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Measuring engagement in classroom learning

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Background

The consideration of issues related to student engagement in classroom learning has taken on increasing importance in Western Australia since the passing of legislation to raise the leaving age to 17 years, which came into effect in 2008. This means that all young people in their 16th and 17th year must be in education, training or employment or combination thereof. There are now more students retained at schools in Years Eleven and Twelve than previously when students could leave at the end of Year 10. Engaging these students in learning is of the upmost importance for secondary schools. This change does not just apply to Western Australia, but is a national and international trend. School leaving ages have increased in four of the other states in Australia, and changes are being proposed and implemented in other countries, including the UK, Canada, and the USA.

National research (Marks and Fleming, 1999) found that in the 1995 Year Nine cohort, 9% of students left school before the beginning of Year Eleven, and also that students who have low levels of achievement (literacy and numeracy) were more likely to leave school early. Since more students with low levels of achievement and possible lower engagement will remain in the Western Australian education system, there is a need to more fully understand the nature and influences on student engagement in classroom learning.

Research Questions

The research investigated the engagement in classroom learning of Year Ten and Eleven students in Western Australia. The research questions were:

1. Which aspects of student engagement in classroom learning were the most difficult to identify in the Year Ten and Eleven students, and which were the easiest to identify?

2. Is variance in the student engagement scores accounted for by membership of particular groups of students, (e.g. male or female, year of schooling, subject area studied and whether or not subject was a favourite)?

Methods

The sample was 112 Year Ten and Eleven secondary students from government schools in metropolitan and rural areas of Western Australia. Students were asked questions in relation to one of the four core subjects (Mathematics, English, Society and the Environment and Science). Each student was assigned a rating from zero to five by two researchers on each of the 11 facets using hierarchical descriptors in a theoretical frame. All interviews were recorded and subsequently transcribed to aid understanding of the quantitative data. Data analysis was conducted using The Rasch Rating Scale Model (Rasch, 1960). The Rasch Rating Scale Model takes into account two parameters the difficulty of the items and the ability of the persons to affirm the items. The model was used because it placed the eleven facets on a single scale based on item difficulty - and provided a measure (a logit score) of each facet based on ease of identification.

Frame

A model of student engagement in classroom learning that is based on the principles of Flow Theory (Csikszentmihalyi 1990) was developed. Flow Theory, proposes that a person achieves the state of flow when there is a match between the application of high skills and high challenges. The model

proposed that students are engaged when there is a balance between their learning capabilities (skills) and the expectations of their learning (challenges). Learning Capabilities were operationally defined as self-esteem; self-concept; resilience; self-regulation and self-efficacy Martin (2007). Expectations of students learning comprised six facets from the taxonomy of Learning for Understanding (Wiggins & McTighe, 2001): Explanation; interpretation; application; perspective; empathy; and self-knowledge.

Research findings

Table 1 presents the eleven facets along with their location (in logits) on the engagement scale This shows that differing levels of the eleven facets were evident in the students.

Table 1 *Individual item (sub-construct) fit statistics - in order of location*

Item	Facet	Location (logits)
I03	Resilience	-0.60
I05	Self-efficacy	-0.50
I04	Self-regulation	-0.27
I01	Self-esteem	-0.25
I07	Interpretation	-0.09
I08	Application	-0.02
I11	Self-knowledge	0.09
I02	Self-concept	0.12
I10	Empathy	0.44
I09	Perspective	0.45
I06	Explanation	0.62

The easiest facet to observe among students was resilience (-0.60); most students could offer problem solving solutions when things didn't go according to plan. The next three facets are also student learning capabilities; self-efficacy (-0.50), self-regulation (-0.27) and self-esteem (-0.20). The locations of the expectations of learning facets were generally higher than those for the learning capabilities facets, with interpretation the easiest expectation of learning to affirm (-0.09) followed by application, and self-knowledge. Self-concept was the hardest student learning capability to affirm (0.12). Empathy and perspective were much harder to affirm at 0.44 and 0.45. The hardest facet to affirm was explanation (0.62); whilst some students were expected to explain things in class, this was not true for others. In many instances students stated that they were not expected to talk or write about what they learned, "we just copy out of the books, there is no discussion". For high levels of explanation, very few students were expected to show in-depth or sophisticated levels of explanation in the chosen subject.

The engagement scores differed by gender. Males showed less evidence of engagement than females. This finding is supported by the literature, providing evidence of the validity of the model. Fullerton (2002, p. 31) died 11,150 students in the Longitudinal Surveys of Australian Youth and found "...gender was found to be a strong influence on student's engagement, with females showing significantly higher levels of engagement than males...".

Subjects that were the student's favourite attracted higher levels of engagement than subjects that were the student's least favourite. This has been found to be the case in other studies. Variances in subject area and school year were found to not account for variance in the student engagement scores.

The study makes a significant contribution to the knowledge of engagement in classroom learning. The findings are of use to administrators and teachers of engagement programs throughout Western Australia which have been set up in response to the raising of the leaving age.