed to the right and the scale is probably not sensitive enough to detect positive changes at a school, community or classroom level. Furthermore, the literature suggests that interventions to improve self-esteem are generally only effective for students who are facing challenges (e.g., internalising or externalising problems) or for those students who have low self-esteem.

2. Are there measures/scales available which:
 c. Would appear to be feasible and pragmatic to use in a classroom setting and in an online collection system (specifically, list the number and length of items and any licencing conditions and costs)

From a pragmatic perspective there are no problems having students complete the MDI Self-esteem scale. Permission would need to be sought from UBC or from the author who created the *Self-Description Questionnaire* to use the self-esteem items [107].

SELF-ESTEEM	
Stage 1: Review the construct	
What is the strength of evidence that the construct...	
... impacts on later outcomes?	Medium
... is modifiable during the middle years?	Medium
Stage 2: Review the scale	
Are there measures/scales available which....	
.. demonstrate reasonable reliability and validity for use with middle years children and/or adolescents?	Yes
...are suitable for use across the whole population AND/OR is sensitive to detect change at a school, community or classroom level?	No
... are feasible and pragmatic to use in a classroom setting and in an online collection system?	Yes
RECOMMENDATION	
Do not measure self-esteem within the Student Wellbeing Survey	

RECOMMENDATIONS

In reviewing all of the social and emotional wellbeing measures within the Student Wellbeing Survey, it is pleasing to see that *most* of them meet the criteria defined at the start of this report (see Figure 1). Most of the constructs have significant impacts on later outcomes, although they tend to be more strongly linked to mental health and social relationships than to academic, physical health and workforce outcomes. Most of the scales have good psychometric properties and are sensitive to changes during the middle years of schooling. However, there were a few constructs and/or scales that were not working properly and we would recommend making some changes to these scales to improve the survey.

We set out six specific recommendations to improve the Student Wellbeing Survey. These are ordered from the *most* important to the *least* important modification from our perspective.

- **RECOMMENDATION 1: Add the 4-item EPOCH Happiness scale**
 Happiness is one of the three key constructs that define subjective wellbeing in the literature. It has not been measured within the Middle Years Development Instrument previously. The evidence shows that happiness is important for later life outcomes, is modifiable in the middle years and can be measured using existing self-report items.
- **RECOMMENDATION 2: Remove the 4-item EPOCH Engagement scale, and instead create a module on school engagement that better meets the needs of the Department**
 Engagement is construct within the PERMA Theory of Wellbeing and the EPOCH Measure of Adolescent Wellbeing. However, there is limited evidence that Engagement (as operationalised in the EPOCH) predicts important life outcomes. School engagement, on the other hand, is a strong predictor of academic achievement and dropout, and measures of this construct should be explored further.
- **RECOMMENDATION 3: Remove the 3-item Empathy scale**
 Theoretically, low empathy should predict a host of problems (e.g. bullying, aggression, crime) and high empathy should predict better social relationships and school success. However, the evidence for all of these outcomes in the general population is weak to moderate at best. Furthermore, the empathy scale is highly skewed to the left, with almost all children (especially girls) having high empathy scores. For the sake of reducing the length of the survey, this scale should be dropped.

- **RECOMMENDATION 4: Replace the 3-item worries (anxiety) scale with items that measure worries at school and home, rather than just worries about peer problems.**

Anxiety is an important construct to measure within the student wellbeing survey, and one of only two “negative (i.e. mental illness)” constructs given the focus on “positive” psychological constructs. However, the current items are too narrow in their focus. Scores on this scale are stable from Grade 6 to 9, which directly contradicts the evidence that the prevalence of anxiety increases from childhood to adolescence. As such, the scale is not behaving as expected and may be tapping something other than broad anxiety symptoms. We would recommend replacing it with a broader scale.

- **RECOMMENDATION 5: Remove the 3-item Self-Esteem scale.**

Self-esteem predicts a wide range of important life outcome. However, there are some negative impacts of increasing students’ self-esteem (e.g. narcissism) and the evidence suggests that interventions mainly work with students with low self-esteem, not all students. The scale is also quite skewed to the left, with most students receiving high scores. Given the desire to reduce the length of the Student Wellbeing Survey, we would suggest removing this scale.

- **RECOMMENDATION 6: Add a short Emotion Regulation scale.**

Emotion regulation is a fundamental skills that children need to master to be able to function effectively in school and society more broadly. Poor emotion regulation is a key feature of most psychological disorders, and middle childhood presents a great opportunity to build emotion regulation skills as children are more able to utilise adaptive cognitive strategies to regulate their emotions. This recommendation is listed at the end *only* because it would involve adding up to 10 new items (6 for cognitive reappraisal, 4 for emotional suppression), and there is a general desire to cut down the length of the survey. However, we believe that this construct is important enough that it should be included, in favour of some of the other items (e.g. after-school activities).

For completeness, we also list all of the scales from the MDI and EPOCH that we recommend retaining within the Student Wellbeing Survey.

- **RECOMMENDATION 7:** Retain the 3-item MDI Sadness scale
- **RECOMMENDATION 8:** Retain the 5-item Satisfaction with Life Scale for Children
- **RECOMMENDATION 9:** Include the 3-item MDI Optimism scale rather than the 4-item EPOCH Optimism scale
- **RECOMMENDATION 10:** Include the 4-item (not 5-item) Perseverance scale from EPOCH
- **RECOMMENDATION 11:** Measure pro-social development using either the 3-item Pro-social scale from the MDI or the 5-item Pro-social scale from the Strengths and Difficulties questionnaire

We understand that the Department for Education and Child Development are exploring the option of piloting some school engagement items for inclusion with the Student Wellbeing Survey in early 2016. This presents an ideal opportunity to pilot the new 3-item anxiety scale (Recommendation 4) and the 10-item emotion regulation scale (Recommendation 6), prior to including them in the new Student Wellbeing Survey. If there is a desire to replace the MDI Pro-social scale with the SDQ Prosocial scale (Recommendation 11) then this would also present an opportunity to trial these items.

References

1. Seligman, M., *Building the State of Wellbeing: A Strategy for South Australia*. 2013, Department of the Premier and Cabinet: Adelaide, South Australia.
2. Ministerial Council for Education Early Childhood Development and Youth Affairs, *Melbourne Declaration on Educational Goals for Young Australians*. 2008.
3. Diener, E., et al., *Subjective Well-Being: Three Decades of Progress*. Psychological Bulletin, 1999. **125**(2): p. 276-302.
4. Ryff, C.D., *Happiness is Everything, or Is It? Explorations on the Meaning of Psychological Well-being*. Journal of Personality and Social Psychology, 1989. **57**(6): p. 1069-1081.
5. Peterson, C., N. Park, and M. Seligman, *Orientations to happiness and life satisfaction: The full life versus the empty life*. Journal of Happiness Studies, 2005. **6**: p. 25-41.
6. Seligman, M.E.P., *Flourish: A Visionary New Understanding of Happiness and Wellbeing*. 2011, New York: Free Press.
7. Kern, M.L., et al., *The EPOCH Measure of Adolescent Well-Being*. Psychological Assessment, 2015. **Advance online publication**. <http://dx.doi.org/10.1037/pas0000201>.
8. Kern, M.L., et al., *A multidimensional approach to measuring wellbeing in students: Application of the PERMA framework*. The Journal of Positive Psychology, 2015. **10**(3): p. 262-271.
9. Lyubomirsky, S., L. King, and E. Deiner, *The Benefits of Frequent Positive Affect: Does Happiness Lead to Success?* Psychological Bulletin, 2005. **131**(6): p. 803-855.
10. Cohen, J., *A Power Primer*. Psychological Bulletin, 1992. **112**: p. 155-159.
11. Friedman, R.A. and M.L. Kern, *Personality, Well-Being, and Health*. Annual Review of Psychology, 2014. **65**: p. 719-42.
12. Seligman, M.E., et al., *Positive psychology progress: empirical validation of interventions*. American psychologist, 2005. **60**(5): p. 410.
13. Putnam, S.P., *Positive Emotionality*, in *Handbook of Temperament*, M. Zentner and R.L. Shiner, Editors. 2012, The Guilford Press: New York. p. 105-123.
14. Tellegen, A., et al., *Personality similarity in twins reared apart and together*. Journal of Personality & Social Psychology, 198. **54**: p. 1031-1039.
15. Roberts, B.W.D., W.F., *The Rank-Order Consistency of Personality Traits from Childhood to Old Age: A Quantitative Review of Longitudinal Studies*. Psychological Bulletin, 2000. **126**(1): p. 3-25.
16. Al Nima, A., T. Archer, and D. Gardcia, *Adolescents' happiness-increasing strategies, temperament, and character: Mediation models on subjective well-being*. Health 2012. **4**(10): p. 802-810.
17. Heckman, J.J., J. Stixrud, and S. Urzua, *The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior*. Journal of Labor Economics, 2006. **24**(3): p. 411-482.
18. Cole, P.M., S.E. Martin, and T.A. Dennis, *Emotion regulation as a scientific construct: Methodological challenges and directions for child development research*. Child Development, 2004. **75**: p. 317-333.
19. Gross, J., *Emotion Regulation: Taking Stock and Moving Forward*. Emotion, 2013. **13**(3): p. 359-365.
20. Hudson, J. and V. Pulla, *Emotion regulation in children*, in *Towards a resilience framework*, V. Pulla, A. Shatte, and S. Warren, Editors. 2013, New Delhi : Authors Press, 2013.: New Delhi. p. 100-121.

21. American Psychiatric Association, *Diagnostic and statistical manual of mental disorders. DSM-IV, 5th edition*. 2013, Washington, DC: American Psychiatric Association.
22. Lawrence, D., et al., *The Mental health of Children and Adolescents: Report on the second Australian Child and Adolescent Survey of Mental Health and Wellbeing*. 2015, Department of Health: Canberra.
23. Birmaher, B., et al., *Childhood and Adolescent Depression: A Review of the Past 10 Years. Part 1*. Journal of the American Academy of Child & Adolescent Psychiatry, 1996. **35**(11): p. 1427-1439.
24. Reiss, F., *Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review*. Social Science & Medicine, 2013. **90**: p. 24-31.
25. Fergusson, D.M. and L.J. Woodward, *Mental Health, Educational, and Social Role Outcomes of Adolescents With Depression*. Archives of General Psychiatry, 2002. **59**(3): p. 225-231.
26. Aalto-Setälä, T., et al., *Depressive Symptoms in Adolescence as Predictors of Early Adulthood Depressive Disorders and Maladjustment*. The American Journal of Psychiatry, 2002. **157**(7): p. 1235-1237.
27. David-Ferdon, C., Kaslow, N.J., *Evidence-Based Psychosocial Treatments for Child and Adolescent Depression*. Journal of Clinical Child & Adolescent Psychology, 2008. **37**(1): p. 62-104.
28. Durlak, J.A., et al., *The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions*. Child Development, 2011. **82**(1): p. 405-432.
29. Rains, C. *Seattle Personality Questionnaire (Grade 3+) - Technical Report on Fast Track project*. 2003 November 2015 from <http://www.fasttrackproject.org/technical-reports.php>.
30. Schonert-Reichl, K.A., et al., *Development and Validation of the Middle Years Development Instrument (MDI): Assessing Children's Well-Being and Assets across Multiple Contexts*. Social Indicators Research, 2013. **114**(2): p. 345-369.
31. Saluja, G., et al., *Prevalence of and risk factors for depressive symptoms among young adolescents*. Archives of Pediatrics & Adolescent Medicine, 2004. **158**(8): p. 760-765.
32. Last, C.G., C. Hansen, and N. Franco, *Anxious Children in Adulthood: A Prospective Study of Adjustment*. Journal of the American Academy of Child & Adolescent Psychiatry, 1997. **36**(5): p. 645-652.
33. Wittchen, H.U., et al., *The waxing and waning of mental disorders: Evaluating the stability of syndromes of mental disorders in the population*. Comprehensive Psychiatry, 2000. **41**(2, Supplement 1): p. 122-132.
34. Kessler, R.C., et al., *Social consequences of psychiatric disorders, I: Educational attainment*. American Journal of Psychiatry, 1995. **152**(7): p. 1026-1032.
35. Van Ameringen, M., C. Mancini, and P. Farvolden, *The impact of anxiety disorders on educational achievement*. Journal of Anxiety Disorders, 2003. **17**(5): p. 561-571.
36. Davidson, J.R.T., et al., *The epidemiology of social phobia: findings from the Duke Epidemiological Catchment Area Study*. Psychological Medicine, 1993. **23**(03): p. 709-718.
37. Yonkers, K.A., et al., *Chronicity, relapse, and illness—course of panic disorder, social phobia, and generalized anxiety disorder: Findings in men and women from 8 years of follow-up*. Depression & Anxiety (1091-4269), 2003. **17**(3): p. 173-179.
38. Bruce, S.E., et al., *Influence of Psychiatric Comorbidity on Recovery and Recurrence in Generalized Anxiety Disorder, Social Phobia, and Panic Disorder: A 12-Year Prospective Study*. American Journal of Psychiatry, 2005. **162**(6): p. 1179-1187.
39. Beesdo, K., Knappe, S., Pine, D.S., *Anxiety and Anxiety Disorders in Children and Adolescents: Developmental Issues and Implications for DSM-V*. ncbi, 2009. **32**(3): p. 483-524.
40. Gross, J. and L.F. Barrett, *Emotion Generation and Emotion Regulation: One or Two Depends on Your Point of View*. Emotion Review, 2011. **3**(1): p. 8-16.

41. Howse, R.B., et al., *Regulatory contributors to children's kindergarten achievement*. Early Education and Development, 2003. **14**: p. 101-119.
42. Trentacosta, C.J. and C.E. Izard, *Kindergarten children's emotion competence as a predictor of their academic competence in first grade*. Emotion, 2007. **7**: p. 77-88.
43. Kubzansky, L.D., et al., *Healthy psychological functioning and incident coronary heart disease: The importance of self-regulation*. Archives of General Psychiatry, 2011. **68**(4): p. 400-408.
44. DeSteno, D., J. Gross, and L. Kubzansky, *Affective Science and Health: The Importance of Emotion and Emotion Regulation*. The American Psychological Association, 2013. **32**(5): p. 474-486.
45. Gross, J. and O.P. John, *Individual differences in two emotion regulation processes: Implications for affect, relationships, and wellbeing*. Journal of Personality and Social Psychology, 2003. **85**: p. 348-362.
46. McRae, K., et al., *The development of emotion regulation: an fMRI study of cognitive reappraisal in children, adolescents and young adults*. Social Cognitive & Affective Neuroscience, 2012. **7**(1): p. 11-22.
47. Gullone, E. and J. Taff, *The Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA): A Psychometric Evaluation*. Psychological Assessment, 2012. **24**(2): p. 409-417.
48. Balzarotti, S., J. Oliver, and J. Gross, *An Italian adaptation of the Emotion Regulation Questionnaire*. European Journal of Psychological Assessment, 2010. **26**(1): p. 61-67.
49. Huebner, E.S., B.A. Funk, and R. Gilman, *Cross-sectional and Longitudinal Psychosocial Correlates of Adolescent Life Satisfaction Reports*. Canadian Journal of School Psychology, 2000. **16**(1): p. 53-64.
50. Diener, E., *Assessing subjective well-being: Progress and opportunities*. Social Indicators Research, 1994. **31**(2): p. 103-157.
51. Gadermann, A.M., K.A. Schonert-Reichl, and B.D. Zumbo, *Investigating Validity Evidence of the Satisfaction with Life Scale Adapted for Children*. Social Indicators Research, 2010. **96**(2): p. 229-247.
52. Valois, R.F., et al., *LIFE SATISFACTION AND SUICIDE AMONG HIGH SCHOOL ADOLESCENTS*. Social Indicators Research, 2004. **66**(1/2): p. 81-105.
53. Haranin, E.C., E.S. Huebner, and S.M. Suldo, *Predictive and Incremental Validity of Global and Domain-Based Adolescent Life Satisfaction Reports*. Journal of Psychoeducational Assessment, 2007. **25**(2): p. 127-138.
54. Siahpush, M., M. Spittal, and G.K. Singh, *Happiness and Life Satisfaction Prospectively Predict Self-Rated Health, Physical Health, and the Presence of Limiting, Long-Term Health Conditions*. American Journal of Health Promotion, 2008. **23**(1): p. 18-26.
55. Greenspoon, P.J. and D.H. Saklofske, *Validity and Reliability of the Multidimensional Students' Life Satisfaction Scale with Canadian Children*. Journal of Psychoeducational Assessment, 1997. **15**(2): p. 138-155.
56. Huebner, E.S., et al., *Further Validation of the Multidimensional Students' Life Satisfaction Scale*. Journal of Psychoeducational Assessment, 1998. **16**(2): p. 118-134.
57. Antaramian, S.P. and E.S. Huebner, *Stability of Adolescents' Multidimensional Life Satisfaction Reports*. Journal of Psychoeducational Assessment, 2009. **27**(5): p. 421-425.
58. Diener, E., et al., *The Satisfaction With Life Scale*. Journal of Personality Assessment, 1985. **49**(1): p. 71.
59. Csikszentmihalyi, M., *If We Are So Rich, Why Aren't We Happy?* American Psychologist, 1990. **54**(10): p. 821-827.
60. Archambault, I., et al., *Student engagement and its relationship with early high school dropout*. Journal of Adolescence, 2009. **32**(3): p. 651-670.

61. Johnson, W., M. McGue, and W. Iacono, *Genetic and Environmental Influences on Academic Achievement Trajectories During Adolescence*. *Developmental Psychology*, 2006. **42**(3): p. 514-532.
62. Appleton, J.J., et al., *Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument*. *Journal of School Psychology*, 2006. **44**(5): p. 427-445.
63. Fredricks, J.A., P.C. Blumenfeld, and A.H. Paris, *School Engagement: Potential of the Concept, State of the Evidence*. *Review of Educational Research*, 2004. **74**(1): p. 59-109.
64. Department of Education and Children's Services, *South Australian teaching for effective learning framework guide: a resource for developing quality teaching and learning in South Australia*. ISBN: 9780730878490. 2010: Adelaide, Australia.
65. Abbott-Chapman, J., et al., *The longitudinal association of childhood school engagement with adult educational and occupational achievement: findings from an Australian national study*. *British Educational Research Journal*, 2014. **40**(1): p. 102-120.
66. Dweck, C., G. Walton, and G. Cohen, *Academic Tenacity: Mindsets and Skills that Promote Long-Term Learning*. 2014, Bill & Melinda Gates Foundation.
67. Thomson, K., K.A. Schonert-Reichl, and E. Oberle, *Optimism in Early Adolescence: Relations to Individual Characteristics and Ecological Assets in Families, Schools, and Neighborhoods*. *Journal of Happiness Studies*, 2015. **16**(4): p. 889-913.
68. Yates, S.M., *The influence of optimism and pessimism on student achievement in mathematics*. *Mathematics Education Research Journal*, 2002. **14**(1): p. 4-15.
69. Oberle, E., K.A. Schonert-Reichl, and K.C. Thomson, *Understanding the Link Between Social and Emotional Well-Being and Peer Relations in Early Adolescence: Gender-Specific Predictors of Peer Acceptance*. *Journal of Youth and Adolescence*, 2010. **39**(11): p. 1330-1342.
70. Rasmussen, H.N., M.F. Scheier, and J.B. Greenhouse, *Optimism and Physical Health: A Meta-analytic Review*. *Annals of Behavioral Medicine*, 2009. **37**(3): p. 239-256.
71. Coyne, J.C. and H. Tennen, *Positive Psychology in Cancer Care: Bad Science, Exaggerated Claims, and Unproven Medicine*. *Annals of Behavioral Medicine*, 2010. **39**(1): p. 16-26.
72. Aspinwall, L.G. and R.G. Tedeschi, *Of Babies and Bathwater: A Reply to Coyne and Tennen's Views on Positive Psychology and Health*. *Annals of Behavioral Medicine*, 2010. **39**(1): p. 27-34.
73. Carver, C.S., M.F. Scheier, and S.C. Segerstrom, *Optimism*. *Clinical Psychology Review*, 2010. **30**(7): p. 879-889.
74. Matthews, K.A., et al., *Optimistic Attitudes Protect Against Progression of Carotid Atherosclerosis in Healthy Middle-Aged Women*. *Psychosomatic Medicine*, 2004. **66**(5): p. 640-644.
75. Plomin, R., et al., *Optimism, pessimism and mental health: A twin/adoption analysis*. *Personality and Individual Differences*, 1992. **13**(8): p. 921-930.
76. Noam, G.G. and L.S. Goldstein, *The resilience inventory*. 1998: Unpublished Protocol.
77. Denham, S.A., P. Ji, and B. Hamre, *Compendium of preschool through elementary school social-emotional learning and associated assessment measures*. CASEL. Available online at: http://casel.org/wp-content/uploads/Compendium_SELTools.pdf, 2010.
78. Costa, P.T. and R.R. McCrae, *NEO Personality Inventory-Revised Professional Manual*. 1992, Odessa, FL: Psychological Assessment Resources, Inc.
79. Roberts, B.W., et al., *The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes*. *Perspectives on Psychological Science*, 2007. **2**: p. 313-345.
80. Duckworth, A.L.S., M.E.P., *Self-Discipline Outdoes IQ in Predicting Academic Performance of Adolescents*. *Association for Psychological Science*, 2005. **16**(12): p. 939-944.
81. Duckworth, A.L., et al., *Grit: perseverance and passion for long-term goals*. *Journal of Personality and Social Psychology*, 2007. **92** (6): p. 1087-1101.

82. Eskreis-Winkler, L., et al., *The grit effect: predicting retention in the military, the workplace, school and marriage*. *Frontiers in Psychology*, 2014. **5**: p. 36.
83. McCrae, R.R. and P.T. Costa, *The Stability of Personality: Observations and Evaluations*. *Current Directions in Psychological Science*, 1994. **3**(6): p. 173-175.
84. Sawyer, A.C.P., et al., *Are trajectories of self-regulation abilities from ages 2-3 and 6-7 associated with academic achievement in the early school years?* *Child: care, health and development*, 2014. **41**(5): p. 744-754.
85. Eisenberg, N. and R.A. Fabes, *Empathy: Conceptualization, Measurement, and Relation to Prosocial Behavior*. *Motivation and Emotion*, 1990. **14**(2): p. 131-149.
86. Allemand, M., A.E. Steiger, and H. Fend, *Empathy Development in Adolescence Predictors Social Competencies in Adulthood*. *Journal of Personality* 2015. **83**(2): p. 229-241.
87. Gini, G., et al., *Does empathy predict adolescents' bullying and defending behavior?* *Aggressive Behavior*, 2007. **33**(5): p. 467-476.
88. Lovett, B.J. and R.A. Sheffield, *Affective empathy deficits in aggressive children and adolescents: A critical review*. *Clinical Psychology Review*, 2007. **27**(1): p. 1-13.
89. Jolliffe, D. and D.P. Farrington, *Empathy and offending: A systematic review and meta-analysis*. *Aggression and Violent Behavior*, 2004. **9**(5): p. 441-476.
90. Feshbach, N.D. and S. Feshbach, *Affective Processes and Academic Achievement*. *Child Development*, 1987. **58**(5): p. 1335.
91. Davis, M.H., *Measuring Individual Differences in Empathy: Evidence for a Multidimensional Approach*. *Journal of Personality & Social Psychology*, 1983. **44**(1): p. 113-126.
92. Penner, L.A. and M.A. Finkelstein, *Dispositional and structural determinants of volunteerism*. *Journal of Personality & Social Psychology*, 1998. **74**: p. 525-537.
93. Jones, D.E., M.T. Greenberg, and M. Crowley, *Early Social-Emotional Functioning and Public Health: The Relationship Between Kindergarten Social Competence and Future Wellness*. *American Journal of Public Health*, 2015. **105**(11): p. 2283-2290.
94. Caprara, G.V., et al., *Prosocial Foundations of Children's Academic Achievement*. *Psychological Science*, 2000. **11**(4): p. 302-306.
95. Wentzel, K.R., *Does being good make the grade? Social behavior and academic competence in middle school*. *Journal of Educational Psychology*, 1993. **85**(2): p. 357-364.
96. Farrington, C.A., et al., *Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review*. 2012, Chicago: University of Chicago Consortium on Chicago School Research.
97. Nantel-Vivier, A., et al., *Prosocial development from childhood to adolescence: a multi-informant perspective with Canadian and Italian longitudinal studies*. *Journal of Child Psychology & Psychiatry*, 2009. **50**(5): p. 590-598.
98. Eisenberg, N., et al., *Prosocial Development in Early Adulthood: A Longitudinal Study*. *Journal of Personality and Social Psychology*, 2002. **82**(6): p. 993-1006.
99. Developmental Studies Center, *Youth Outcome Measures for AfterSchool KidzLit™*, . 20101.
100. Harris, M.A., et al., *Do Parents Foster Self-Esteem? Testing the Prospective Impact of Parent Closeness on Adolescent Self-Esteem*. *Child Development*, 2015. **86**(4): p. 995-1013.
101. Rice, K.G., *Attachment in adolescence: A narrative and meta-analytic review*. *Journal of Youth and Adolescence*, 1990. **19**(5): p. 511-538.
102. Baumeister, R.F., et al., *Does High Self-Esteem Cause Better Performance, Interpersonal Success, Happiness, or Healthier Lifestyles?* *Psychological Science in the Public Interest*, 2003. **4**(1): p. 1-44.
103. Steiger, A.E., et al., *Low and Decreasing Self-Esteem During Adolescence Predict Adult Depression Two Decades Later*. *Journal of Personality & Social Psychology*, 2014. **106**(2): p. 325-338.

104. Skaalvik, E.M. and K.A. Hagtvet, *Academic Achievement and Self-Concept: An Analysis of Causal Predominance in a Developmental Perspective*. *Journal of Personality & Social Psychology*, 1990. **58**(2): p. 292-307.
105. Trzesniewski, K.H., et al., *Low Self-Esteem During Adolescence Predicts Poor Health, Criminal Behavior, and Limited Economic Prospects During Adulthood*. *Developmental Psychology*, 2006. **42**(2): p. 381-390.
106. Haney, P. and J.A. Durlak, *Changing self-esteem in children and adolescents: A meta-analytical review*. *Journal of Clinical Child Psychology*, 1998. **27**(4): p. 423.
107. Marsh, H.W., *Self-Description Questionnaire: A theoretical and empirical basis for the measurement of multiple dimensions of preadolescent self-concept: A test manual and a research monograph*. 1988, San Antonio, Texas: The Psychological Corporation.



About the Fraser Mustard Centre

Working together to improve the development, education, health and wellbeing of young Australians, the Telethon Kids Institute and the South Australian Department for Education and Child Development have joined forces in a unique approach to research translation. The Fraser Mustard Centre collaboration aims to:

- Improve and promote the health and wellbeing of all children and young people in South Australia through the unique application of multidisciplinary research
- Help shift focus from the historical delineation between health and education services to an integrated approach with a focus on child development
- Build capacity amongst public sector staff and academic researchers to design, undertake and use research to improve the environments in which children live and the service systems which support families
- Attract funding for shared priorities for research that leads to improved developmental, education, health and wellbeing outcomes for children

The Fraser Mustard Centre brings forward-thinking policy makers and world class child health researchers. It reflects a shared view of policies and outcomes for children and young people. The Centre is a unique collaboration between two organisations passionate about making a difference.

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