

UNDERSTANDING STUDENT ENGAGEMENT: IMPROVING ENROLMENTS AND GRADES IN THE HIGH SCHOOL PHYSICS CLASSROOM

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SCHOOL CONTEXT

The College at which this investigation was completed is a suburban P-12 school, managed by Brisbane Catholic Education, Queensland, Australia. While it is a fee-paying private school, the fees are relatively low, and is non-selective in terms of the academic ability of students. It offers a broad curriculum offering that is similar to the local state high schools in the same catchment area.

IMPROVING PHYSICS ENROLMENTS AND RESULTS

Falling enrolments in secondary school mathematics and science is frequently identified as a concern in Australia. In Queensland, typically less than 4% of the statewide Year 12 cohort complete Senior Physics (Queensland Tertiary Admissions Centre [QTAC], 2021). Against this backdrop, The College, over the last 8 years, has increased the percentage of its senior cohort undertaking Senior Physics from less than 7% to consistently enrolling more than 20% in the last 3 years, with no students failing Physics since the introduction of the new Queensland Certificate of Education (QCE) syllabus in 2019. Over this same period, enrolments at The College in other science and mathematics subjects of equivalent rigour have fallen or remained steady.

A key element in the success has been applying an understanding of student engagement, as described in a model of engagement by Philip Schlechty (2011). In Schlechty's work, engagement is described as a spectrum with 5 distinct levels, measured against two dimensions of Attention and Commitment.

Level of Engagement	Rebellion	Retreatism	Ritual Compliance	Strategic Compliance	Authentic Engagement
Characteristics of the Learner	Diverted Attention No Commitment	No Attention No Commitment	Low Attention Low Commitment	High Attention Low Commitment	High Attention High Commitment

Figure 1: Schlechty' spectrum of engagement

Student engagement measured in this way is not a characteristic of a student, but can vary from day to day depending on their environmental factors. In addition to identifying student engagement in this way, a framework of learning theories, teaching techniques (Schuh & Barab, 2008) and supportive processes focused on authenticity in learning (Lombardi, 2007) has been identified that can help to shift a student from one level of engagement to the next. The positive results of this framework in terms of student engagement can be seen in the increase in enrolments and student success in what is seen as a difficult and challenging subject.

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