

What do we know about student motivation and engagement?

Mary Ainley,
Psychology Department, University of Melbourne
maryda@unimelb.edu.au

Paper presented at the annual meeting of the Australian Association for Research in
Education, Melbourne, November 29-December 2, 2004

AIN04760

Most educators believe motivation is necessary for effective learning. Most know there are many sources of student motivation, and just about everyone wants students to be more motivated and engaged. One common perspective in research on student motivation is to identify student qualities that are conducive to engagement with learning. Investigations focus on what students bring to their learning by way of goals, values or purposes. Sometimes these variables are viewed as trait-like dispositions that apply across situations. Sometimes they are treated as variables that are context specific. A second general approach starts with the proposition that learning conditions are critical. Certain types of schooling experiences promote motivation and engagement. From this perspective what is needed is more careful attention to designing and implementing conditions that maximize the opportunity for lively, challenging learning experiences. However, at the same time there are features of classrooms, peer groups, the tasks, and teachers that are known to trigger negative moods and anxiety, or values incompatible with learning. The result is boredom, disengagement, disruptive tactics and dropping out.

In this presentation we will review the major findings on student motivation and engagement, highlighting the trends that are guiding contemporary research.

What do we know about student motivation and engagement?

Motivation and engagement are essential for effective learning. Everyone knows it but it has not always been easy to demonstrate how they influence learning and achievement. One way of distinguishing these two concepts is to suggest that: “Motivation is about *energy* and *direction*, the reasons for behaviour, why we do what we do. Engagement describes energy in action; the connection between person and activity” (Russell, Ainley, & Frydenberg, under review). In this paper current knowledge concerning students’ motivation and engagement will be reviewed as it relates to two research perspectives: the person and the situation. From the person perspective, the issues concern variables that define a characteristic or set of characteristics identifying individual differences in reactivity, sometimes as broad dispositions, predispositions or orientations, sometimes as transient states. From the situational perspective the issues concern identification of specific contextual variables that trigger, support or increase student motivation and engagement. This perspective embraces research that is looking at broad, global variables such as school systems, whole-school environments, and classrooms as well as research that examines the effects of contextual variables represented by what happens in a single learning episode. Research on motivation and engagement is also about the unmotivated and the disengaged. Over the last decade a number of reviews (Eccles & Wigfield, 2002; Hidi & Harackiewicz, 2000) have drawn attention to the fact that young adolescents are often distinguished by their lack of connection with schooling. They are described as bored, disengaged, or, unmotivated. In this brief review we consider some of the significant directions in contemporary research into student motivation and engagement as they relate to these complementary perspectives of the person and the situation.

Major international perspectives on student motivation.

Probably the most comprehensive international perspective on student motivation can be found in recent publications from the Programme for International Student Assessment (PISA) and the findings relate to the contribution of both individual (personal) and contextual (situational) factors. Studies sponsored by the OECD, have used a number of different indicators of student motivation ranging from measures of students’ participation and sense of belonging at school, to self-report indicators of interest and attitudes within specific learning domains.

Participation and Belonging. Reports from the PISA 2000 wave of data collection, refer to student engagement defining it in terms of ‘belonging’; a “disposition towards learning, working with others and functioning in a social institution ... expressed in students’ feelings that they belong at school and in their participation in school activities” (Willms, 2003). Engaged students are those who value their relationships with peers and with teachers, and who see school as an important part of their life. On the other hand disengaged or disaffected students report feeling they do not belong and tend to dismiss schooling. One index of engagement used in PISA, *participation*, was measured using attendance records (attendance and absenteeism in the two weeks prior to the survey), and approximately 20% of students were classified as disengaged. A second index defined as *sense of belonging*, was measured by self-report ratings, and approximately 25% of students were classified as disaffected. Similar prevalence estimates were found across most participating OECD countries. Participation, as used in this large-scale survey is a behavioural measure of engagement that focuses on the individual and along with the sense of belonging, represents individual differences in connection with schooling. The other side of these analyses was the identification of contextual factors that showed consistent associations with engagement.

Consistently across the countries where data were collected, school climate was shown to be an important factor in students’ engagement with schooling. The same PISA report indicated substantial within school variation in proportion of disaffected students. Students were “more likely to be engaged if they attend schools with high average socio-economic status, strong disciplinary climate, good student-teacher relations and high expectations for student success” (Willms, 2003, p.48). Similar findings were reported in the *Longitudinal Studies of Australian Youth* (Fullarton, 2002) using a different aspect of school participation as the measure of engagement. Following Finn (1989), LSAY adopted participation in extra-curricular activities as an index of identification with schooling. The advantage of these large-scale surveys is that they allow different levels of analysis, for example, effects at the individual level can be distinguished from effects at the school level; both individual and contextual perspectives are considered together. For example, in addition to specific parent and background factors, the overall school level of engagement was a strong predictor of engagement at the student level. When gender differences were considered it was found that perceptions of school and the classroom climate were particularly important factors associated with engagement of boys. What happens in

classrooms including relationships with teachers and peers, classroom climate, and the approach that is taken to teaching and learning were found to be critical factors supporting student engagement.

Engagement and Achievement. However, when issues of motivation and engagement are raised, often the concern is to identify the predictive effects for students' achievement. Again, looking to the international surveys of education, there has been wide dissemination of results concerning the relationship between engagement and reading literacy. Quoting again from PISA, engagement in reading activities is an important predictor of literacy achievement (Kirsch et al., 2002). In this case, engagement behavior was measured by specific reading practices such as time spent on reading, and the diversity and content of reading. Reading attitudes were also measured through self-report ratings on dimensions of interest in, and the value of reading. When engagement in reading was considered the *outcome*, home environment factors such as availability of books and cultural communication were important. School factors such as relationship with teacher and classroom climate also contributed. When students' engagement in reading was entered as a predictor of literacy achievement it was a stronger predictor than gender. Socio-economic status was a significant factor in literacy achievement but of particular importance was the predictive power of reading engagement in relation to socio-economic status. Students from the "lowest occupational status but highly engaged in reading obtain higher average reading scores than students whose parents have high or medium occupational status but who report to be poorly engaged in reading" (Kirsch, et al., 2002, p. 106). Again, both students' orientation to reading (the individual differences perspective), and the environmental supports for reading activities (the contextual or situational perspective) are important for strong reading achievement.

Cross-sectional and Longitudinal Designs. One of the disadvantages of the PISA studies with regard to understanding the relationship between student engagement and achievement is their cross-sectional nature. However, there are studies of more restricted populations that have developed longitudinal approaches and so are able to identify how engagement in the early years of schooling predicts to later literacy achievement. Children's early literacy development was followed over the first years of primary schooling in Catholic Primary Schools in Victoria (J. Ainley & Fleming, 2004; J. Ainley, Fleming, & Mc Gregor, 2002). In the first years of the study engagement was defined as *attentiveness* and was measured by teachers' ratings of each child's participation in classroom reading activities. Engagement was measured in this way in Grades 1, 3

and 5. In addition, Grade 5 students completed a self-report measure of engagement in reading activities. Both *attentiveness* and *engagement* significantly predicted literacy achievement. A major finding of the study was that the Grade 1 and Grade 3 measures of attentiveness predicted literacy achievement in Grade 5.

This longitudinal study is of special significance in that it points to the importance of also considering these relationships from a developmental perspective. Attentiveness to reading activities in Grade 1 was predictive of attentiveness and engagement in Grade 5. Successful early experiences with reading persisted and developed into more enduring personal orientations; personal interest in reading and valuing of reading activities. As an interest researcher, Renninger has argued that a central issue in education is to identify early experiences that contribute to the development of positive individual interests that support continued learning (Hidi, Renninger, & Krapp, 2004; Renninger & Hidi, 2002).

Evidence from classroom and school based studies

The large-scale surveys have concentrated on behavioural indicators of engagement supported by some self-report measures of interest and attitudes toward specific achievement domains. However, a large body of smaller-scale, school-based research has investigated motivation and engagement by identifying specific motivational variables and then investigating how these relate to students' behaviour and achievement. *Mastery goals, performance goals, intrinsic motivation, self-efficacy, agency, individual interest, situational interest, curiosity, work avoidance, extrinsic motivation, learned helplessness, perceived competence, self-competence*. All of these have been used to describe motivational aspects of students' connection with learning and predominantly represent the individual perspective. Some denote positive connection, others disconnection or alienation from learning.

Person Variables. In recent years there have been a number of major reviews of the motivational research literature (Eccles & Wigfield, 2002; Murphy & Alexander, 2000; Pintrich, 2003) and in spite of the wide range of specific concepts and the fact that these concepts are often "fuzzy with no clear boundary definitions" (Pintrich, 1994) there appears to be some convergence in their framing summaries. Murphy and Alexander classified the terms used in empirical motivation research reported in major publications over five years. Four basic groupings emerged:

- Goal concepts.
- Intrinsic and extrinsic motivation.

- Interest: individual interest, situational interest.
- Self-schema: agency, attribution, self-competence, self-efficacy.

Pintrich (2003) reviewed the same broad field and suggested that five general concepts describe what motivates students in classrooms.

- Adaptive self-efficacy and competence beliefs
- Adaptive attributions and control beliefs
- Higher levels of interest and intrinsic motivation
- Higher levels of value
- Goals

A consistent picture emerges despite some difference in the precise separation into groupings. Murphy and Alexander separate intrinsic and extrinsic motivation from various forms of interest while Pintrich has grouped them as one category. On the other hand Murphy and Alexander list as one group a number of self-schema concepts which Pintrich has separated into efficacy and competence beliefs, and, attribution and control beliefs. Pintrich has included value in a separate category while Murphy and Alexander defined this area as being outside their purpose arguing that expectancy-value constructs developed by Eccles and colleagues (Eccles & Wigfield, 2002) are overarching constructs linking more specific motivational concepts.

Considerable research endeavour has gone into investigations of student engagement. A significant number of these research reports have focused on identifying how achievement goals influence achievement. Covington's review (2000) of this research concluded that in general, students' achievement goals are reflected in the strategies they use and this in turn influences achievement. Specific patterns of achievement goals are related to whether students favour memorization strategies (e.g., rote learning) or elaboration strategies (e.g., relating new learning to past learning). Differential use of these types of strategies has been linked to achievement. This conclusion is consistent with a wide range of research studies although many of the studies have not investigated all three variables in this relationship Two studies in the early 1990s (M. Ainley, 1993; Meece & Holt, 1993) demonstrated how students' goals and purposes in learning were connected to the types of strategies they used in their learning and this was related to differences in achievement. Both studies identified groups of students with different profiles of achievement goals. Meece and Holt's (1993) findings were for 5th and 6th grade students in the U.S., both boys and girls, and assessed relationships between goal profiles, active and superficial strategies, and

science achievement. Ainley (1993) reported similar findings with a sample of secondary female secondary students. Relationships between achievement goal profiles and exam preparation strategies for Year 11 students were significantly predictive of performance in their final school assessment a year later.

In the last decade the focus of these approaches has broadened to include affective variables, feelings, achievement emotions and mood (Boekaerts, 2001; Linnenbrink & Pintrich, 2002; Pekrun, Goetz, Titz, & Perry, 2002; Silvia, 2001). The linking of motivational and emotional variables as they might influence learning has some theoretical support from theories of emotion such as those of Izard (1977) who argued that emotions are key motivational variables. At the most basic level, the appraisal processes that underpin emotions involve approach or avoidance reactions that direct subsequent processing. In similar vein, Boekaerts argues that motivation involves habitual behaviour (e.g., goal setting, general traits and domain-specific beliefs) while emotion involves students' current concerns. Therefore, in any specific learning context appraisal processes draw on both motivation and emotion to direct behaviour. The inclusion of emotion in these models is part of a theoretical shift that goes beyond research into learning and achievement. As part of the positive psychology school of thought, Fredrickson (2001) proposed a *broaden-and-build* model of positive emotion to understand a wide range of behaviours including both educational and health-related settings:

Positive emotions (e.g., joy, interest, and contentment) broaden an individual's momentary thought-action repertoire, which in turn can build that individual's enduring personal resources, resources that also served the ancestral function of promoting survival." (Fredrickson, 2000, p.1)

Positive emotions expand experience whether this is through giving more attention to an activity that has triggered interest or re-engaging with an enjoyable activity. Fredrickson (2000) identified interest as one of the major positive emotions. It "not only broadens an individual's momentary thought-action repertoire as the individual is enticed to explore, but over time and as a product of sustained exploration, interest also builds the individual's store of knowledge and cognitive abilities." (p.5). Interest opens the individual to new experience and brings them in direct contact with knowledge and experience that goes beyond their current level of achievement. In achievement settings positive activating emotions serve the function of maintaining connection with learning activities. Feeling interested in an activity leads to decisions and actions that

maintain contact with the activity. The experience explored, repeated, and pursued, builds and consolidates knowledge and cognitive competency.

efficacy and self-competence beliefs. Nor can it be described adequately without referring to the *developmental patterns* concerning beliefs about the relationship between ability and effort in learning and achievement.

Contextual Factors. Hidi and Harackiewicz's (2000) review of motivational issues for education into the 21st. century focused on the issue of "motivating the academically unmotivated". While their review is restricted to analysis of the findings from research into the areas of interest and achievement goals, it does highlight the necessity for motivational researchers to focus on defining how characteristics of classrooms and learning situations might be structured to function as "external triggers" for interest and positive achievement goals. We know that connection with a learning activity can be triggered by using the latest technology or some other enticing packaging. However, to support strong cognitive outcomes the learning activity needs not only to trigger interest it must be able to maintain interest sufficient to support the persistence and effort required for skill acquisition and extension of knowledge (Cordova & Lepper, 1996; Mitchell, 1993). This is an especially taxing problem for teachers of young adolescents in their middle years of secondary schooling.

It is well-documented that changing the achievement goal structure of the classroom can influence students' learning strategies and their achievement (Ames & Archer, 1988; Greene, Miller, Crowson, Duke, & Akey, 2004). Anderman and Midgley (2004) recently reported finding that changes in the achievement goal structure of mathematics classrooms across the transition from middle school to high school were related to students' self-reported academic cheating. For example, cheating increased when students moved from high mastery orientation to low mastery orientation classrooms, and when they moved from low performance orientation classrooms to high performance goal classrooms.

At the same time as the classroom provides the immediate context for learning activities the classroom and the whole school are located within the broader context of the community and social groups. In addition to the findings from large-scale surveys, studies focusing on specific components of classroom life, for example peer group norms and values, have shown that when the peer group does not value schooling, or it is 'uncool', engagement is low (Kindermann, 1993; Lingard, Martino, Mills, & Bahr, 2002). The highly attractive of out-side of school options as one of the contextual factors impinging on student motivation and engagement. Competition from what

the real world outside of school has to offer and the pull of social relationships both inside and out of school make this a particularly challenging task for teachers.

Person and situation

The general proposition that comes out of this brief review of the literature is that understanding motivation and engagement and the role they play in student achievement depends upon adequate models how person and situation interact in achievement settings. We need to be able to describe students' goals and purpose in learning, their beliefs about themselves as learners, the patterns of affective responses that are typically aroused in learning situations. We need to develop models of the situation, the contextual factors operating at the school level, the classroom level, and the family factors that also influence students' motivation and engagement. In a recent review Pintrich's (2003) referred to a divide "between social-cognitive and situated models of motivation that differentially emphasize the individual or the context" (p. 680). This has been expressed variously as trait versus state (Murphy & Alexander, 2000), individual and situational (Krapp, Hidi, & Renninger, 1992), domain-general or domain specific, conventional and socio-constructivist (Hickey, 1997). What is required is closer articulation of how personal and the situational factors influence cognition and development. Wentzel (2000) addressed this issue in her multiple goal approach to understanding how social and academic goals influence students' behavior suggesting that knowledge of the complementarity and hierarchical ordering of social and academic goals as well as knowledge of the goal structure of classrooms is essential for understanding the interdependence of individual and situation.

Schooling plays a major role in any young person's life and how they connect with school gives direction to their development and achievements. The three research report papers that make up this symposium are addressing this general issue from two different perspectives. The papers by Buckley and Hasen (Buckley, Hasen, & Ainley, 2004), and Andrews (Andrews, Ainley, & Frydenberg, 2004), focus on the micro-level of what students are reporting of their experience while of working through a learning activity. The paper by Archer (2004) expands the scope out and includes teachers' perspectives.

References

- Ainley, J., & Fleming, M. (2004). *Five years on: Literacy advance in the primary years*. East Melbourne: Catholic Education Commission of Victoria.

- Ainley, J., Fleming, M., & Mc Gregor, M. (2002). *Three years on: Literacy advance in the early and middle primary years*. East Melbourne: Catholic Education Commission of Victoria.
- Ainley, M. (1993). Styles of engagement with learning: Multidimensional assessment of their relationship with strategy use and school achievement. *Journal of Educational Psychology, 85*, 395-405.
- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Student learning, strategies and motivation processes. *Journal of Educational Psychology, 80*, 260-267.
- Anderman, E. M., & Midgley, C. (2004). Changes in self-reported academic cheating across the transition from middle school to high school. *Contemporary Educational Psychology, 29*, 499-517.
- Andrews, M., Ainley, M., & Frydenberg, E. (2004). *Adolescent engagement with problem solving tasks: The role of learning strategies and positive emotions*. Paper presented at the AARE Conference, Melbourne.
- Archer, J. (2004). *Learning as a means to achieve social goals*. Paper presented at the AARE Conference, Melbourne.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Boekaerts, M. (2001). Context sensitivity: Activated motivational beliefs, current concerns and emotional arousal. In S. Volet & S. Jarvela (Eds.), *Motivation in learning contexts: Theoretical advances and methodological implications*. Amsterdam: Pergamon.
- Buckley, S., Hasen, G., & Ainley, M. (2004). *Affective engagement: A person-centred approach to understanding the structure of subjective learning experiences*. Paper presented at the AARE Conference, Melbourne.
- Butler, R. (2000). Making judgements about ability: The role of implicit theories of ability in moderating inferences from temporal and social comparison information. *Journal of Personality and Social Psychology, 78*(5), 965-978.
- Cordova, D. I., & Lepper, M. R. (1996). Intrinsic motivation and the process of learning: Beneficial effects of contextualization, personalization, and choice. *Journal of Educational Psychology, 88*(4), 715-730.
- Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*, 109-132.
- Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 29*, 141-162.
- Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment, 3*, 1-26.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218-226.
- Fullarton, S. (2002). *Student engagement with school: Individual and school-level influences*. Camberwell, Vic.: Australian Council for Educational Research.
- Greene, B. A., Miller, R. B., Crowson, H. M., Duke, B. L., & Akey, K. L. (2004). Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology, 29*, 462-482.

- Harter, S. (1998). The development of self-representations. In W. Damon (Ed.), *Handbook of Child Psychology* (Vol. 3, pp. 553-618). New York: Wiley.
- Hickey, D. T. (1997). Motivation and contemporary socio-constructivist instructional perspectives. *Educational Psychologist*, 32, 175-193.
- Hidi, S., & Harackiewicz, J. M. (2000). Motivating the academically unmotivated: A critical issue for the 21st. century. *Review of Educational Research*, 70, 151-179.
- Hidi, S., Renninger, A., & Krapp, A. (2004). Interest, a motivational variable that combines affective and cognitive functioning. In D. Y. Dai & R. J. Sternberg (Eds.), *Motivation, emotion, and cognition*. (pp. 89-115). Mahwah, NJ: Lawrence Erlbaum.
- Izard, C. E. (1977). *Human emotions*. New York: Plenum Press.
- Kindermann, T. A. (1993). Natural peer groups as contexts for individual development: The case of children's motivation at school. *Developmental Psychology*, 29, 970-977.
- Kirsch, I., de Jong, J., Lafontaine, D., McQueen, J., Mendelovits, J., & Monseur, C. (2002). *Reading for change: Performance and engagement across countries. Results from PISA 2000*. Paris: OECD.
- Krapp, A., Hidi, S., & Renninger, A. (1992). Interest, learning and development. In A. Renninger, S. Hidi & A. Krapp (Eds.), *The role of interest in learning and development*. (pp. 3-25). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Lingard, B., Martino, W., Mills, M., & Bahr, M. (2002). *Addressing the educational needs of boys: Strategies for schools and teachers*. Canberra: Department of Education, Science and Training.
- Linnenbrink, E. A., & Pintrich, P. R. (2002). Motivation as an enabler for academic success. *School Psychology Review*, 31, 313-327.
- Meece, J. L., & Holt, K. (1993). A pattern analysis of students' achievement goals. *Journal of Educational Psychology*, 85, 582-590.
- Mitchell, M. (1993). Situational interest: Its multifaceted structure in the secondary school mathematics classroom. *Journal of Educational Psychology*, 85, 424-436.
- Murphy, K., & Alexander, P. (2000). A motivated exploration of motivation terminology. *Contemporary Educational Psychology*, 25.
- Nicholls, J. G., Patashnick, M., & Nolen, S. B. (1985). Adolescents' theories of education. *Journal of Educational Psychology*, 77, 683-692.
- Pajares, F. (1996). Self-efficacy beliefs in achievement settings. *Review of Educational Research*, 66, 543-578.
- Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational Psychologist*, 37, 91-105.
- Peterson, C., Maier, S. F., & Seligman, M. E. P. (1993). *Learned helplessness: A theory for the age of personal control*. Oxford: Oxford University Press.
- Pintrich, P. R. (1994). Continuities and discontinuities: Future directions for research in educational psychology. *Educational Psychologist*, 29(3), 137-148.
- Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95, 667-686.

- Renninger, A., & Hidi, S. (2002). Student interest and achievement: Developmental issues raised by a case study. In A. Wigfield & J. Eccles (Eds.), *Development of achievement motivation*. (pp. 173-195). San Diego, CA: Academic Press.
- Russell, J., Ainley, M., & Frydenberg, E. (under review). Motivation and engagement.
- Silvia, P. J. (2001). Interest and interests: The psychology of constructive capriciousness. *Review of General Psychology, 5*, 270-290.
- Wentzel, K. (2000). What is it I am trying to achieve? Classroom goals from a content perspective. *Contemporary Educational Psychology, 25*, 105-115.
- Willms, J. D. (2003). *Student engagement at school: A sense of belonging and participation. Results from PISA 2000*. Paris: OECD.