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Te Tāhuhu o te Mātauranga Aotearoa

Student Engagement in the Middle Years of Schooling (Years 7-10): A Literature Review

Report to the Ministry of Education

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Introduction

This project is part of a programme of research on student engagement during the middle years of schooling (Years 7 to 10) that was commissioned by the Ministry of Education. It is also part of a broader programme of research on middle years students being undertaken within the Ministry of Education.

Research, both international and local, suggests that student engagement in school and learning decreases during the middle years of schooling. In New Zealand, disengagement with school is evident in truancy, stand-down, suspension and expulsion rates, which increase rapidly from age 11 (Ng, 2006). Students' attitudes towards reading, writing and mathematics decline as they move through the middle years and they become more critical about some of the teaching they experience (Cox & Kennedy, 2008). Further evidence from the Competent Learners at 14 study (Wylie et al. 2006) indicates that a third of the 14 year old participants did not find school engaging and a fifth wanted to leave school as soon as they could.

Although the performance of New Zealand students in international assessment studies is relatively high when compared to students from other countries¹, there are nevertheless issues of concern for some groups of students that are likely to have their roots in poor student engagement in learning. These issues include:

- Too many young New Zealanders leaving school with low literacy and numeracy skills.
- Too many students, particularly Māori and Pasifika, leaving school early with low or no qualifications.
- The wide spread of achievement within and between groups of students.

The Ministry of Education is committed to ensuring the education system works for all students. The aim of the current project is to review the literature to find out more about student engagement and the relationship between academic engagement and student achievement and then to consider what teachers can do to raise levels of student engagement within their classes and schools.

Research Questions

Specific research questions were developed by the Ministry of Education and these were the lens through which the researchers reviewed the literature and then report the findings:

1. Thinking specifically in terms of learning and achievement outcomes for students over the shorter-and longer-term, what are the key elements of 'student engagement' during the middle schooling years?
2. How, and to what extent, are these various elements of 'student engagement' linked to student learning and achievement? Are certain elements more or less strongly linked to learning and achievement for particular students or groups of students?
3. What promotes and supports 'student engagement' for improved learning and achievement during the middle schooling years? Does it differ for particular students or groups of students?

Layout of the report

This report is produced to assist teachers who wish to foster student engagement within their classes. It is organized in two parts: the first part, which addresses research questions one and two, is a review of the current literature on the construct of student engagement followed by a description of the multifaceted and interconnected factors that impact on engagement identified within this literature.

¹ For example, the PISA 2006 results (Telford & Caygill, 2007) indicate that out of 30 Organisation for Economic Co-operation and Development (OECD) countries New Zealand students performed very well in mathematics, science and reading literacy.

The second part of the report addresses research question three. It is a discussion of the steps teachers can take to make their classrooms and programmes more engaging for students, based on the factors identified in the first part of the report and additional research that captures the voice of youth learners.

The report will commence with a brief description of the search methodology before moving on to explore the student engagement literature in relation to the research questions.

Literature review methodology

One objective of the literature review was to source writing from an eclectic range of domains (psychology, sociology, human development and education) with the purpose of extracting a broad range of possible indicators of engagement and the factors that impact on engagement.

The research team was keen to locate material that applied to the New Zealand education system. For instance, it explored the Te Kōtahitanga research (Bishop, Berryman, Cavanagh, & Teddy, 2007) with the purpose of identifying the culturally responsive pedagogical approaches teachers can take to engage Māori students and the outcome of these approaches on Māori students whose teachers took part in the Te Kōtahitanga programme. We read relevant Best Evidence statements (Aitken & Sinnema, 2008; Alton-Lee, 2003) for explicit or implicit messages about pedagogical approaches that support student engagement. We also read two reports (Caygill, 2007; Ministry of Education, 2009), to locate material that related to the attitudes and engagement of the New Zealand students that took part in PISA studies². We found two local empirical studies that related to student engagement: Te Kōtahitanga (Bishop et al., 2007), and Growing Independence – Competent Learners at 14 (Wylie & Hipkins, 2006). A further five New Zealand-produced studies had relevant material on aspects of student engagement³. A significant number of the remaining 48 articles were American empirical studies relating to the engagement of middle years students. The following table explains the process the team used in sourcing relevant material and reviewing it prior to writing this report.

² *The Programme for International Student Assessment (PISA) is an international study that assess how well 15 year-old are prepared to meet the challenges of today's society. PISA assesses three key areas of knowledge and skills: reading literacy, mathematical literacy and scientific literacy.*

³ *We assert that there is a significant gap in the New Zealand literature specifically on the phenomenon of middle years student engagement.*

Table 1: The process for carrying out the literature review

Stage	Task	Tools/strategies
<p>Stage One Clarify understanding of the field</p>	Identify domains	<p>Domains included:</p> <ul style="list-style-type: none"> • Psychology (motivation, cognition) • Sociology (peer group, gender, home environment, youth voice and agency) • Human Development • Ecological theory (culture, classroom dynamics) • Educational/pedagogical (relationships,, curriculum, teaching practices, learning approaches, alternative education)
	Identify the fields under investigation	Motivation, engagement linked to student achievement and learning
	Establishing key words and terminology	Make lists of these words and terminology e.g. self efficacy, youth voice, relational learning, metacognition and self regulation
<p>Stage Two Construct a search strategy</p>	Conduct searches on academic library databases	<p>Record the fruitful pathways</p> <p>Record the contiguous fields as they come up in the searches e.g. flow theory</p> <p>Determine the scope of the literature that will be searched</p>
<p>Stage Three Read, evaluate and summarise the research</p>	Read the research carefully and critically	<p>Assess the research in terms of:</p> <ul style="list-style-type: none"> • relevance to the New Zealand context • trustworthiness (validity and reliability) • usefulness of methodological approach
	Identify the theses and antitheses	Make written summaries of what is read

PART A – An exploration of the student engagement literature

This part of the report relates to the findings for research questions one and two. Each of these research questions will be dealt with in turn.

Research Question One:

Thinking specifically in terms of learning and achievement outcomes for students over the shorter-and longer-term, what are the key elements of ‘student engagement’ during the middle schooling years?

What is engagement?

It is well recognized that student engagement is fundamentally important in promoting achievement (Akey, 2006; Fredricks, Blumenfeld, & Paris, 2004; Johnson, 2008; Joselowsky, 2007; Patrick, Ryan, & Kaplan, 2007; Shernoff & Schmidt, 2008; Shin, Daly, & Vera, 2007) and in retaining students within the education system (Fredricks et al., 2004; Shin et al., 2007). However, the multitude of overlapping constructs and definitions about student engagement that proliferate have not made it easy to achieve a common understanding about what engagement is. Furthermore, such variability and lack of a common definition about student engagement makes it difficult to know what could be done in classrooms to support students to learn (Fredricks et al., 2004; Shernoff & Schmidt, 2008). For example, engagement and motivation are used interchangeably in some literature or used in different bodies of literature to represent the same construct. In some literature, engagement is a meta construct that incorporates a range of factors. In other literature, engagement is one of a number of factors (such as motivation) that is identified as impacting on students’ learning at school.

In terms of defining engagement, we note that of the literature reviewed, very few studies attempted to define engagement and most of those that did failed to provide a definition of student engagement that covered all of the elements that we consider encapsulates its essence. For instance the following definition failed to reflect the notion of students’ intentional cognitive learning: Student engagement is “the simultaneous perception of concentration, interest and enjoyment” (Shernoff & Schmidt, 2008, p. 566). This contrasts with the more comprehensive definition provided by Akey (2006):

Student engagement can be defined as the level of participation and intrinsic interest that a student shows in school. Engagement in schoolwork involves both behaviors (such as persistence, effort, attention) and attitudes (such as motivation, positive learning values, enthusiasm, interest, pride in success). Thus, engaged students seek out activities, inside and outside the classroom, that lead to success or learning. They display curiosity, a desire to know more, and positive emotional responses to learning and school.

A significant body of literature describes engagement in terms of combinations of features that reflect the philosophical or discipline orientation of the writers. For example, the psychology literature privileges the place motivation, attitudes and thinking plays in fostering engagement, whereas the sociological literature tends to concentrate on wellbeing and belonging as precursors to learning. Each of these fields holds important messages that can inform our perspective on how to think about engagement and foster the conditions under which it can thrive.

Of the literature reviewed, the following features of engagement recurred most frequently:

- (1) connectedness/sense of belonging to school (Bishop et al., 2007; Libbey, 2004);
- (2) sense of agency (Joselowsky, 2007);
- (3) involvement, effort, commitment, and concentration (Shernoff & Schmidt, 2008; Tsai, Kunter, Ludtke, Trautwein, & Ryan, 2008);
- (4) motivation and interest in learning (Deci & Ryan, 1994; Tsai et al., 2008);
- (5) sense of self efficacy (Anderson, Hattie, & Hamilton, 2005; Bandura, 1997; Cleary & Zimmerman, 2004)
- (6) orientation to achievement and performance (Bong, 2004);
- (7) self-regulatory processes and skills (Cleary & Zimmerman, 2004; Dembo & Eaton, 2000; Dinsmore, Alexander, & Loughlin, 2008).

The features above can be thought of as *outcomes* (engagement), or *processes* that contribute towards engagement. In other words, the presence of these features stimulates further or deeper engagement in learning as in a self-perpetuating cycle of engagement.

The purpose of this section is to synthesize the complex findings so that we can achieve a more coherent understanding about student engagement. As a starting point for this we offer the following definition of engagement:

Engagement is a multi-faceted construct that encompasses students' sense of belonging and connectedness to their school, teachers and peers; their sense of agency, self efficacy and orientation to achieve within their classrooms and in their broader extra-curricular endeavours; their involvement, effort, levels of concentration and interest in subjects and learning in general; and the extent to which learning is enjoyed for its own sake, or seen as something that must be endured to receive a reward or avoid sanction. Further, engagement is a variable state of being that is influenced by a range of internal and external factors including the perceived value or relevance of the learning and the presence of opportunities for students to experience appropriately-pitched challenge and success in their learning. As such engagement is malleable by the actions of teachers.

The dimensions of engagement

A decade ago writing on student engagement tended to conceptualize it in terms of three discrete dimensions (behavioural, cognitive, and emotional) and studies about student engagement tended to be aligned to one of these dimensions. Latterly, research in this field emphasizes that student engagement is a multidimensional and interconnected construct, and as such should be studied in an holistic manner that takes account of the complex interplay between students' emotional states, their behavioural engagement, and the way they learn academically (Fredricks et al., 2004; Yonezawa, Makeba, & Joselowsky, 2009).

Accordingly, recent research has sought to reflect this multidimensionality. For example, some literature suggests that the social and emotional environment of the classroom provides the necessary preconditions for students to engage in academic tasks (Matsumura, Slater, & Crosson, 2008; Patrick et al., 2007). Illustrative of this is Patrick et al.'s (2007, p. 93) research in which they concluded that in positive social, emotional and cognitive environments, "students feel a sense of emotional support from their teacher, academic support from their peers, and encouragement from their teacher to discuss their work[and] they are more likely to use self-regulatory strategies and engage in task-related interaction". Other studies explore the connection between achievement and variables such as students' interest, and their beliefs about self efficacy (Bong, 2004).

It is useful to know about the elements of behavioural, emotional and cognitive engagement so we can recognize and critique the conceptual lens through which writers talk about the phenomenon of engagement. Secondly, through an awareness of the elements of engagement we have a framework to interpret the engagement behaviours exhibited by students in our classrooms.

As illustrated by table 2, there is some overlap in the literature in terms of what is classified as behavioural, emotional or cognitive engagement. Nonetheless, they do have distinct features that we describe below. Behavioural engagement tends to be observable and is conceptualized in terms of students' presence in class and their compliance with school expectations and rules. Some definitions of behavioural engagement also include the notion of effort and involvement. By contrast, the writing on emotional engagement is inclined to focus on the psychological aspects of student to student relationships, student and teacher relationships, student feelings and attitudes, and student perceptions of the "social environment including affiliation, cohesion, fairness, mutual respect, and support from the teacher" (Patrick et al., 2007, p.83). It has also been suggested that emotional engagement includes the "perceived importance of the task, utility of the task, and cost of successfully carrying out the task" (Tyler & Boelter, 2008, p.30).

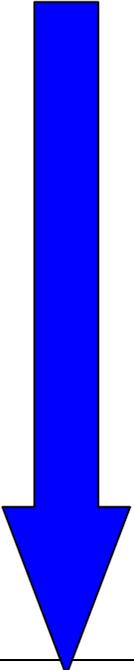
Cognitive engagement encompasses self-regulation, meta-cognitive activity, strategic action and investment in volitional learning and mastery. For example, according to Newmann & Wehlage (1993, p. 1) when students are cognitively engaged they (1) "construct meaning and produce knowledge" (2) "use disciplined inquiry to construct meaning" and (3) "aim their work towards the production of discourse, products, and performances that have value or meaning beyond success in school". In contrast to the more obvious signs of behavioural engagement, cognitive engagement can be much harder to identify because the thinking activity that it entails is usually covert. An exception is where students make their thinking evident through activities such as problem solving in groups.

Three conclusions are drawn about these engagement constructs. Firstly, the difference between students being highly engaged (which is characterized by feeling connected to school, teachers and peers; possessing a sense of agency; expending effort; showing commitment to learning; being intrinsically motivated in their learning; feeling confident about one's ability to learn and achieve; being achievement oriented; and possessing and using self regulatory processes and skills) is qualitatively different from being marginally or poorly engaged (which is characterized by being present in class but not committed to learning or achieving, lacking interest and responding to work and behaving for extrinsic rewards or out of fear of sanctions). Being poorly engaged is not necessarily an absence of the features of being highly engaged. From the research evidence, we construe it to be a qualitatively different state. For instance, poorly engaged students do not lack agency, they choose not to/ or are not able to be agentic. Similarly, they do not lack an orientation to achieve. Rather they are focused on performing the task so that they can get it out of the way.

Secondly, the literature suggests that students move between levels of engagement and the catalyst for the changes can be internal factors such as perceptions of self efficacy, motivation and interest in a subject area, and external factors such as the nature of the teaching and learning they experience in their classrooms (Bong, 2004; Fredricks et al., 2004; Tsai et al., 2008).

Thirdly, students need to be present in class (behaviourally engaged), and experience a degree of emotional comfort and connectedness (emotionally engaged), before they can become cognitively engaged. In essence, behavioural and emotional engagement are preconditions of cognitive engagement. Presence and connectedness are fundamental principles of the Te Kōtahitanga initiative aimed at raising the engagement levels of Māori students (Bishop et al., 2007). They also feature noticeably in the significant body of international research on middle years student learning and wellbeing (Akey, 2006; Martin & Dowson, 2009; Patrick et al., 2007) Table 2, which was synthesized from the literature on these three dimensions of engagement, is illustrative of the key points made above.

Table 2: The engagement dimensions

Engagement Dimensions		Exemplified in the following elements	Literature Sources
Behavioural	Increasing levels of investment and commitment to learning 	<ul style="list-style-type: none"> • Participation • Presence • On task • Behaviour • Compliance with rules • Effort, persistence, concentration, attention, rates of/quality of contribution • Involvement in school related activities 	Fredricks et al (2004) Tyler & Boelter (2008)
Emotional		<ul style="list-style-type: none"> • Positive and negative reactions to teachers, classmates, academic activity and school • Student attitude (thoughts, feelings, outlook) • Perception of the value of learning • Interest and enjoyment • Happiness • Identification with school • Sense of belonging within a school 	Bishop (2007), Fredricks et al (2004) Tyler & Boelter (2008), Patrick et al (2007) Johnson (2008), Hulleman et al (2008) Walker & Greene (2009), Wentzel et al (2004), Libbey (2004), Shin et al (2007) Martin & Dowson (2009), Tsai et al (2008) Shernoff & Schmidt (2008), Gottfried et al (2001)
Cognitive		<ul style="list-style-type: none"> • Volition learning (learning by choice) • Investment and willingness to exert effort • Thoughtfulness (applying the processes of deep thinking) • Self-regulation • Goal setting • Use of meta-cognitive strategies • Preference for challenge • Resiliency and persistence • Mastery orientation • A sense of agency 	Fredricks et al (2004), Tyler & Boelter (2008) Walker & Greene (2009), Bandura et al (1996), Bacchini & Magliulo (2003), Martin & Dowson (2009), Zimmerman & Cleary (2006), Dembo & Eaton (2000), Nota et al (2004), Schunk (2008), Caprara et al (2008) Joseph (2006), Dinsmore et al (2008) Long et al (2007), Bong (2004) Anderson et al (2005), Gottfried et al (2001), Joselowsky (2007)

Research Question Two:

How and to what extent, are these various elements of ‘student engagement’ linked to student learning and achievement? Are certain elements more or less strongly linked to learning and achievement for particular students or groups of students?

Exploring the elements of student engagement in the middle years of schooling

The elements listed above can be grouped into categories of factors that “explain” student engagement and why students can be variably engaged in learning. For instance the emotional elements can be explored through looking further at the research on the topic of relationships with teachers and other students. Resiliency and persistence can be looked at through the writing on dispositions, and thoughtfulness and meta cognitive strategies can be explored through looking generally at academic self regulation. In each of these areas, close attention is paid to identifying the factors that influence engagement and learning.

The literature is rich with descriptions of the factors that influence engagement and therefore might provide a solution to the issue of disengagement. These findings imply that engagement is influenced by “contextual features, and [is] amenable to environmental change” (Fredricks et al., 2004, p.59). Contextual features include learning and teaching contexts, home circumstances and peer group status. The extent to which a student engages in learning is also influenced by the rules and expectations imposed on them by others and themselves (teacher beliefs and their own norms, attitudes and beliefs) and their motivation. While it is not possible for teachers to influence home circumstances, and there are limited possibilities for influencing peer group interactions, it is possible to attend to the factors that can hinder or foster student engagement. It is also possible to move students towards being emotionally and cognitively engaged learners, thereby increasing students’ learning and achievement.

Illustrative of this are the findings from a recent New Zealand study that suggested students became “less engaged in aspects of their learning at school over time and more critical about some of the teaching they were experiencing” (Ministry of Education, 2008, p. 4). The source of students’ increased disengagement was: “work that was at an inappropriate level of difficulty, finding subject content irrelevant or uninteresting; finding how they were learning [to be] dry and boring; and experiencing learning environments that were not conducive to learning (too noisy or disruptive; relationship issues with teachers or other students)” (Ministry of Education, 2008, p. 4). Thus teachers could focus on (a) providing students with work that is at a suitable level of individual challenge, (b) providing subject material that takes account of students’ learning interests and (c) ensuring that students are provided with orderly learning environments that support effective learning.

In the next section we identify and explain the main factors (and related sub factors) that influence student engagement. Each of the eight factors has been chosen for inclusion because there are indications that it has an effect on the engagement and subsequent learning and achievement of students. It should be noted that many of the factors have characteristics in common and are thus interrelated. For instance, academic self-regulated learning is strongly linked to personal agency, to goal setting and to self-efficacy. Similarly, the disposition to be a learner is linked to feelings of self-efficacy and interest.

Through synthesis of the research findings some factors are clearly more influential than others in terms of fostering engagement, learning and learning outcomes. There is also more evidence for some factors than others about the link between engagement and learning. We indicate the strength of the evidence in support of each factor by assigning the factors to three categories. Our judgments are based on an assessment of the strength of the claims and the quantity of

evidence in support of each factor. The rationale for identifying strong factors and not so strong factors is to inform middle years teachers about which aspects of engagement they could prioritize in their schools.

We acknowledge that the process by which we have assigned the factors to evidence categories could be more scientific. The difficulty we face is that the studies reviewed use a variety of methodological processes (some have used effect sizes, others have not) that make comparison difficult to achieve. Nonetheless, we confidently categorize the factors into those that, at this point in time, have strong or compelling evidence (e.g. strong effect size data and a large volume of evidence), those that have moderate evidence (moderate effect sizes and/or medium number of studies describing the effect of the factor on student learning) and those studies that have some evidence, and /or modest effects on students learning and engagement. With respect to the last category, as a note of caution, the fact that there are fewer research studies might simply be that these aspects have not yet been the focus of research⁴. Thus factor importance is as below:

Table 3: Factor importance

Strong compelling evidence of the effect of these factors on engagement and learning outcomes and/or achievement	Relationships with teachers and other students
	Motivation and interest in learning
	Goal orientation
	Academic self regulation
	Self efficacy
Moderate evidence of the effect of this factor on engagement and learning outcomes and/or achievement	Relational learning
Some evidence of the effect of these factors on engagement and learning outcomes and/or achievement	Personal agency
	Dispositions

Several of the factors (goal orientation, academic self regulation, self efficacy, personal agency, motivation and interest) are underpinned by the notions that students deserve and desire to exercise self-determination with respect to their learning. Deci and Ryan (1994) who work in the field of self-determination and its effect on motivation, claim that “people are inherently motivated to feel connected to others within a social milieu, to function effectively in that milieu, and to feel a sense of personal initiative while doing so”(p. 7). Important knowledge about self- determination from a student’s world view, is available to us if we care to take heed, and if we do this then maybe students would be more engaged (Joselowsky, 2007; Yonezawa et al., 2009). As Yonezawa et al (2009, p. 201) assert:

This knowledge ... can help people with power [to] make important changes and improvements to schools and classrooms ... [However self determination] remains a challenge as adults still see students as youth to be developed, supervised, or controlled. [S]tudents must be given

⁴ From a research point of view these gaps might be usefully explored at some stage in the future.

opportunities to do more than participate in academically rigorous, adult-sanctioned activities... Rather youth must partake in the active and critical creation of the institutions they attend.

Such views also highlight the importance of positive mutual relationships between students and their teachers characterized by respect and collaboration. In the acknowledgment that emotional engagement (defined as “a state of connectedness between people” (Martin & Dowson, 2009, p. 327), is an important precursor to students operating as cognitively engaged learners, we begin our discussion of factors with those that pertain to how students and teachers relate to each other.

Factor One: Relationships with teachers and other students

Essentially this literature stresses the importance of good relationships between teachers and students in terms of promoting wellbeing (Akey, 2006; Bishop et al., 2007; Fredricks et al., 2004; Reschly, Huebner, Appleton, & Antaramian, 2008) and the academic lives of students (Cornelius-White, 2007; Hattie, 2009; Martin & Dowson, 2009). Relationships are a “critical factor in young people’s engagement and motivation at school” (Martin & Dowson, 2009, p. 328). Through relationships students learn about their beliefs, their orientations to learning and the values they need to operate in an academic environment. They also receive help and emotional support in their learning. In terms of learning and achievement, “a strong sense of relatedness better positions students to take on challenge, set positive goals, and establish high expectations that extend and motivate them” (Martin & Dowson, 2009).

In Cornelius-White’s (2007) research, significant effect sizes were found in student achievement and attitude outcomes where the following teacher behavioural variables were present: non-directivity (students were able to initiate learning and use self regulation activities); empathy, warmth, encouraging higher order thinking, encouraging learning, and adapting to student differences.

In Patrick, Ryan and Kaplan’s (2007) research using factor analysis, significant positive effects (significant was deemed to be greater than 0.05) were found between the emotional support teachers provide and the achievement of mastery of goals (.35)⁵. Teacher emotional support contributed strongly to students’ academic efficacy (.30)⁶, their use of self regulation strategies (.50),⁷ and ensuing academic achievement (.34).

Bishop’s (2007) research on Te Kōtahitanga suggests that Manaakitanga (building and nurturing a supportive loving environment), Ngā Whakapiringatanga (the creation of a secure and well managed learning environment), Wānanga (engaging in effective teaching interactions with Māori students as Māori) and Ako (using a range of strategies that promote effective teaching interactions and relationships with their learners) are important features of classrooms that foster good engagement amongst Māori students. Bishop et al (2007, p. 176) noted:

Significant growth, perhaps twice that expected, occurred in Māori students taught by Maths teachers participating in Te Kōtahitanga.... Further, when doing a comparison with national norms for asTTle numeracy, we found students of Te Kōtahitanga Maths teachers did substantially better than Māori students nationally.

⁵ See Factor 7 for a description of mastery orientation

⁶ See Factor 6 for a description of self-efficacy

⁷ See Factor 8 for a description of academic self regulation

These bodies of research indicate that context matters. The learning environment including relationships and connectedness to peers, teachers and schools is strongly linked to educational motivation, engagement and attendance that in turn lead to higher academic achievement (Joselowsky, 2007). The evidence about the effect of teacher and student relationships on learning processes and outcomes indicate that this is an important factor in engaging students in learning.

Factor Two: Relational learning

It is well understood that adolescence is characterized by peer influences becoming increasingly more important in the lives of youth (Johnson, 2008; Shin et al., 2007). Research suggests that the peer group is an important context for adolescents to develop their beliefs and behaviours and that peer groups are often comprised of, and socialize each other to have, similar characteristics. In the research on ethnic groups, through the peer group, adolescents develop a positive sense of belonging and this provides a strong protective function especially for at risk adolescents (Shin et al., 2007). “Thus in the presence of increasing obstacles, a strong identity may provide adolescents with the capacity to not allow [negative pressures] to interfere with their academic performance” (Shin et al., 2007, p. 381).

Additional research suggests that there are benefits to academic learning from students having opportunities to work together. According to Johnson (2008, p. 80), schools that provide students with these chances “are better able to serve the motivational needs of adolescent students”, and those that focus on learning collaboratively are more likely to have highly engaged students. When students have opportunities to interact and exchange ideas with each other during lessons they are afforded opportunities to “justify, evaluate, and refine their ideas; to evaluate other possibilities; and to give and receive help” (Patrick et al., 2007, p. 85). Through encouraging this interaction, teachers are supporting students to develop cognitive tools and reflective behaviour that equips them well to learn and achieve (Patrick et al., 2007).

Hattie’s (2009) synthesis of studies of peer influences on learning indicate the impact (medium high effect sizes) that peers can play in positively influencing learning. In addition to their roles in tutoring, providing friendship and giving feedback, the emotional support they provide for each other paves the way for students to engage in learning and thereby improve the likelihood of students’ achieving. Patrick et al’s (2007) research indicated that relational learning provided significant positive effects on the achievement of mastery of goals⁸, academic efficacy and social efficacy with peers that impact in turn on the learning of self regulatory strategies and student achievement. Similarly, Martin and Dowson (2009, p. 330) claim that “positive emotional attachment to peers, teachers, and parents promotes not only healthy social emotional, and intellectual functioning, but also feelings of self-worth and self esteem,” both of which are instrumental in sustaining achievement motivation.

With regard to long terms effects, where students had participated in classroom activities that encouraged them to work together, there was significant evidence to indicate that these students remained engaged in their learning up to a year later (Akey, 2006). From all of these findings we can conclude that relational learning does have a positive effect on students’ learning.

Factor Three: Dispositions to be a learner

Dispositions are attitudes *acquired* through experience that incline individuals to behave in certain ways. For instance those who are cognitively engaged are likely to demonstrate “greater curiosity, interest, independence and desire for challenge” and “tend to be optimistic, adopt a proactive and positive orientation to their studies and are not debilitated by setback but rather respond to it with optimism and energy” (Martin, 2007, p.417). Resiliency in the face of adversity, and a propensity to challenge themselves also play important roles in cognitive engagement (Fredricks et al.,

⁸ See Factor Eight for a discussion of goal orientation

2004). Dispositions are created in much the same way that skills are learned, they are able to be influenced or fostered by the learning opportunities teachers and others (peers and family) provide for students combined with the success students experience.

While there is little empirical research about dispositions in relation to student engagement, there is little doubt that there is an important link between dispositions and desirable learning. Dispositions underpin the Key Competencies of the New Zealand Curriculum (Ministry of Education, 2007). For example, the New Zealand Curriculum talks about students who manage themselves as possessing characteristics of “resourceful, reliable and resilient” and the ability to “come up with new approaches, ideas, and ways of thinking”. These, and other similar characteristics, are featured in the literature on high student engagement (Fredricks et al., 2004; Martin, 2007).

Factor Four: Motivation and interest in learning

Motivation is a term frequently used synonymously for engagement although in this report we draw a distinction between engagement and motivation. Motivation is a construct that describes what *compels* learners to invest time and effort. It is described in terms of “conditions and processes that account for the arousal, direction, magnitude, and maintenance of effort” (Katzell & Thompson, 1990, p.144). To explore motivation is to understand what *sits behind the engagement of students* and therefore what teachers can do to enhance this engagement. However, motivation is more complex to unravel than engagement because it is internalized and can only be inferred through the mediating overt behaviour of engagement.

Fostering motivation amongst students is crucially important for short term learning, and also for equipping students to be lifelong learners. Concepts encompassed in motivation include: value elements (is the learning perceived to be useful by students?); expectancy of success elements (does the learner expect to succeed?); and affective elements (what is the state of the learner’s self worth and achievement anxiety?). Hattie’s meta analysis of 327 studies indicates that motivation has a medium high effect size (0.48) on student learning. He notes that student motivation is “highest when students are competent, have sufficient autonomy, set worthwhile goals, get feedback, and are affirmed by others”. Such findings clearly indicate the strong connection between motivation and other factors associated with engagement, specifically personal agency, self efficacy and goal orientation (see Factors 5, 6 and 7 following).

Bong’s (2004, p. 296) research indicates that “the way that students feel about themselves and learning tasks differs markedly across situations, so that students who are highly motivated in one domain may or may not be enthusiastic in other domains”. Tsai et al’s (2008) research specifically explored how individual students’ interest varied from lesson to lesson within a particular subject. They concluded that “interest experience as a momentary psychological state is influenced by both situational factors and individual characteristics”. Key findings were: students are variably motivated within lessons and across lesson contexts, and autonomy-supportive teacher behaviours (such as allowing time for reflection and incorporating into lessons the perspectives of students), were found to positively impact on student interest levels.

So what might account for this variable engagement? In terms of across subject variation, research reveals that students form beliefs that are subject-matter specific and often based on the perceived usefulness of a subject. Where the subject, or topic, is perceived to be useful or relevant, students will show greater desire to deal with challenge and put more effort into improving in that subject (Bong, 2004).

A longitudinal study of 526 high school students carried out by Shernoff et al (2003) found that students’ highest levels of engagement were in art and computer science, followed by vocational education and social studies. It was suggested that in these contexts students created their own academic intensity (in the case of computer science) or experienced a

positive emotional response to the work (as was the case with art). Student disengagement from subjects was linked to a lack of challenge or meaning, and was typically experienced in lecture contexts.

In terms of within subject variation, research suggests that instructional practices and school environments that do not take account of the developmental needs of adolescents (such as competition, emphasis on social comparison and less personal interaction with middle school years teachers), are likely to contribute to lowered motivation in middle school students (Dembo & Eaton, 2000).

Interest can be viewed as a state of being and a disposition that has implications for cognitive and affective functioning (Hidi & Harackiewicz, 2000; Tsai et al., 2008). It has a very large impact on learning and is influenced by a variety of individual and environmental factors. Studies have identified two types of interest: situational and personal (Harlen, 2006; Tsai et al., 2008). Situational interest is contingent on the presence of certain features of a learning environment for example the appeal of the topic under study, delivery style (such as humour, hands-on activities, food, games, and puzzles) (Tsai et al., 2008), and resources such as the use of computers that can emphasize meaning and encourage student involvement (Mitchell, 1993). Situational interest is also influenced by the social arrangements of the classroom including the degree of autonomy student experience, the extent to which students are cognitively stimulated to be active learners, and their interest in the subject (Tsai et al., 2008). The findings from Tsai et al.'s (2008, p. 469) research indicate that "lessons in which students' prior knowledge and conceptual understandings are activated and the aims of tasks are transparent to students are associated with enjoyment". In the classroom where there might not be initial personal interest in a subject, the use of certain practices such as novelty, games, and allowing students to work with others, can interest students in taking part (Harlen, 2006).

Personal interest is more enduring and stable than situational interest in that it emerges as a way of being over time as individuals experience success and pleasure in learning (Harlen, 2006; Tsai et al., 2008). The scope of this project has not allowed us time to investigate the literature on students' out of school activities. However research on volitional learning might yield some interesting findings about the factors that contribute to student engagement that could be applied to a school setting. Within a school context, personal interest is in part influenced by gender preferences (e.g. topic or subject preferences) and the prior experiences students bring to their learning (Bong, 2004). Personal interest, however, is not sufficient to sustain interest in learning and situational factors also play an important role in generating engagement in learning activities (Tsai et al., 2008).

Factor Five: Personal agency/cognitive autonomy

Personal agency relates to the perceived and actual control one has over the circumstances of learning. In the psychology literature, this is referred to as cognitive autonomy (Tsai et al., 2008). The presence of agency is important in fostering student interest and self-reliance. Contributing to it, are a number of teaching approaches, (referred to as autonomy-supportive instructional behaviours) suggested by Tsai et al (2008) that build students' sense of capability and autonomy. These include: listening to students, asking them questions, acknowledging their wishes, responding to their questions, providing time for reflection, acknowledging students' perspectives and allowing them to sometimes work on their own. The growing body of literature about students' agency stresses the need for teachers to consider the voice of youth and to take them seriously "as active participants and valued partners with adults in both their own education and decisions that affect the academic and social climate and culture of their learning environment" (Joselowsky, 2007).

Disrupting the natural rhythm of learning (for example not letting students learn at their own pace), using directive messages such as "you should" statements and asking "controlling questions," have been found to impact negatively on students' intrinsic motivation, level of engagement and their effort and persistence. There is a correlation between the higher motivation of students (manifest in their greater active involvement in learning) and students learning in

autonomy-oriented classrooms characterized by the opportunities students have for choice (always combined with challenge) in the way they work (Tsai et al., 2008). Hattie (2009) asserts “the effect of student choice and control over learning is somewhat higher on motivation outcomes (0.30 or medium-low) than it is on student learning (0.04, low). These findings might be different if his synthesis included more studies such as that by Tsai et al (2008) where the focus was on building autonomy and capability.

Factor Six: Self-efficacy

The literature suggests that students who are cognitively engaged possess a sense of confidence about themselves as capable learners. This notion is captured in the writing on self-efficacy. Self-efficacy is defined as the “perceived ability to learn and carry out a task or set of behaviors at an identified, optimal level of performance” (Tyler & Boelter, 2008, p.29) and “the individual’s conviction of being able to master specific activities, situations, or aspects of his or her own psychological and social functioning”(Bacchini & Magliulo, 2003, p.339).

A substantial amount of evidence documents the connection between self-efficacy beliefs and academic achievement (Bandura, 1997; Schunk, 1981; Schunk & Miller, 2002). Similarly, self-efficacy is related to the prior achievement of students. For instance in Akey’s study (2006), prior achievement was significantly related to perceived competency. Students who achieved well in their reading and mathematics tests perceived themselves to be able learners which led in turn to positive confidence about future learning in these subject areas. Those who have high academic self-efficacy participate more actively in learning, are more diligent, persist more, and complete tasks more successfully than those who have lower self-efficacy (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Tyler & Boelter, 2008).

Self-efficacy also influences aspirations and commitment to goals, and the use of meta-cognitive strategies (Bandura et al., 1996; Cleary & Zimmerman, 2004). It was not possible to construe an effect size for self efficacy using Hattie’s (2009) meta analysis because the data for self efficacy was conflated in that of the more general category self concept. Nonetheless the strength of the findings above suggest that self efficacy is highly influential in terms of engagement and, in turn, on achievement and learning outcomes.

Factor Seven: Goal orientation

One of the most potent ways to encourage students to become academically self-regulated is to involve them in planning and assessment related to their own learning. The research is compelling with regard to the effect goals and feedback (Hattie, 2009) have on student learning. Significantly high effects on students’ learning are found where they (a) can set challenging and specific goals that allow them to direct, evaluate and redirect their learning, and (b) receive feedback (from peers, teachers, parents, and own experience) that relates specifically to how the gap can be addressed between current and future performance (Hattie, 2009).

Goals influence the effort students put into learning tasks and direct the focus of future action (Harlen, 2006; Hattie, 2009). For goals to be particularly effective in bringing about learning and achievement they should be “understood, appear achievable, and [be] seen as worthwhile” (Harlen, 2006, p. 64). They should also be: specific in that they “direct student’s attention to relevant behaviors or outcomes” and challenging in so far as they “motivate students to exert effort” but are not too unattainable that they impact on self confidence and self-efficacy (Hattie, 2009, p. 164).

In terms of effort there are differences in the way students can view goals. Goal orientation refers to “the student’s focus on mastery and the task at hand (mastery orientation) or on how he or she is performing on it (performance orientation)”(Martin, 2007, p.417). Mastery goals enable students to focus on increasing understanding and competence in relation to self-referenced standards. This contrasts with performance goals where the focus is on accomplishing the tasks and judging performance in relation to other students. The difference between the two concepts of performance and mastery orientations lies in the varying levels and types of motivation students bring to their learning (Handelsman,

Briggs, Sullivan, & Towler, 2005). Students, who focus on learning goals that are related to increasing their competency, tend to be intrinsically motivated, seek challenge and are more resilient in the face of setbacks. Students with a performance orientation tend to focus on proving their ability and are more motivated by extrinsic rewards (Dweck, 1999; Miller, Greene, Montalvo, Ravindran, & Nichols, 1996).

Thus, in helping students to set goals, teachers should set the challenge relative to student's current level of performance and understanding, as well as to the success criteria for the learning task. The notion of personal best is particularly useful with respect to setting these goals (Martin, 2006). Setting appropriate goals is important given that there is a large effect size (0.92) correlation between goal attainment and students' feelings of self-efficacy.

Feedback is information with which a learner can "confirm, add to, overwrite, tune, or restructure information in memory whether that information is domain knowledge, meta-cognitive knowledge, beliefs about self and tasks, or cognitive tactics and strategies" (Winne & Butler, 1994, p. 574). Effort and investment in tasks is much higher where there is clear feedback about progress towards achieving goals and students have high self-efficacy (Hattie & Timperley, 2007).

Factor Eight: Academic self-regulated learning

Academic self regulation relates to the degree to which students are motivated to learn, think about their own learning (use meta-cognitive processes), and proactively make use of self-regulatory processes (strategies and tools) to improve their learning (Cleary & Zimmerman, 2004). It is a conscious process and involves selecting from a repertoire of available strategies that include goal setting, self observation, self evaluation, time management and organizational strategies. Also involved in this process are the self-motivational beliefs of self efficacy and intrinsic motivation (Cleary & Zimmerman, 2004). The learned process involves stages of forethought (planning), performance control processes (self monitoring while doing the task), and self reflection (evaluation of the outcomes relative to the goals).

There is substantial evidence that students who have been taught how to use self-regulation processes and are provided with opportunities to use them, demonstrate high levels of engagement and achievement (Cleary & Zimmerman, 2004; Hattie, 2009; Schunk, 1996). According to Hattie (2009) the following strategies are shown to be most powerful (have large to moderate effect sizes) in impacting positively on student achievement:

Table 4: Self-regulatory strategies

Strategies	Effect sizes (large effects sizes are 0.70, medium effects sizes are 0.50)
Self-organizing and transforming instructional material	0.85
Self consequence (perception of rewards or consequences)	0.70
Self instruction (self verbalizing the steps to complete a task)	0.62
Self evaluation (setting standards and using them for self-judgment)	0.62
Help seeking (seeking help from teachers or other students)	0.60
Keeping records of information related to study tasks	0.59
Rehearsing and memorizing (memorizing material)	0.57
Goal setting/planning	0.49
Reviewing records (rereading notes)	0.49
Self-monitoring (observing and tracking own performance)	0.45
Task strategies (analyzing tasks and identifying specific methods)	0.45
Imagery (recalling vivid mental images to assist learning)	0.44
Time management (estimating and budgeting use of time)	0.44

Implicit within these activities is the notion of students as self responsible and agentic learners. Given the strong focus on self management articulated in the New Zealand Curriculum, it makes sense that students are taught how to be self regulated learners and given the opportunities to use these skills and processes so they become empowered and agentic. “Empowering students to become more self-directed learners and helping teachers and parents further develop these skills in their children can significantly increase students’ motivation and achievement in school (Cleary & Zimmerman, 2004, p. 549).

It is also important to note that the extent to which self regulatory strategies develop and become embedded in students practice, is contingent on the opportunities students have to use these strategies as part of their everyday classroom learning. A second point is that if we wish to foster the development of self-regulatory strategies, and to know the extent to which students make use of them in their learning, then we must also integrate them into our assessment practices. As Fredricks, Blumenfeld, & Paris (2004, p. 71) point out: “links with cognitive engagement [e.g., self regulatory strategies] are more likely to emerge when tests measure synthesis, analysis, and deep –level understanding of content”

Are certain factors more or less strongly linked to learning and achievement for particular students or groups of students?

The research on engagement does not present a clear pattern in terms of the impact that year groups and ethnicity has on student engagement. What is clear is that engagement does decrease over time between Years 8 and 10 (Ministry of Education, 2008) and that generally girls achieve better than boys over this time period (Anderson et al., 2005). The research on teacher expectations for the achievement of girls and boys is not conclusive.

Some studies suggest that middle school level boys are more inclined than their female peers to adopt performance (extrinsically motivated) goals (Anderman & Midgley, 1997; Pajares, Britner, & Valiante, 2000) and work-avoidant orientations (Meece & Miller, 2001; Miller et al., 1996). Martin (2007) found that girls tend to value school more, take a mastery orientation to learning, engage in planning and study management, and exhibit greater persistence. They also have an inclination to be more anxious than boys. Four researchers have indicated that girls tend to be more engaged overall than boys (Martin, 2007; Reschly et al., 2008; Ryan, 2001; Shernoff et al., 2003).

There are indications of variations in the extent to which New Zealand girls and boys engage with school subjects. The PISA 2006 results (Caygill, 2007) on New Zealand fifteen year old students' engagement levels in science indicate that boys enjoyed science more than girls and were more likely than girls to undertake science related activities in their own time. Boys also possessed a greater self belief in their ability to undertake science, and showed a tendency to value science more highly than girls. A similar picture emerges in terms of mathematics from the 2003 PISA survey (Ministry of Education, 2009, p. 11). The survey shows that in New Zealand "boys are more interested in mathematics than girls and they also perform significantly better than girls". An interesting additional finding from this report, that indicates a possible relationship between emotional engagement and achievement, is that for boys, and for Pākehā/European students in particular, "students with a very high or very low sense of belonging, do somewhat less well in mathematics" (Ministry of Education, 2009, p. 15).

In terms of ethnicity, the report on the 2006 PISA research (Caygill, 2007) provides some very useful insight into the engagement levels of various ethnic groups. In New Zealand, Asian students for example were:

More positive [than other ethnic groups surveyed] in their views on engagement with science, were the most likely to have higher self belief in science, reported the highest level of engagement in science-related activities, and were the most likely to express a high value of science, both generally and personally. (p. 6)

They were also more inclined to control their own learning. A concerning finding from the 2006 results was the percentage of Asian students who felt that they were "outsiders" (15% compared with 8% for the general population of 15 year olds involved in the research). The author concluded that "a number of Asian students who feel like outsiders at school are underperforming, although there is no reason to believe that there is a causal link between the two factors" (Ministry of Education, 2009, p. 15)

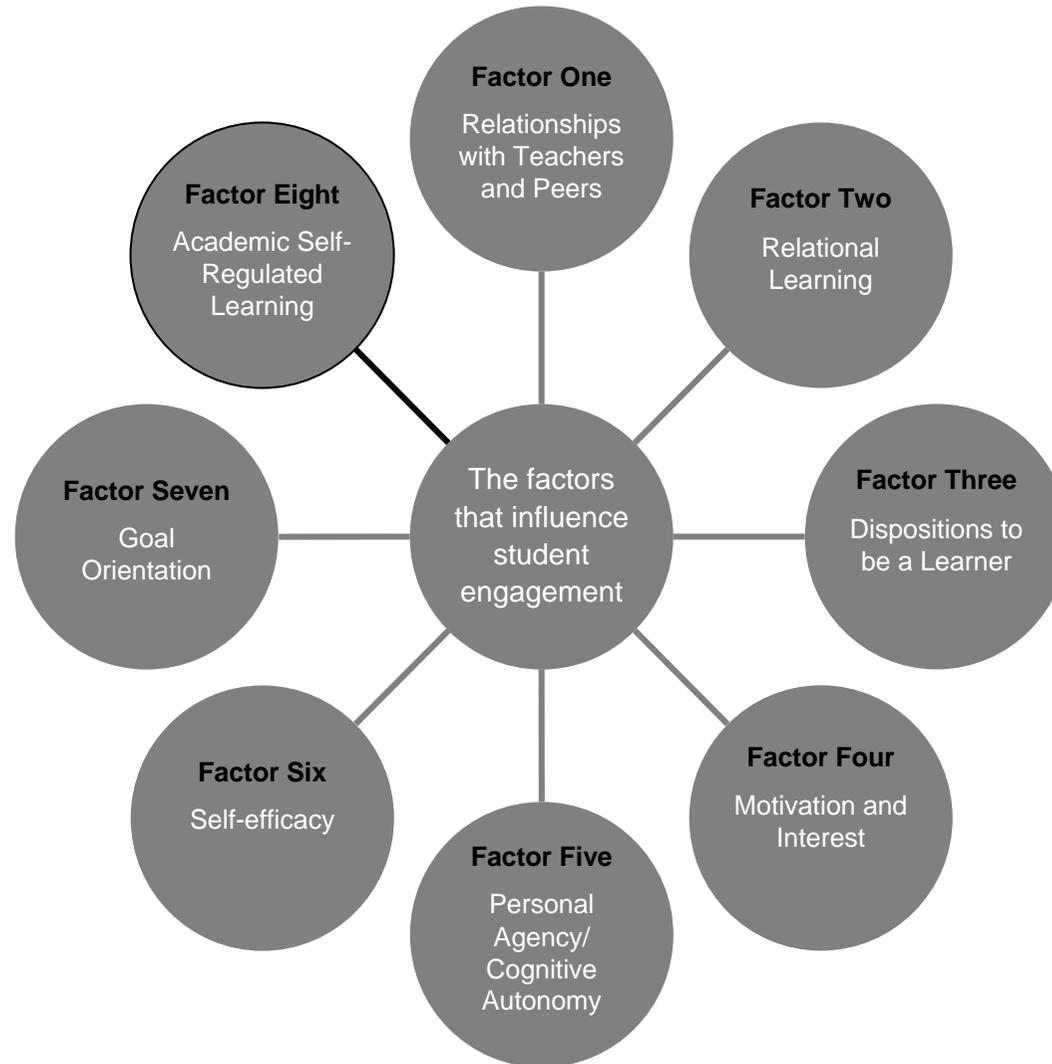
Māori students were least positive in their views on science (their own engagement, self belief and their views on the value of science), with the exception of engagement in science-related activities. The 2009 report on mathematics (using data collected in 2006) notes however, that while Māori and Pasifika students have "less proficiency in mathematics on average, [they] have more positive attitudes to mathematics than Pākehā/European students" (Ministry of Education, 2009, p. 11). The report also notes that Māori and Pasifika students are: "less likely to achieve high levels of self efficacy ... [and possess] less confidence that they will be able to tackle certain specific problems" (p. 19). Given that the report indicates a close correlation between self efficacy and mathematics performance, the issue of Māori and Pasifika students lacking self efficacy is one that needs to be addressed in New Zealand schools.

Additional research from the USA that concurs with the findings above are that black American students are more engaged in school than their white counterparts; however there are distinct differences in how well the two groups perform academically with black students overall achieving a lower grade point average than their white peers. It is posited that socio economic factors account for the differences in student achievement between the two groups (Shernoff & Schmidt, 2008). Bishop et al's (2007) work with Te Kōtahitanga, nonetheless shows that student achievement can be lifted regardless of socio economic status. Ten of the twelve schools in the research sample were schools of deciles 5 and below. In this research involving intensive teacher professional development using a carefully constructed framework, student achievement and engagement (defined in terms of on-task engagement and work completion) were improved. These improvements occurred through the "overall changes in teaching practices from traditional to discursive, overall improvement in the in-class relationships, changes in teacher-student proximity and increases in the cognitive level of the classroom" (Bishop et al., 2007, p. 81). This important research proves the point that when the teaching approach is modified to better meet the needs of students, there are likely to be tangible and valuable rewards for those students.

Conclusion to Part A

The following is a visual representation of the eight engagement factors. As mentioned previously, these factors should be viewed as interconnected and operating in a dynamic manner within the individual student. At any moment in time, particular factors are influencing the engagement behaviour of the student. We do not claim that this is a comprehensive list of all the likely factors that influence students' engagement and learning. As more research comes to light, this list and the associated sub factors are likely to expand and/or shift. In the next section we discuss some of the practices teachers can use to engage students. The eight factors described previously are integrated throughout this discussion.

Figure 1: The factors that influence student engagement



Part B – The pedagogical approaches that promote and support student engagement for improved learning and achievement during the middle schooling years

Introduction

What impact can teachers have on student engagement, particularly those students who exhibit low levels? Can students become more interested and engaged learners? Fortunately, teachers can organise their teaching and learning programmes to have a positive impact on student self-efficacy, and therefore on student engagement and learning in the classroom (Linnenbrink & Pintrich, 2003). This section of the report explores a range of principles and classroom strategies that are known to positively influence student engagement and learning. Be aware though that it is necessary for teachers to combine their own practical experience with the suggestions presented here because interactions between personality, past learning experiences, social, cultural and school environments may require different responses to some individuals and groups of students from others (just like parenting – children respond better to some strategies than others!). Therefore, teachers need a large inventory of instructional strategies to engage a variety of students (Garcia-Reid, Reid, & Peterson, 2005).

Brown, Reumann-Moore and Hugh (2009, p. 24) used a framework based on four interrelated “lenses” to promote student engagement, problem-solving and critical thinking. The lenses are thought to be central to good learning and teaching: “social (learning in a collaborative, social context); meaning-centred (relating new information to existing prior knowledge); language-based (reading, writing, and talking for authentic purposes); and human (self-reflecting to increase awareness of one’s own unique learning)”. These lenses are adapted and discussed in this report in relation to what teachers can do to structure their classroom environments and learning interactions to develop and sustain high levels of student engagement.

This section discusses four ‘key approaches for fostering middle school students engagement in learning (a) nurturing trusting relationships (as per Brown et al’s “social” lens); (b) engaging students in fun learning activities (as per Brown et al’s “language and social based”); (c) making learning meaningful (as per Brown et al’s “meaning-centered”); (d) enabling students to learn better and helping them take responsibility for their learning (as per Brown et al’s “human”); and (e) concludes with a general overview about teachers fostering student engagement in the classroom. These approaches incorporate the factors discussed above.

Nurturing trusting relationships (relate to factors one and two)

The need for belonging, acceptance by peers, having opportunities to demonstrate competence, and opportunities for autonomy are characteristic developmental needs of middle school students (Walter, Lambie, & Ngazimbi, 2008). Students’ motivation to succeed academically may be overshadowed by their desire to succeed socially. “They tend to be passionate about matters of justice and fairness, and they are acutely sensitive to how their teachers express care for them” (Cushman & Rogers, 2008, p. 15). In their social interactions students are learning how to deal with conflict and how to reach agreement. “When students are given opportunities to collaborate, they are more likely to focus on learning, are more interested in the subject matter and feel less anxious” (Cushman & Rogers, 2008, p. 15). To stimulate student interest and active involvement in learning, teachers might deliberately integrate social learning into the curriculum. Indeed, research by Johnson (2008, p.81) suggests that, “classroom time spent primarily in interactive instructional formats is highly engaging for adolescent students and may be used in combination with lesser proportions

of lecture and independent work to create a more engaging educational environment.” Fundamental to the nurturing of trusting relationships is the sense of being cared for and valued by significant others.

Caring about them

Students interviewed in Strahan’s (2008) study identified three types of care that contributed to trusting relationships and focused learning. The first was ‘discovery talk’ – informal conversation to discover students’ interests outside of the classroom so that connections could be made by the teacher to foster more meaningful learning (e.g. use of relevant metaphors and real-life examples and interests of students’ when explaining new concepts) and to check that things were okay for the student. The second was ‘help’ – for personal problems and instructional help for improving learning. Thirdly, ‘friendly listening’ to personal issues that may affect classroom and academic performance. A major conclusion from this study was, “that caring relationships were the key to reengaging disengaged learners... when a student learns to trust a caring teacher, he or she can begin to take chances, find the will to invest effort in a task, and receive the guidance needed to improve skills” (p.7).

Knowing them well

Strahan (2008) reports on a series of case studies with teachers who were successful in transforming reluctant students in challenging circumstances to become focused and highly engaged learners. These teachers “demonstrated warm, supportive relationships by showing a deep knowledge of individual students. Not only could they describe in detail the emotional, physical, cognitive, intellectual and family needs and circumstances of students in their classes, they addressed these needs by responding to students as individuals” (p.6). In one school team where students made significant academic gains, teachers had created a climate of trust, “shared responsibility through team building and positive discipline, taught explicit strategies for performing academic tasks, and developed instructional activities that linked inquiry, collaboration and real-world experiences” (p.6). These aspects are possible in climates of trust (because students are more likely to take risks in their learning) and belief in students as people and as highly capable learners.

Being fair

In Brown et al’s studies (2009, p. 25) students believed that fairness was important, such as giving all students opportunities to contribute to class discussions. For students fairness involved treating all students with respect; however students’ notions of fairness are sometimes perceived differently from teachers. They hate it when the whole class is punished for an individual or small group of students’ misdemeanors; and intensely dislike being embarrassed or humiliated in front of their peers. Students appreciate teachers who address individual discipline matters in private. With classroom issues, having group or class conversations, and encouraging students to work with the teacher to find solutions helps build collaborative relationships and conflict resolution skills.

Engaging students in fun learning activities (relates to factors three and four)

Making learning fun

Students are more actively engaged when learning is perceived to be fun, inspiring and challenging (Brown et al, 2009). To this age group, fun means variety, novelty and a sense of adventure, as well as the use of age-appropriate humour and laughter. Students appreciate teachers who can resolve a potential issue with humour, saving face for all involved, and who view learning from a student perspective. After considering learning from a student perspective, this section includes a variety of learning activities to promote student engagement in learning.

Viewing learning from a student perspective

The teacher's task, in striving for student engagement, is to figure out students' thinking and learning about the content, and how their emerging ideas relate to experiential and authoritative sources. To do this, strategies like the following can be used: using a range of metaphors, analogies, problems, pictures and diagrams; being aware of aspects students typically misunderstand; transforming context to make it accessible; being aware of the emotions, perceptions and translations of students; and presenting key ideas in interesting and helpful ways (Anderson, 2002). One way for teachers to discover students' perspectives, is through learning discussions.

Learning Discussion

Classroom discussion is a frequently used teaching strategy, but is often unwittingly dominated by teacher talk. Carrington (2006) argues that middle-school students need opportunities to engage with others in substantive conversation, linking the classroom world with the world outside of the classroom so that students are intellectually challenged in a meaningful and supportive environment. Referring to the work of Education Queensland (2000), Carrington indicates increased need in the middle years for, "analytic depth, intellectual challenge and rigour, critical thinking, critical literacy and higher order analysis, dialogue, connection to students' cultural backgrounds, knowledge problem-based learning and worlds of work, citizenship and community life" (2006, p.121). In some classrooms there is a need for greater intellectual demands on students to challenge and extend their growing knowledge and competencies. One vehicle for this extension is carefully scaffolded classroom discussions and learning conversations.

Indeed, students who participate in conversations acquire more energy, self-confidence and tendency to initiate subsequent conversations, since positive emotional energy builds from acceptance into the group and successful interactions. Emotional energy determines how students feel about the discussion, how much they want to talk and how successful they will be in making a contribution (Milne & Otieno, 2007). Teachers can look for signs of positive emotional energy (and engagement) in student actions such as eye gaze, overlapping speech, conversation that builds on previous comments, and shared actions, use of language associated with the particular curriculum or topic area, a willingness to focus on observation and explanation and a desire to work together to construct knowledge. Students who are cognitively engaged are likely to have synchronous (similar) body language, especially body posture such as head nodding, eye contact (varies according to cultural mores), humour, overlapping speech (rate, intensity and pitch) and the completion of each other's sentences. Matching movements at the beginning and end of an interaction constitutes "attention signals" and cognitive engagement, according to Milne and Otieno (2007). These actions are readily observable by classroom teachers and can be used to monitor levels of student engagement.

Taylor (2007) suggests several strategies for stimulating focused learning discussions with students that encourage reflection and meta-cognition. An activity called fishbowl can promote discussions of challenging or controversial material in areas such as science, social studies or literature; whilst also teaching skills in reflection, meta-cognition, self and peer assessment. With fishbowl, seats are organized with an inner and an outer circle. About five students sit in the inner fishbowl and begin a discussion, using prompts provided by the teacher (or with experienced groups the comments or questions can be generated by students prior to the discussion). Only students in the inner fishbowl can speak. Outer circle students can tap a student on the shoulder and swap seats with them. If students are reluctant to enter the inner fishbowl the teacher can change the rules so that after a few minutes the inner group can tap others into the fishbowl; or if they are too quick to jump into the fishbowl the teacher can set a time limit for being tapped out. A further modification is to have the outer group remain quiet and record their observations of the discussion. After a period of time the discussion can be stopped so the outer group critiques the discussion or offers suggestions. The teacher might also identify strengths of the discussion and offer ways to improve the discussion.

Another discussion strategy is the 'ticket to talk' (Taylor, 2007). Students write anonymous comments or questions about a text or topic at the end of class (exit ticket) or for homework (entry ticket to next class discussion). These

student-generated questions or comments can be used as class or small group discussion, increasing student participation and indicating students' levels of understanding to teachers.

Discussion webs (Taylor, 2007) encourage students to consider different sides of an issue before drawing conclusions. Essentially the students phrase yes/no type questions and provide reasons, before coming to a conclusion. For example, students might construct a question like, "Should our secondary school allow alcohol at the school ball?" The student generates positive and negative reasons before coming to a conclusion. These discussion webs can provide the notes for students to contribute to group or class discussions in a meaningful way, or visual displays of different ideas.

"Say something" (Taylor, 2007, p. 57) is a more structured approach, "providing a set of discussion prompts for pairs of students to use in a text or topic-centred conversation". The "say something" might include summarizing the material, asking each other questions, relating to a character. Prompts might include, "make a prediction, ask a question, clarify something you misunderstood, make a comment, make a connection" (p.58). The subsequent discussion develops meaning and deeper learning of the content.

Question-answer relationships (QARs) encourage students to examine the question and the type of information required to answer the question (e.g. specific recall (textually explicit), combining prior knowledge and information from the text to make inferences (textually implicit), or interpretive questions). The QARs strategy can help students to foster meta-cognitive conversations.

These strategies (fishbowl, ticket to talk, discussion webs, say something and question-answer relationships) can help motivate students to actively participate in learning discussions.

Cooperative learning

The challenge in teaching is not covering the material, but uncovering the learning with students (Smith, Sheppard, Johnson, & Johnson, 2005). Cooperative learning, when well structured, meets students' social needs of belonging, peer acceptance and demonstration of competence. Informal cooperative learning consists of students working together to achieve a joint learning goal in temporary, ad hoc groups (e.g. 'turn to your partner' or 'think/pair/share' discussions) to personalize learning and identify and correct misunderstandings. The teacher ensures that students are involved intellectually by organizing material, explaining, summarizing and integrating new learning into existing conceptual frameworks. In listening to students' discussions teachers can give direction and gain insight into how well students have understood the concepts and material being taught.

Formal cooperative learning groups are more structured, generally stay together longer and are based around more complex tasks. According to Smith et al (2005, p. 8), "there are five essential elements to successful implementation of formal cooperative learning groups:

- Positive interdependence
- Face to face promotive interaction
- Individual accountability/personal responsibilities
- Teamwork skills
- Group processing"

Positive interdependence relates to responsibility for one's own and others' learning; and joint performance (agree on a group answer, each member is able to explain group answer, each member fulfils their assignment role responsibilities). Students interact face to face to help each other accomplish the task and promote each other's success. Incorporating self and peer assessment helps promote positive interaction, as does randomly calling on individual students to report on their group's efforts. Students learn together to subsequently perform better as individuals. Purposeful teaching of

teamwork skills (leadership, decision making, trust building, communication and conflict management) is helpful for middle student development but also in developing lifelong skills. Finally, allocating sufficient time for group processing, (e.g. list 3 things the group did well and at least one thing that could be improved) and making decisions about what to continue or develop as a group, builds social skills and feelings of competence. To be effective, cooperative learning needs: time, task complexity, and development of skills (critical thinking, higher level reasoning and teamwork skills) (Smith et al, 2005).

Peer tutoring

Peer tutoring involves pairing students (as opposed to larger teams in cooperative learning) together for deliberate shared learning experiences. Frequently peer tutoring involves pairing two students of differing abilities and backgrounds who become teachers and resources for each other. It can help learners attain higher levels of achievement because, as they converse and listen, there is immediate feedback, clarification and modification. “Sometimes it takes a peer to say the exact same thing [a teacher] has said for them to get it” (Pickens & Eick, 2009, p. 355). Students claim they learn better when working with other students and enjoy learning more (Pickens & Eick, 2009). Students may also develop friendships with students from different backgrounds (Allison & Rehm, 2007). Teachers benefit as students reflect and explain their teaching in accessible student language, pairing students together enables the teacher to circulate the classroom, listen to students’ and respond to different needs, adjusting learning to target particular concepts or skills. There are risks though of time spent socializing and higher achieving students resenting use of time assisting others. Thoughtful pairing of students, specific guidelines about working together and judicious use of the strategy can minimize these risks.

Problem-based learning

Problem -based learning “results from the process of working toward the understanding or resolution of a problem” (Smith et al., 2005, p. 5). Key features of problem-based learning include: student-centred, small student groups, teachers are facilitators, problems are stimulus of learning, and new information is acquired through self-directed learning. Middle school students enjoy grappling with real-life problems, making the learning meaningful while building their sense of growing competency.

“Hands-on” work

Pickens and Eick (2009), in their research on science teachers observed the value of scientific inquiry to high school student learning. Although students sometimes exhibited low confidence in designing science experiments, with some guided teacher scaffolding students became more highly motivated about science, reported higher levels of enjoyment, and showed deeper understanding of scientific concepts. For example, students were given marbles, a stopwatch and materials of different levels of viscosity and challenged to design a demonstration. The students were required to act like scientists (make observations, collect systematic data, construct data tables, and share results). Similarly, Paris, Yambor and Packard (1998, p. 267) claimed that “there were significant increases in students’ interest in science and significant improvements in their problem-solving skills,” after a six week extracurricular science program involving hands-on biology activities. Students exhibit high levels of engagement during hands-on experiments, question what is happening, seek clarification from each other, wonder why certain reactions occur, strategize options, consider a range of ways to measure and record their data. Students also initiate more questions of teachers, seek explanations and share their enthusiasm; leading to higher levels of engagement and deeper learning.

Demonstrations

In a study on a secondary school chemistry class, Milne and Otieno (2007), found that science demonstrations were instrumental in developing student interest, and engagement in learning about science. “Science demonstrations have the potential for experiencing science, talking about experiences, proposing questions, suggesting patterns, and testing

those questions and patterns; ... a specific content focus provides ... cognitively focused interactions that support student learning” (p.551). Demonstrations provide more shared experiences to bind students emotionally, and cognitively, particularly when combined with effective teacher questioning, and group discussions. This finding could be applied to other subject areas.

Use of video games and technology

Video games and simulations are a familiar part of students’ worlds, but also engage students through the incorporation of effective learning principles (for example, self-pacing, incremental challenges, novelty, player’s sense of power and control) (Gee, 2003). Incorporating technology and adapting popular, seemingly leisure activities, into the classroom with deliberate learning purposes, may be a vehicle for turning school learning into a more relevant and meaningful experience for less engaged students. Allison & Rehm (2007) argue this is because visual and multimedia tools engage different senses, and help reinforce concepts by presenting information in different formats as well as “capture the interest of active middle school students who require frequent stimuli to keep them engaged in learning” (p.14).

This section has discussed a number of strategies that can be used to meet student’s developmental needs for social interaction, peer approval and demonstration of increasing competence: meaningful and challenging learning conversations, cooperative learning, problem-based learning, peer tutoring, hands-on activities, demonstrations, and use of video games and technology.

Making learning meaningful (relates to factors four, five, six seven and eight)

Students perceive the relevance of learning when it is made meaningful for them. Making connections to their everyday life or to future anticipated experiences enables students to discern the value of their current learning, to devote more attention and effort to understanding, and to strive for deeper learning. Connections across the curriculum and between school and wider life sometimes need to be explicitly made to enhance student learning.

Indicating why learning something is important and relating content to students’ lives

Teachers who ask students, “What is this [learning] useful for?” and use stories or examples relevant to the students’ lives alert students to the importance or usefulness of the learning, and create more engaging learning environments (Pickens & Eick, 2009; Brown et al, 2009). For example, adapting a physics unit to focus on sport and investigate the flight of soccer balls or golf swings, or gear changes in cycling, creates more active interest in learning. Brown et al (2009, p. 25), reported that the ‘best’ teachers informed students by putting ideas into words that students understood and related to, and gave students opportunities to express their ideas. Regularly using media such as magazines (sport) and television (e.g. Myth Busters), or popular fiction helps teachers introduce and challenge students’ ideas in relevant and meaningful ways. This is particularly so when teachers create an environment encouraging students to contribute personal stories to classroom discussions, and build on these student experiences in subsequent learning activities. Such actions help students to make links between their practical experiences and theoretical (such as scientific concepts) knowledge (Bolstad & Hipkins, 2009; Victorian Government, 2009).

Enabling students to learn better and helping them take responsibility for their own learning

Students respond to lessons that scaffold instructions and teach strategies explicitly. When teachers provide helpful feedback to let students know what they are doing right and what/how they need to improve, students start to assess their own work more honestly, seek guidance from teachers and begin to set goals for themselves, make choices and experiment with new learning, and start to use self-regulation strategies. According to Strahan (2008), transforming reluctant students into engaged learners requires building on key phases of ongoing support from teachers, specific

feedback, and dialogue about academic and personal choices (helping students internalize a sense of responsibility and locus of control). Details of the phases are displayed in table 5:

Table 5: Developing academic momentum with reluctant students

Dynamics of developing academic momentum with reluctant students (adapted from Strahan, 2008, p.9)	
1. Creating classrooms communities that nurture trusting relationships	Cultivate trust through discovery conversations, understand academic strengths and needs, encourage shared responsibility and team building amongst students
2. Engaging in learning activities	Once trusting relationships develop, students begin risk taking in learning, taking small steps, teachers providing specific scaffolding, instruction and feedback
3. Setting goals and planning	As students start using learning strategies, teachers encourage goal setting and responsibility for learning
4. Experimenting with new behaviours, thoughts and feelings	Once student goals established, provide choices of learning, making links to real-world experiences, use of varied knowledge and strategies
5. Growing stronger academically	When students start gaining confidence, assess progress more candidly, monitor goals and improve skills, they increase their engagement and achievement.

For teachers, the encouraging findings from these studies are the impact of teacher support, quality instructional content and processes on student learning and engagement. Moreover, Walker and Greene (2009, p. 469) argue the importance of “teachers’ articulating, and students’ being able to understand, why and how learning is personally relevant to their future.” This is because perceiving a current task as instrumental in attaining one’s future goals enhances not only student motivation but also subsequent performance. Without some future orientation, the importance and relevance attached to current learning tasks is limited to their short-term appeal. When students perceive they are valued members of their classroom community (supported by teachers and peers), believe their current learning is instrumental to their future, have the self-beliefs, learning, feedback and self-regulation strategies to make progress, they are more highly motivated and engaged in learning (Walker & Greene, 2009).

Conclusion

Engaging students in learning is a demanding yet highly satisfying professional responsibility. Although engagement is commonly viewed as having three main components: emotional, behavioural and cognitive, it is evident in the theoretical and practical sections of this paper that attending to emotional and behavioural needs is foundational for deep cognitive learning. The first two of the eight factors identified by the authors as influencing student engagement were relationships with teachers and peers, and relational learning. These aspects were also evident in the practical frameworks of Brown et al (2009) and Strahan (2008).

However, student learning is more than relationships, and thus our theoretical section discussed six factors related to learning: dispositions to be a learner, motivation and interest, personal agency, self-efficacy, goal orientation and academic self-regulated learning. Similarly, Part B of this paper contained a practical section on *nurturing trusting relationships* (attending to students' emotional and behavioural needs), followed by three sections about enhancing student learning (*engaging in fun learning activities; making learning meaningful; and enabling students to learn better and helping them take responsibility for their learning*). The higher phases of engaged learning require goal-setting, risk taking or experimenting and academic self-regulated learning; aspects to which teachers may need to pay greater attention.

Implementation of these theories requires teachers to foster student engagement in classrooms by developing interactive, varied and relevant lessons, being encouraging and supportive to students. Classrooms in which students, feel comfortable asking questions, are expected to do their best, where instruction is challenging, specific feedback is given to help students with their current learning, are less likely to have bored and disengaged students. Most students like lessons to be paced and with varied learning tasks (not continuously listening to the teacher or note taking). Focusing on active learning (such as interactive group tasks, hands-on activities, differentiated instruction) and a relevant curriculum (drawing from students' background, interests and academic needs) are fundamental elements. Making connections between information taught and real life (e.g. using a roller coaster example with students can help to reinforce Newton's Law of Motion), especially everyday concerns of the age group of students, is highly effective in engaging students. Furthermore, encouraging students to set goals, make choices in their learning, experiment with new ideas, and self regulate their learning will enhance their engagement and achievement. Cognizance, and application, of these factors will enable student learning to indeed be an engaging affair.

In the end, the path to student engagement starts where young people are and helps them to chart a course that will take them where they need to go. On the way, the more they can find and use their voices to express who they are and what they want, the greater is the likelihood that they will seek and find what they need. Engagement is a habit of mind and heart. It is what we want young people to cultivate not just to get their diplomas, but as a lifelong way of being. It is what we want our schools and programs to foster with every aspect of their curriculum, organization, and culture. To engage young people requires of us what we ask of them: full commitment, a belief that it is possible, and a vision of a viable and productive future (Joselowsky, 2007, p. 273).

Glossary

Academic Self Regulation	Self-generated thoughts and the activation of behaviours such as the use of meta-cognitive strategies that are focused on attaining goals.
Agency	The capacity individuals have to understand and bring about positive change within themselves.
Dispositions	Attitudes acquired through experience that incline individuals to behave in certain ways.
Engagement	A multi-faceted construct that encompasses students' sense of belonging and connectedness to their school, teachers and peers; their sense of agency, self efficacy and orientation to achieve within their classrooms and in their broader extra-curricular endeavours; their involvement, effort, levels of concentration and interest in subjects and learning in general; and the extent to which learning is enjoyed for its own sake or seen as something that must be endured to receive a reward or avoid sanction. Engagement is a variable state of being that is influenced by a range of internal and external factors including the perceived value or relevance of the learning and the presence of opportunities for students to experience appropriately-pitched challenge and success in their learning.
Extrinsic motivation	Behaviours that are performed to attain a reward or to avoid sanction.
Feedback	Information related to aspects of performance or understanding that is received from a teacher, peer, book, parent, self or experience (Hattie & Timperley, 2007).
Flow theory	The state of simultaneous deep concentration, interest and enjoyment of an activity.
Intrinsic motivation	Behaviours that are volitional or performed out of interest that require no separate consequences such as rewards or threats. Intrinsic motivation entails curiosity, exploration, spontaneity, and interest in one's surroundings. Intrinsically motivated behaviour is associated with the need for agency and competence.
Mastery-oriented	Oriented to acquire new information or to improve competence (Bong, 2004, p. 288).
Meta-cognition	How one monitors, or thinks about, one's cognition or thinking.
Pedagogy	The art or science of being a teacher including strategies of instruction or a style of instruction. Of Greek derivation meaning to lead the child.
Peer group	A relatively intimate group of friends who interact with each other on a regular basis.
Performance-oriented	Oriented to "outperform others and to document [one's] superior ability" (Bong, 2004, p. 288).

Personal agency	The extent to which individuals believe that they can control events that affect them.
Relational learning/cooperative learning	Predicated on the notion that being connected with others fosters achievement motivation, relational learning involves processes by which students “strive to reach their goals through the support and joint focus of others in their group or class” .(Martin & Dowson, 2009, p. 342). These processes include peer feedback and mentoring.
Resilience	Strength or perseverance in the face of adversity.
Self-efficacy	The “[self] perceived ability to learn and carry out a task or set of behaviors at an identified, optimal level of performance” (Tyler & Boelter, 2008, p.29).
Variable states of engagement	The notion that students move between levels of engagement according to internal and external factors.
Volitional learning	Discretionary or chosen learning.

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