

# On improving educational outcomes for Indigenous Australian students

**Peter O'Shea**

QUT, Brisbane, Australia  
pj.oshea@qut.edu.au

**Bouchra Senadji**

QUT, Brisbane, Australia  
b.senadji@qut.edu.au

**Slava Kalyuga**

UNSW, Sydney, Australia  
s.kalyuga@unsw.edu.au

***Abstract:** Improving representation and success among equity groups is an important task, and one that deserves to be informed by evidence. This paper looks at the evidence on what impacts positively on educational success rates for Indigenous students. It is seen that aspirations and expectations have a major impact, as do the types of learning modalities and personal relationships. Recommendations for improvement are made based on this evidence. The paper also discusses the QUT experience in improving Indigenous student outcomes.*

## Introduction

The first part of this paper begins by looking at the important issue of what it is that impacts positively on learning outcomes for Indigenous students. This discussion of the evidence focuses on aspirations/expectations and learning modalities. Appropriate levels of support are also necessary to help students maintain their aspirations, expectations and engagement with learning – for this reason institutional and school support is vital. The latter part of the paper discusses the QUT experience of seeking to provide this support.

## Aspirations and expectations

According to Indigenous researchers, Joe and Maria Lane, encouraging successes have been observed in Indigenous education in recent times (Lane, 2008). Between 1998 and 2006, for example, the number of Indigenous students obtaining good Tertiary Entrance Rank scores increased by a factor of four. The Lanes explain, however, that the upsurge in Indigenous achievement is not uniform. There is a divide – the improvement is occurring in those student groups who have high levels of educational aspiration, and are driven by an ethic of effort, opportunity and outcomes. Improved outcomes are still not being observed in large portions of the Indigenous community, especially in settlements. This finding for Indigenous students lines up strongly with findings for the wider community – student expectations and aspirations have an enormous impact on achievement (Dweck, 1975).

In light of the evidence and given the fact that there is still a large component of the Indigenous community that is not participating significantly in higher education, it is pertinent to ask what can be done to increase aspirations and expectations. Within the general population, so called 'attribution retraining' programs have been very successful in fostering achievement. These are programs where students are given instruction which helps them to appreciate that effort, rather than natural talent, is

the key to success. They are also given instruction on how to apply that effort shrewdly to increase their chances of success. When applied in conjunction with properly selected and contextualised tasks, attribution retraining has been found to have very high effect sizes – typically around 1.4 (Hattie et al., 1996). Attribution retraining is potentially useful for about 50% of the population because this is the proportion which believes that success in learning occurs mainly because of natural talent rather than effort (Dweck, 2007). The truth, of course, is that effort is enormously important. There is, in fact, evidence to indicate that shrewdly applied effort (not natural talent) is the key determinant of long-term success (Ericsson et al., 1993).

It is important to note that attribution retaining is only effective in tasks which are challenging, because it is only these types of tasks which require substantial effort. One would therefore expect attribution retraining to be even more suited to Indigenous students than to the general population because indigenous students tend to face greater challenges. The re-training schemes would, of course, need to be conducted by teachers that were perceived to be trustworthy and caring, i.e. by those with good relationships with the students. The courses would also need to be tailored to meet the particular needs of Indigenous students and levels of their prior knowledge. This would in turn imply that the learning tasks do not impose excessive levels of cognitive load that may discourage and de-motivate learners.

A second way that one can raise expectations and aspirations is through participation in programs such as the Government sponsored *Widening Participation* initiative. This involves representatives from universities making visits to disadvantaged high schools and engaging with them about the possibility of going on to higher education.

## **Types of teaching and learning modalities**

There are two issues to consider when selecting learning modalities for a given group of students. The first issue is what type of learning modality the students prefer. The second issue is what type of learning modality facilitates the most effective educational progress. Research studies indicate that many students actually prefer learning modalities that are not best for their progress (Kyollonen and Lajoie, 2003). Various studies have been conducted into what type of learning is best to facilitate progress in Indigenous students. One of course, has to be careful, because indigenous students come from a wide variety of backgrounds. Nonetheless, a general finding is that Indigenous students tend to perform well in environments where there is a substantial amount of i) modelling provided by the teacher or peers, ii) learning by doing with much repeated practice, iii) feedback (especially positive feedback) iv) focus of the personal aspects of learning rather than the information aspects and v) scope for non-verbal communication (Coombs et al, 1983). It is not surprising that from an instructional psychology perspective, these conditions are also essential for reducing excessive cognitive demands on novice learners (Sweller et al., 2011).

The above research findings have found a practical resonance with a number of Indigenous educators. Prominent Australian academic and indigenous activist, Noel Pearson, published an article in the *The Australian* on the 30th April, 2011, in which he quoted evidence in support of methods based on well guided modelling, mastery learning and feedback. He also explained that these were the deliberate modalities of choice for the Indigenous education system in Cape York, Australia. Other studies have provided additional insight. These studies have suggested that strongly guided modelling is a good way to learn for all students in the *early* stages of expertise development (Kalyuga et al, 2003). When students acquire enough knowledge/skill an ‘expertise reversal effect’ occurs and the students then function better with minimally guided learning paradigms. This confirms the finding that Indigenous students are likely to be best served by strongly guided modelling and repeated practice-based methods initially. Less guided methods, however, can be introduced as the students acquire more expertise.

Interestingly, Indigenous students appear to enjoy minimally guided exploratory methods and they also enjoy inter-personal communication (Combs, 1983). Such methods would therefore seem well

advised once the students have had the opportunity to build up expertise via more strongly guided methods.

It should be noted that the methods recommended in this section tend to be effective for almost all students, but they are particularly effective for underrepresented student cohorts. It is these cohorts that benefit most from strong guidance and much repeated practice in the early stages of skill acquisition. 'Project Follow Through' in the US found produced strong evidence for this phenomenon with a different equity group, namely African Americans (Meyer, 1984).

It is also worth noting that the instructional approach recommended in this paper is different from what is practiced in many tertiary institutions currently. The current approaches, which are revealed to a large extent through the AUSSE studies (AUSSE, 2008), indicate that there is insufficient personal interaction between students and teachers (particularly by way of feedback). There also tends to be insufficient peer interaction.

## The QUT experience

QUT has undertaken a number of initiatives to enhance indigenous education, and has set up the "Oodjeroo Unit" on its premises to help co-ordinate these initiatives. One of the first major success stories in Indigenous education at QUT occurred in the School of Nursing and was reported in the Australian Indigenous Health Bulletin in 2003. That article described how the School of Nursing had been very successful in raising participation and success rates among Indigenous students (Mieklejohn et al, 2003). The article reported that the successful outcomes had been facilitated by using the strategies listed below.

1. There needs to be a collaborative relationship between university schools and Indigenous support centres.
2. Student admission processes need to be flexible.
3. Applicants need to be informed after interview of an offer of a university place in order to promote a sense of acceptance at university.
4. Individualised study programs should be developed.
5. Appropriate financial study assistance should be provided and maintained.
6. Enthusiastic advocates for Indigenous students need to be found from among university academics.
7. There should be a critical mass of Indigenous students within a course so as to provide a groundswell of support and effective role modelling.
8. There should be a program of general study skills from week one of the first semester of university.
9. There should be efforts to ensure that students have access to textbooks.
10. There should be a high level of cultural sensitivity and there should be determined attempts to solicit feedback from students.

Point 8 in the above list relates to assisting with study skills and merits special mention. Two of the most critical research findings on the teaching of study skills are (Hattie et al., 1996) that:

- a) the study skills need to be contextualised and just-in-time (eg. the teaching of essay writing should be done at the time students are required to write an essay in their discipline), and
- b) attribution retraining significantly improves success in the teaching of study skills.

Finding b) above adds weight to the claim made earlier in the paper that attribution retraining would appear to have great potential for Indigenous students.

Much of the experience in the School of Nursing has found a resonance in the Faculty of Built Environment & Engineering (FBEE) at QUT. Within this faculty a similar set of strategies has been used to those in the School of Nursing. The strategies used in BEE have been:

1. create individualised study programs for students,
2. engage an Equity Director to champion Indigenous student issues,
3. raise expectations by engaging with the Government sponsored *Widening Participation* program,

4. introduce an attribution retraining program in first year engineering,
5. provide personalised care for students by having the Director of Equity meet with all indigenous students individually and to review progress,
6. organise special tutorial assistance if students are identified as being at risk (with this risk being appraised from their performance in units to date or from discussions during interviews),
7. link with the Oodjeroo unit to co-ordinate support.

The attribution re-training scheme mentioned in point 4 merits further discussion. The scheme, which is described in detail in (O'Shea & Bigdan, 2008), offered an assessment bonus if students could obtain a grade which was significantly above their existing Grade Point Average (GPA). Peer mentors could also get an assessment reward if they assisted a fellow student to obtain a grade which was significantly higher than their existing GPA. The aim of introducing the competition was to convey to students the fact that staff believed they could improve and that this improvement could be achieved by exerting effort and by helping one another. The scheme also sought to reinforce the notions of effort and peer support with assessment credits.

As these strategies were implemented over the past five years, very notable successes have been obtained. Specifically, in the last five years, the following outcomes have been obtained:

- A. the recruitment rates have increased in FBEE by a factor of more than two,
- B. the attrition rates in FBEE have decreased by a factor of four, and
- C. the attrition rates in FBEE faculty are now the lowest in the university.

Details on the definitions for recruitment rates, attrition rates, and other relevant information on the findings reported above are available at

[http://www.equity.qut.edu.au/staff/reports/2010\\_Student\\_Equity\\_Report.pdf](http://www.equity.qut.edu.au/staff/reports/2010_Student_Equity_Report.pdf) and

[https://qcr.qut.edu.au/pls/qcr/whm\\_env\\_ctl.RenderMenuPage?pTabHierarchyID=332&pSystem=QCRNEW](https://qcr.qut.edu.au/pls/qcr/whm_env_ctl.RenderMenuPage?pTabHierarchyID=332&pSystem=QCRNEW).

While significant progress has been achieved in improving indigenous outcomes in Engineering at QUT there is still further work to be done. Rural indigenous students, for example, are under-represented. They constitute only about 18 per cent of the total indigenous cohort, despite the fact that the majority of the population in Queensland lives in rural areas.

## Conclusions

This paper has reviewed the evidence and concluded that expectations, aspirations and beliefs are pivotal to the success of Indigenous students. With respect to learning modalities, the evidence suggests the use of guided methods based on modelling, practice and feedback in the first instance, followed up by more exploratory methods. Finally, it has been concluded that personalised attention and support from the university, the school and a significant body of peers are needed to maximise learning outcomes. After these issues were attended to, significant gains in Indigenous outcomes were achieved.

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