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Student motivation and engagement in learning

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This paper uses self-determination theory (Deci & Ryan, 2000) to investigate important motivators for student engagement. It reports the results of a survey of students enrolled for the first time in a post-compulsory education programme in one of nine institutions in Aotearoa/New Zealand: two universities, one wānanga, four institutes of technology/polytechnics, a private training establishment and a community organization. The survey, in the form of a questionnaire, addressed the following research question: 'How do institutional and non-institutional learning environments influence student engagement in diverse tertiary settings?' This paper reports one aspect of the questionnaire. It examines differences and similarities between students in the nine case study institutions. It outlines some ways in which teachers and institutions might use the findings to improve student engagement.

Keywords: student engagement, student experience, self-determination theory

Student engagement is a complex construct. In our work we embrace the second of two meanings identified by Chapman (2003): students' cognitive investment in, active participation in and emotional commitment to their learning. We identify four major strands: engagement resulting from student motivation and agency; from learning transactions between students and with teachers; from the environment that institutions create; and socio-political factors. In this paper we use the motivation and agency strand to explore institutional differences and similarities in how students engage. We conclude with suggestions for educators to enhance student motivation and engagement in learning.

Conceptual and literature foundations

Student engagement research has developed a variety of perspectives (Bryson & Hand, 2007). We identified four: motivational factors resulting in engagement (Schuetz, 2008; York & Knight, 2004); educators' practices and relationships with students (Kuh, 2001; Umbach & Wawrzynski, 2005); institutional policies and practices such as those in universities (Porter, 2006); and various socio-political factors that engage (McInnis, 2003; McMahon & Portelli, 2004; Yorke, 2006). To help us make sense of such complexity, we developed a conceptual organizer of engagement with two features. One identifies the main strands in the engagement literature; the other singles out indicators of outcomes that might be achieved within each

strand (See Figure 1). This paper examines engagement from the motivation and agency perspective.

Strands of engagement	Chosen indicators
<u>Motivation and agency</u> (Engaged students are intrinsically motivated and want to exercise their agency)	<i>A learner feels able to work autonomously</i> <i>A learner feels they have relationships with others</i> <i>A learner feels competent to achieve success</i>
<u>Transactional engagement</u> (Learners engage with each other, teachers and significant others)	<i>Students experience academic challenge</i> <i>Learning is active and collaborative inside and outside the classroom</i> <i>Students and teachers interact constructively</i> <i>Students have enriching educational experiences</i>
<u>Institutional support</u> (Institutions provide an environment conducive to learning)	<i>There is a strong focus on student success</i> <i>There are high expectations of students</i> <i>There is investment in a variety of support services</i> <i>Diversity is valued</i> <i>Institutions continuously improve</i>
<u>Active citizenship</u> (Students and institutions work together to enable challenges to socio-political beliefs and practices)	<i>Students are able to make legitimate knowledge claims</i> <i>Students can engage effectively with others including the 'other'</i> <i>Students are able to live successfully in the world</i> <i>Students have a firm sense of themselves</i> <i>Learning is participatory, dialogic, active and critical</i>

Figure 1: A conceptual organizer for student engagement

Underpinning engagement research is a constructivist view that education is about students constructing their knowledge (Krause & Coates, 2008). Students are seen as learning agents able to act to achieve their goals. Studies informing this perspective have found that motivation fulfils an important explanatory function in student engagement (Ainley, 2006; Schuetz, 2008; Yorke & Knight, 2004). Some researchers emphasize learners' self belief as a key motivator. Yorke and Knight (2004) found that the self-theories learners bring to their learning impact on motivation, agency and engagement. Those with fixed self-theories tend to have fixed views on their own abilities, adopting performance goals for their learning and losing motivation when these are not achieved. Those with malleable self-theories tend to adopt learning goals, seeing challenges as opportunities for learning. Such learners tend to stay engaged independent of their performance. Yorke and Knight suggest that somewhere between 25% and 30% of learners have fixed self-theories that could impact negatively on their engagement. Related to this work is what Llorens, Schaufeli, Bakker and Salanova (2007) designate a personal resources-efficacy-engagement spiral. They found that where learners believed they had the personal resources to complete a task, their self-efficacy grew and consequently so did their engagement. Fazey and Fazey (2001) reported that self-perceived confidence in their own competence is a key motivator for engagement. Such learners stayed motivated and engaged even in the face of short term failure. Russell (2007) also found that collaborative learning added to feelings of academic competence.

These findings suggest that there is no single explanation of motivation for engagement. Schuetz (2008) nevertheless attempted to construct a theoretical framework to explain results obtained from the very large Community College Survey of Student Engagement (CCSSE) in the United States. She tested the fit between selected survey results obtained in 2005 and

2006 and various motivation theories. She found that Self-Determination Theory (SDT) (Deci & Ryan, 2000; Ryan & Deci, 2000a; Ryan & Deci, 2000b) was an excellent fit for CCSSE data. While not specifically about engagement, SDT enables a synthesis of the varied findings about how motivation and learner agency lead to engagement. It focuses on agentic individuals who have set themselves clear performance and learning goals, have positive self-theories, and interact with their social environments in active ways. SDT suggests that understanding human motivation requires an appreciation of innate human needs (Deci & Ryan, 2000).

To be motivated means to be moved to do something. Ryan and Deci (2000a, 2000b) identify intrinsic motivation, which refers to doing something because it is inherently worthwhile, and extrinsic motivation, which refers to doing something because it leads to a separate outcome. While intrinsic motivation assists self-determination only some forms of extrinsic motivation do. Self-determination is enhanced where supportive social-contextual conditions exist to promote feelings of competence or self-efficacy. Such feelings in turn encourage the exercise of choice and self-direction leading to a greater feeling of autonomy. Ryan and Deci (2000a, 2000b) refer to strong links between motivation and feelings of autonomy and competence. They also suggest that relatedness, at least in a distal sense, is important in motivation, particularly intrinsic motivation. This may be a secure relational base with others, a sense of social cultural belonging or identification with ideas. Self-determination enables individuals to meet such competence, autonomy and relational motivational needs. SDT is well supported by large-scale empirical studies. Ryan and Deci (2000a, 2000b) cite 229 studies that support aspects of self-determination theory, which seems well suited to explain the motivation and agency needed for engagement. We used these three needs to gauge the motivation of students to engage with their learning in our nine partner institutions.

Project overview and research method

With the exception of the Australasian Survey of Student Engagement (AUSSE) currently being used in universities in Australasia, student engagement has not been researched extensively in Aotearoa/New Zealand. In the USA student engagement research is an industry; it is also growing in diverse ways in Australia and the UK. Such diversity discourages a one-dimensional perspective. We decided on a project design that would gauge a number of perspectives. While our design uses many of the assumptions of the AUSSE survey, it casts its net to include all strands in Figure 1, which AUSSE does not. It also goes beyond the universities by including all sub-sectors of the post-compulsory landscape in Aotearoa/New Zealand: two universities, four institutes of technology, one wānanga, one private training provider and a community organization.

Multiple case studies

We chose a case study design for three reasons. The first was raised in retention literature (Braxton & Lien, 2000; McInnis, 2000; Tinto, 1993) which found that single institution case studies identify factors that multi-institutional studies might not. The second reason lies in a conceptualization of teaching adults. Fenwick (2006) argues that rather than being located in some collective political, intellectual or pedagogical purpose, adult education is performed “in the habitual practices of a particular site or community” (p. 9). A third consideration favouring case studies is embedded in the expectations of the Teaching and Learning Research Initiative (TLRI), the fund supporting our study. TLRI expects that projects help to improve learning, teaching and build research capacity. Generalized results across many institutions may have little impact on individual institutions as they encourage ‘it does not

apply here' thinking. Data that speaks directly to teaching and learning in specific institutions, however, is likely to have more impact on practice. But the decision to construct institutional case studies is not cost-free. It means we cannot generalize our findings across all New Zealand tertiary institutions. So, in this paper we report findings from individual institutions and identify differences and similarities that emerged in them.

Adopting an approach that recognises institutional differences led to a number of consequential decisions. We wanted institutions that had already conducted some institutional research and therefore had local researchers available. We sought a good geographic spread, different types and sizes of institutions, at least one offering distance delivery, at least one with a rural hinterland, at least one with a significant presence of Māori (the indigenous people of Aotearoa/New Zealand) and Pasifika (people who originate in or affiliate with the Pacific Islands). In the end we selected nine that together matched our inclusion criteria. Admittedly, final selection also depended on a willing partner.

The student survey

The project was approved by the Massey University Human Ethics Committee: Southern B, Application 08/10. The survey instrument was distributed by a local researcher to a sample of first time enrolled students representative of gender, age and ethnicity in each institution. Sample sizes varied, being determined by institution size. Institutions distributed questionnaires either on-line or as paper copies. A total of 1246 responses were received. Response rates varied greatly between institutions, ranging from 82.7% and 32.2% to 5.5% and 9.0%. The overall response rate, adjusted for unusable responses, was a disappointing 14.5% - very similar to the 14.2% response rate achieved by the 2007 AUSSE survey (ACER, 2008).

The questionnaire contains four scales: motivation and agency; transactions within the institutional setting; external factors; and time spent on specified activities. This paper explores results from the motivation scale. The motivation scale has 24 Likert-type items divided into three equal clusters capturing competence, autonomy and relatedness needs, the motivational needs identified in Self-Determination Theory. Respondents were asked how important each item was in motivating them to become engaged in their learning.

Reporting the data

In this section we first provide a brief profile of our case study institutions before exploring the level of importance students assigned to the three motivational needs.

Institutional profiles

As can be seen from Figure 2, the nine case study institutions are very different in size, levels of programmes and delivery modes.

	A	B	C	D	E	F	G	H	I
Size	Large	Small	Large	Medium	Small	Medium	Small	Large	Medium
Programmes	Degree with some sub degree	Sub degree	Degree with some sub degree	Sub degree with some degree	Sub degree with some degree	Sub degree with some degree	Sub degree	Sub degree with some degree	Sub degree with some degree
Delivery	Mixed	Face to face	Major distance	Mainly face to face	Mixed	Major distance	Face to face	Face to face	Mainly face to face

Figure 2: Profiles of institutions

The gender distribution of the sample was consistently weighted in favour of females. Age distributions were more varied with 80% of respondents in one institution being older than 20 and 80% being 20 or younger in another. In six institutions most respondents studied full-time; in three the majority were part-timers. In seven institutions most respondents identified as European New Zealanders, Māori were the largest group in one institution and the second largest in five others. Respondents of Asian origin were the largest group in one and the second in two institutions.

Importance of motivational factors

We used 24 items to investigate Deci and Ryan's (2000) three key motivational needs: relatedness, competence and agency. Each need was assigned eight items. In analysing the data we chunked the 24 items into their three clusters and for further ease of analysis and explanation we collapsed the four Likert-scale responses into three groups within each cluster – high importance (mean 1 to 1.9), some importance (mean 2 to 2.9) and little importance (mean 3 to 3.9). Table 1 provides a descriptive summary of motivational needs. It shows the proportion of support for each motivational cluster. Almost two-thirds of the students need to feel competent in their study, less than 1% indicated that competence is of little importance to them. While both relatedness and agency were judged by just under half of the respondents to be of high motivational importance, 6% saw relatedness as being of little motivational importance to them.

Table 1: A descriptive summary of motivational needs

Relatedness	High Importance	541	43.5 %
	Some Importance	628	50.5%
	Little Importance	74	6.0%
	Total	1243	100.0%
Competence	High Importance	810	65.0%
	Some Importance	423	34.0%
	Little Importance	11	1.0%
	Total	1244	100.0%
Agency	High Importance	585	47.0%
	Some Importance	645	52.0%
	Little Importance	14	1.0%
	Total	1244	100%

How students perceived the motivational importance of relatedness, competence and agency varied widely between institutions. The high importance of relatedness to some aspect of learning ranged from 81% in Institution G to 31% in Institution F. The range for competence

was much narrower – 89% in Institution G to 69% in Institution A. Agency again ranged more widely – 89% in Institution G and 47% in Institution A. Inspection of Table 2 reveals that students in Institutions D and G tended to express high motivational needs generally; those in Institutions A and F consistently expressed more modest ones. Relatedness was not as important in Institutions F and A as in Institutions G, B and D. The need to feel competent was strongly affirmed in every institution. Again institutions D and G led the way, while between 69% and 79% of respondents in the other seven institutions also felt the need to be competent in order to engage. The agency cluster of motivational needs drew a more mixed response. With the exception of Institution G, students in the remaining institutions felt that while agency was important for engagement, it was not as important as feelings of competence. Nevertheless, over 56% of students in seven institutions thought agency was a very important motivator.

Table 2: Motivational needs described for institutions (%)

Institution	Relatedness			Competence			Agency		
	High	Some	Little	High	Some	Little	High	Some	Little
A	37.0	60.0	3.0	69.0	30.5	0.5	47.0	52.5	0.5
B	73.0	27.0	0.0	77.0	23.0	0.0	57.5	42.5	0.0
C	58.0	40.5	1.5	75.5	23.0	1.5	56.0	44.0	0.0
D	71.5	28.0	0.5	81.5	18.0	0.5	70.0	29.5	0.5
E	44.5	46.0	9.5	79.5	18.5	2.0	57.5	40.5	2.0
F	31.5	46.0	14.5	69.5	29.5	1.0	47.5	51.5	1.0
G	81.0	18.0	1.0	89.0	10.0	1.0	89.0	10.0	1.0
H	63.5	34.5	2.0	74.5	25.0	0.5	59.0	39.5	1.5
I	53.0	44.5	2.5	73.0	27.0	0.0	62.5	37.5	0.0

Table 3 looks more deeply at the results from each institution and the differences between them by comparing the means for relatedness, competence and agency in each institution with the means for all other institutions. We used the t-test for independent means to tell us whether the probability was less than 5% ($p < .05$) that the differences were due to chance. We also wanted to establish the effect sizes of differences (Salkind, 2004). Note that the questionnaire scale went from 1 (very important) to 4 (no importance) so a low mean indicates a high level of importance.

Table 3: Comparing institutional means for relatedness, competence and agency

	n	Relatedness				Competence				Agency			
		Inst Mean	Mean For other Inst	Sig <.05	Effect Size r	Inst Mean	Mean For other Inst	Sig <.05	Effect Size r	Inst Mean	Mean for other Inst	Sig <.05	Effect Size r
A	223	2.2	2.1	Yes	0.31	1.9	1.8	Yes	0.11	2.1	2.0	Yes	0.26
B	26	1.8	2.1	Yes	0.08	1.8	1.8	No		2.0	2.0	No	
C	173	2.3	2.1	Yes	0.07	1.8	2.1	No		2.1	2.0	Yes	0.19
D	194	1.9	2.1	Yes	0.31	1.7	1.8	Yes	0.11	1.8	2.1	Yes	0.13
E	54	2.3	2.1	Yes	0.07	1.7	1.8	No		2.1	2.0	No	
F	82	2.7	2.1	Yes	0.49	2.0	1.8	No		2.4	2.0	No	
G	64	1.7	2.1	Yes	0.14	1.6	2.1	Yes	0.11	1.7	2.1	Yes	0.16
H	273	2.0	2.1	Yes	0.12	1.9	1.8	Yes	0.06	2.0	2.0	No	
I	155	2.1	2.1	No		1.8	1.8	No		2.0	2.0	No	
All institutions	1244	2.1				1.8				2.0			

Means for individual institutions on competence were lower (signalling high importance) than for relatedness and agency in all cases except for Institution B, where relatedness and competence were the same. Similarly the mean of all institutional means for competence was lower than for relatedness and agency. Table 3 shows, therefore, that competence was a more important motivational need than either relatedness or agency. In six institutions agency was seen as a more important motivational need than relatedness. While not recorded on Table 3, a t-test of dependent means showed there were significant ($p < .01$) differences between relatedness and competence means; relatedness and agency means; and competence and agency means. While the effect size for the difference between relatedness and agency means was small ($r = 0.17$), it was medium between competence and agency means ($r = 0.47$) and competence and relatedness means ($r = 0.48$).

There were significant differences between institutions, with small to medium effect sizes. In the relatedness cluster, Institutions G, B and D showed significantly greater motivational needs than did their peers, while learners in Institutions F, E and C thought relatedness was significantly less important. Institutions G and D judged competence needs to be significantly more important than their peers in other institutions, while respondents in Institutions H and A thought they were significantly less important. Institutions D and G also thought agency was significantly more important motivationally than others; Institutions A and C saw it as less important. The effect sizes, while small in most cases, were medium for relatedness in Institutions F, A and D and medium for agency, also in Institution A.

Making sense of the data

A key requirement for research funded by TLRI is that it makes a difference to the quality of teaching and learning. While this paper reports on just one question from one instrument used in this project, we feel justified in arguing that, overall, the motivation for engagement in any institution differs from all others; that competence motivational needs outweigh relatedness and agency needs; and that these findings can sustain some suggestions for teaching and learning.

Results show that motivational needs vary between institutions. This finding is supported by McInnis (2000), Tinto (1993) and Braxton and Lien (2000) who caution against discounting institutional differences. However, the differences in this study lack a pattern and it is not possible to match motivational needs to a particular type of institution. Students in institutions of similar size, offering similar programmes and delivery modes don't seem to have similar motivational needs. While the two large institutions offering degree programmes in mixed modes, for example, have lower relatedness and agency needs than all other institutions, they differ on competence. Respondents in Institution A value competence needs less highly and in Institution C more highly than in all others. The two small, sub-degree, face-to-face providers differ in how they perceive the importance of competence and agency; B values them the same as all other institutions and G more than all others. Of two institutions, A and F, that place a lower value than others on motivation needs, one is large, offers mainly degree programmes and mixed modes of delivery; the other is a medium sized provider offering a majority of sub-degree programmes, mainly in distance mode. Further, of the two institutions, D and G, that consistently value motivational needs more highly than others, one is medium sized, offering a mixture of degree and sub-degree programmes in both face-to-face and distance modes; the other is small, offers sub-degree programmes and delivers in a face-to-face mode. It does seem that motivation for engagement needs to be researched within individual institutions.

Having emphasised institutional differences, we don't want to minimize similarities. The most striking similarity is in the importance given to competence as a motivational need. Respondents in every institution, except B where it had the same importance as relatedness, gave primacy to competence over relatedness and agency. Further, the differences between relatedness and competence means, and competence and agency means are all highly significant. The dominance of competence in our survey is matched by findings in the literature. For example, Fazey and Fazey (2001) also found that self perceived competence is a key motivator for engagement, and both Ainley (2006) and Venturini (2007) found that student interest in subject matter generates feelings of arousal, leading to cognitive activity. Horstmanhof and Zimitat (2007) reported that students who believed they had a thorough grasp of subject content were likely to be more engaged than those who did not. Llorens et al. (2007) discovered that where learners believed that they commanded the personal resources needed to complete a task, their self-efficacy grew and consequently so did their engagement. To enhance motivation for competence and engagement, institutions and teachers could employ strategies based on Chickering and Gamson's (1987) time-honoured principles for good teaching: prompt feedback to build confidence in learners' competence, teaching for competence building skills like time management, encouraging time on task, and communicating high expectations.

However, engagement is not just about motivation, particularly intrinsic motivation as preferred by Ryan and Deci (2000a). Student engagement research employs a variety of perspectives (Bryson & Hand, 2007). While student motivation as a factor in engagement provides valuable insights (Schuetz, 2008; York & Knight, 2004), our conceptual organizer shows that many other factors contribute to engagement. Teachers and institutions influence how frequently students engage (Kuh, 2001) as do environmental factors such as family background and economic status (Law, 2005; Miliszewska & Horwood, 2004), institutional structures and cultures (Porter, 2006) and the way educators practice and relate to their students (Umbach & Wawrzynski, 2005). Another important influence on engagement is the socio-political context in which education and engagement take place (McMahon & Portelli, 2004).

Conclusion: towards an agenda for action

This paper has outlined results from a questionnaire that surveyed students enrolled for a first time in a programme in nine post-compulsory institutions in Aotearoa/New Zealand. It enquired into factors that motivate students to engage with their learning. We used self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2000a, 2000b) to construct a view of motivation comprising three needs: relatedness, competence and agency. While we found great differences between the institutions we also found that all three needs were motivational for students but that competence was more important than the others. We now conclude with some practical suggestions raised from these findings:

- Research specific motivators within an institution; even for each intake of students. Motivators cannot be generalized or set in concrete.
- Develop students' belief in their own competence. This is probably the key motivator.
- Provide prompt, supportive, formative feedback; communicate high expectations through manageable academic challenges; focus strongly on student success; and respect diverse ways of perceiving, acting and working in the world, for example, to enhance students' sense of competence.
- Recognize and provide for agency and relatedness motivators to enhance engagement.
- Enable students to interact constructively with teachers; to feel that they contribute to others' learning in active and collaborative situations; to feel valued and included; and encouraged to construct their own meanings - to cater for agency and relatedness motivators.

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