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Can Evaluating Indigenous Students' Aspirations Make a Difference?: Results of an Evaluation Study

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This study was commissioned by the Department of Education, Science and Training (DEST). This paper reports on aspects of the quantitative component of the study (Craven, Tucker, Munns, Hinkley, Marsh, and Simpson (in review)). The aims of this component of the study were to evaluate: a) Indigenous secondary school students' aspirations; b) the relation of key variables to Indigenous students' aspirations; c) Indigenous students' perceptions of the relevance of their current studies and of further education to achieve their aspirations; d) Indigenous students' preferences for further education in regard to vocational education and higher education; e) the key sources of and quality of career advice Indigenous students have received; f) Indigenous students' perceptions of any barriers they may face in attaining their aspirations; and g) the pattern of results for Indigenous students to results for non-Indigenous students. Indigenous and non-Indigenous secondary students from urban and rural regions completed a survey to ascertain students' self-perceptions pertaining to the study aims. A total of 1686 students (517 Indigenous and 1151 non-Indigenous) from urban and rural regions from 3 Australian States participated in the quantitative component of the study. The primary purpose of this presentation is to report the key results emanating from this evaluation study and to explore the implications of the findings for educational policy and practice.

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Background

Indigenous students are not engaging in further education opportunities to the same extent as non-Indigenous Australians. This has dire consequences for life opportunities. Whilst the number of Indigenous school students continuing into Year 12 are increasing, the size of this increase is not being translated into higher numbers of Indigenous students entering university and in 2000 numbers decreased by 15 per cent. Furthermore, data comparing numbers of all participating Indigenous students at vocational and higher education levels show that the increase in participation in vocational education is greater than that in higher education, suggesting that preferences for further education may be changing to the vocational sector. Some of the statistics in relation to these issues are discussed further below to provide the background to the present investigation.

Obviously it is highly unlikely that a student can do well in an educational environment if they do not fully participate. In government and Catholic school systems in 2001 average attendance rates for Indigenous secondary students rates varied between 70%-86% for Indigenous students and 86%-92% for non-Indigenous students (Commonwealth of Australia, 2002, p. xvii). Whilst completing Years 10 and 11 has been demonstrated to increase Indigenous students' chance of employment by 40% and completing Year 12 improves employment prospects by a further 13% the Commonwealth Government 2000 School Census quoted retention rates for Indigenous Students to Year 12 as 36.4% at less than half of non-Indigenous students at 73.3% (NIELNS, 2001, p. 1). Only 6% of Indigenous students participate in Years 11-12, whilst 13% non-Indigenous students participate (Commonwealth of Australia, 2002, p. xix). Hence present school retention rates for Indigenous students are still significantly lower than those of the general community. Indigenous students who stay at school are also "less likely than non-Indigenous students to achieve Year 12 Certificates that open up career or study options, generally 14%-23% of Indigenous Year 12 certificate holders achieved tertiary entrance qualifications compared with 49%-57% non-Indigenous students" (Commonwealth of Australia, 2002, p. xix). As such even Indigenous students who stay at school are less likely than their non-Indigenous peers to attain either Year 12 certificates or entry to University.

Recently, the number of commencing tertiary Indigenous students has also fallen by 16% between 1999 and 2001 (Commonwealth of Australia, 2002, p. 95). Of the Indigenous students who gained University entry in 2001 they accounted for 1.2% of all Australian tertiary students which is less than their population share of 2% (Commonwealth of Australia, 2002, p. 95). Furthermore of the Indigenous students who gain entry to University they are more likely to be enrolled in Arts, humanities and social science degrees (34.8%) and Education (30%) than in other fields of study (Department of Education, Training and Youth Affairs (DETYA), 2000a, p. 11), less likely to studying at a Bachelor level (63.1% of Indigenous students in 2001 were undertaking a Bachelor's degree) and more likely to be undertaking courses below the degree level (27.1% of Indigenous students in 2001 were taking courses below the Bachelor level) (Commonwealth of Australia, 2002, p. 96). They are also less likely than their non-Indigenous peers to succeed and complete University degrees. For example, measures of the proportion of university units passed in a year compared to

the total units enrolled in show that success rates for Indigenous students in 2001 were 68% compared with 87% success rates for non-Indigenous students (Commonwealth of Australia, 2002, p. 97). In regards to completion rates 62.7% of non-Indigenous students complete an award at the same institution compared to 32.9% of Indigenous students (Commonwealth of Australia, 2002, p. 97). Even of the Indigenous students who succeed at University they are less likely to undertake further postgraduate courses (DETYA, 2000, p. 12).

In regard to Vocational Education and Training (VET) in 2001 around one in four Indigenous people in the 15-64 age participated (Commonwealth of Australia, 2002, p. 69). Of the total population this reflects a total of 3.3% participating in VET which is an increase of some 14% since 1999 whereby Indigenous people were 3.1% of the VET population. Hence “in 2001 the proportion Indigenous people participating in VET was greater than the overall proportion of Indigenous people in Australia (2.2%)” (Commonwealth of Australia, 2002, p. 69). There is also a higher proportion of Indigenous students aged 16 or less (11.7%) than non-Indigenous students (6.9%), and a lower proportion of Indigenous students aged over 30 (36.7% vs. 43.4% for non-Indigenous students) (Commonwealth of Australia, 2002, p. 71). These figures reflect poor school retention rates and VET being an alternative option to schooling (57% of Indigenous students in 2001 on entering VET had concluded their schooling at or below junior high school levels compared to 32.7% of non-Indigenous students and more than 1 in 4 Indigenous students reported leaving school education at Year 9 or lower. However an increasing percentage of Indigenous students entered VET with Year 11 and Year 12 completed (Commonwealth of Australia, 2002, p. 73).

Outcomes achieved in basic literacy and numeracy for module completion rates in government systems were 48% for Indigenous students compared to 68.1% for non-Indigenous students for literacy – over nineteen percentage points lower – and 57.8% for numeracy – almost nine percentage points lower. In regard to non-government providers in 2001 Indigenous controlled VET providers reported literacy completion rates of 76.5% and numeracy completion rates of 73% and other non-government providers reported similar completion rates 70.7% and 66.7% (Commonwealth of Australia, 2002, p. 78). The level at which students study is also important – nationally the gap between Indigenous and non-Indigenous enrolments in the Australian Qualifications Framework (AQF) Certificate III and above was about 15 percentage points in 2001 (Commonwealth of Australia, 2002, p. 79). Indigenous students tended to be concentrated in Certificate I and II levels in 2001 (50% compared with 28% of non-Indigenous students) with only 29% of Indigenous students compared with non-Indigenous students (44%) participating in VET courses at Certificate III and above (Commonwealth of Australia, 2002, p. 81). For example of new Indigenous apprentices in 2001 62% were studying at Certificate III level and above compared to 82% of non-Indigenous new apprentices. Overall completion rates also vary at 65.7% compared to 78.1% of non-Indigenous students with 18.2 % of Indigenous students failing in comparison to 12.2% of non-Indigenous students and a higher percentage of Indigenous students withdrawing (15.3% compared to 9.3% of non-Indigenous students (Commonwealth of Australia, 2002, p. 82) (see Table 1).

Table 1:
Educational outcomes for Indigenous, non-Indigenous in all TAFE modules/competencies, 2001

	Indigenous students	Non-Indigenous students	All students
Completion rate	65.7%	78.1%	77.9%
Pass rate	62.3%	73.3%	72.6%
Fail rate	18.5%	12.2%	12.0%
Withdrawal rate	15.3%	9.3%	9.7%

Note. The key performance measure is the module/competency rate which differs from the pass rate in that it takes into account students who are given recognition of prior learning status (Commonwealth of Australia, 2002, p. 82).

Employment outcomes for Indigenous TAFE graduates in 1999 and 2000 were lower compared to non-Indigenous students (see Table 2). However employment outcomes experienced by Indigenous New Apprentices are comparable to non-Indigenous rates.

Table 2:
Student outcomes for Indigenous and non-Indigenous TAFE graduates, 1999 and 2000

Employment outcomes	1999 Graduates		2000 Graduates	
	Indigenous students	Non-Indigenous students	Indigenous students	Non-Indigenous students
Employed	59%	76%	63.6%	74.1%
Unemployed	18%	11%	15.9%	11.8%
Not in labour force	22%	12%	20.5%	14.1%
Totals	99%	99%	100%	100%

Note. Source Commonwealth of Australia, 2002, p. 84).

Hence whilst a record population of Indigenous students (3.3%) participate in the VET sector a gap remains in Indigenous and non-Indigenous outcomes, failure and withdrawal rates and achievement at lower levels of the AQF. As noted by the Commonwealth (Commonwealth of Australia, 2002, p. 87) “the challenge ahead for education therefore continues to lie in successfully preparing Indigenous students to participate fully in all levels of post compulsory education. So important is this issue is that the Commonwealth of Australia has produced a National Report to Parliament on Indigenous Education and Training, 2001 (Commonwealth of Australia, 2002). This report is the first of a series of annual National Reports to Parliament that focuses on the education and training outcomes of the Indigenous Education Strategic

Initiatives Programme (IESIP) which funds over 90% of Indigenous students in education and training in Australia. It is a baseline report against which future outcomes and improvements can be measured in the national context.

Against this background, the key broad purposes of this study were to examine Indigenous school students' self-perceptions of their aspirations, the relevance of schooling and of further education to attaining their aspirations, their preferences for and perceptions of potential barriers to further education and employment; and the sources and usefulness of advice they have received on these matters.

Aims

The study aimed to:

1. Identify Indigenous secondary school students' aspirations;
2. Elucidate the relation of key variables on Indigenous students' aspirations;
3. Identify Indigenous students' perceptions of the relevance of their current studies and of further education to achieve their aspirations, and compare and contrast Indigenous students' perceptions to non-Indigenous students' perceptions;
4. Identify Indigenous students' preferences for further education in regard to vocational education and higher education and the basis of those preferences;
5. Identify the key sources (teachers, careers' advisors, family, friends, community) and quality of advice Indigenous students have received with regard to education and their future employment/careers;
6. Test whether Indigenous students' aspirations are significantly different to non-Indigenous students' aspirations;
7. Test whether the pattern of relations between students' aspirations and correlate variables differ significantly for Indigenous and Non-Indigenous students; and
8. Elucidate Indigenous students' perceptions of any barriers they may face in completing their school education and participating in further education and Indigenous students' perceptions of the benefits of schooling, vocational education and higher education for their community and family and compare and contrast the findings for Indigenous students to the results for non-Indigenous students; and
9. Identify parents of Indigenous secondary students perceptions of: the value of vocational and higher education to their children's later employment and community life; the sources and quality of advice children receive in relation to future education and employment/careers; the barriers they perceive to their children's success in both vocational and further education; and whether their own experiences of education serve to impact positively/negatively on their children's aspirations.

Research Design

We designed a multi-item multi-scale survey and tested its construct validity and reliability for Indigenous and non-Indigenous students. This instrument was administered orally to participants by an Indigenous researcher and used to measure:

- Student ratings of their aspirations in multiple facets (life goals, education goals, employment goals and community contribution goals);
- Background characteristics of student participants (sex, age, geographical location, socio-economic status, parents' education, parents' career, school attendance);
- Student ratings of their own views and perceptions of parents' views in relation to the value and relevance of education (current schooling, vocational education and university education) to achieve their aspirations and benefit of to themselves, their families and communities;
- Student ratings of the extent and quality of education and employment/career advice received from teachers, careers' advisors, family, friends, and members of the community;
- Students' preferences for further education in regard to vocational education and higher education; and
- Students' academic self-concepts and enjoyment of school to ascertain whether these variables impact on aspirations.

The research design adopted in the present investigation selected participants by recruiting Indigenous and non-Indigenous students from the same schools and geographic regions in the States of Western Australia, Queensland and New South Wales. This sampling design, enabled a strong matched research design. Participants included Indigenous and non-Indigenous secondary school students with the vast majority aged 14 years and over. A total of 1686 students (517 Indigenous and 1151 Non-Indigenous) from urban and rural regions participated in the quantitative component of the study.

Results and Discussion

Students' Aspirations

In order to identify participating students' schooling goals, students' were asked to respond to the question 'When would you like to leave school?' by choosing one of three options: 'As soon as I can', 'before I finish the last year (eg Year 12) of school', or 'after I finish the last year of school'. An ANOVA was conducted to compare Indigenous and non-Indigenous students' responses. A significant main effect was present for Indigenous students' mean scores compared to non-Indigenous students' scores ($F(1,1645)=4.64, p<.05$), whereby Indigenous students' lower overall mean scores ($M=2.58$) compared to mean scores for non-Indigenous students ($M=2.66$), indicated they were more likely aspiring to leave school earlier than non-Indigenous students. No other statistically significant differences were present. An ANOVA was also conducted to test whether aspirations differed for younger (aged 15 and younger) and older students (aged 16 and older). A significant main effect for age group was

present for both Indigenous students ($F(1,496)=6.88, p<.01$) and non-Indigenous students ($F(1,1122)=10.61, p<.01$) whereby younger students in both groups (Indigenous – 2.54, non-Indigenous – 2.61) tended to have lower mean scores in comparison to older students (2.74, 2.75). This indicated that younger students compared to older students planned to leave school as soon as was possible or to leave school before completing year 12 in comparison to the older group, which is not surprising given most of the participants in the older sample had already chosen to go on to year 12. Taken together these results indicate that significantly more Indigenous students aspire to leaving school early in comparison to non-Indigenous students.

Student Preferences for Further Education

In order to identify participating students' post-school aspirations, students' were asked to respond to the question 'What would you like to do after you leave school?' by choosing one of seven options: Go to university, go to TAFE for job training, get a job, work for the CDEP, home duties, go on the dole, or other. The majority of Indigenous students ($n=189, 37.1\%$) aimed to get a job after leaving school. In contrast the majority of non-Indigenous students ($n=660, 44.4\%$) aimed to go to university ($n=1245, 78.6\%$), although a significant proportion of Indigenous students ($n=153, 30.1\%$) shared this aspiration. A higher percentage of Indigenous students (24.6%) compared to non-Indigenous students (19.4%) aimed to go to TAFE. A small number of Indigenous and non-Indigenous students also aimed to undertake home duties or go on unemployment benefits. These results indicate that more Indigenous students are aspiring to go to TAFE in comparison to non-Indigenous students, and more non-Indigenous students are aspiring to go to university in comparison to Indigenous students.

Students were also asked to indicate how much thought they had given to their post-school aspirations and were asked to respond with one of four options focused on elucidating whether students': did not know much about post-school options, were thinking about getting advice in the next 6 months, had decided upon an option and had chosen appropriate subjects, or whether they were at the stage of working hard at the subjects they had chosen to have a good future (i.e. achieving their aspirations). The majority of Indigenous students (27.3%) reported that they were working hard at the subjects they had chosen so that they could have a good future. However, 25.4% of Indigenous students also reported not knowing what sort of job they might be interested in or what sorts of further education they could do after leaving school. Some 48% of Indigenous students, compared to 36.3% of non-Indigenous students reported either not knowing what they would do after they left school or were thinking about getting advice in the next 6 months. As such 11.7% more Indigenous students, compared to non-Indigenous students were unaware of their future options. Whilst 52% of Indigenous students reported being knowledgeable about their career choice and selection of appropriate subjects to achieve their aspirations, 63.8% of non-Indigenous students were aware. As such 11.8% of Indigenous students were less

likely to have identified their future options and selected appropriate subjects compared to their non-Indigenous counterparts.

An ANOVA was conducted on mean scores for awareness ratings to test whether significant differences were present for comparisons of Indigenous and non-Indigenous students' scores. A significant main effect ($F(1, 1568)=13.54, p<.001$) was present, whereby mean scores for Indigenous students ($M=2.54$) were significantly lower than scores for the non-Indigenous students ($M=2.76$). These results indicate that Indigenous students in comparison to non-Indigenous students are less likely to know much about what sort of job they would like to undertake or what sorts of further education and training they could undertake after they leave school. Hence the knowledge base underpinning preferences for Indigenous students is weaker than the knowledge base for non-Indigenous students.

Student Perceptions of the Importance of and Confidence in Achieving Aspirations

In order to identify salient aspirations, students were asked to rate the extent to which a series of stated goals (completing school, attending school, getting good grades, getting a job, making a contribution to society, supporting a family) were important to them using a 6 point Likert scale ranging from 1 'Strongly disagree' to 7 'Strongly agree'.

An examination of mean ratings for Indigenous and non-Indigenous groups shows that Indigenous students in comparison to non-Indigenous students mean ratings were higher for the importance of: attending school, getting good grades, making a contribution to society and their community, and supporting a. Indigenous students' ranked getting a job as the most important goal as did non-Indigenous students. These results indicate that the most important goal to Indigenous and non-Indigenous students is getting the type of job they aspire to.

A series of ANOVAs were undertaken to test for differences between importance ratings for goals for Indigenous and non-Indigenous students. Significant main effects were present for the importance of attending school ($F(1,1619)=5.47, p<.05$), getting good grades ($F(1,1611)=3.68, p<.05$), and contributing to society and community ($F(1,1521)=7.98, p<.01$), whereby Indigenous students ratings of the importance of these goals was significantly higher than ratings by non-Indigenous students. No significant differences were present for the importance of: getting a job, completing school, and supporting a family. These results suggest that Indigenous students consider attending school, getting good grades, and contributing to society and community as more important goals compared to non-Indigenous students. Both Indigenous and non-Indigenous students equally value the importance of: getting a job, completing school, and supporting a family.

Students were also asked to rate the extent of their personal confidence, parents' confidence, and teachers' confidence in regard to whether: they would finish high school, get the job they want, they would be able to contribute to society, and they would be able to support a family. These ratings reflect the extent to which students' and significant others perceive their goals to be achievable. An examination of the

means of Indigenous students' scores, suggest that Indigenous students mostly felt confident that they could achieve their aspirations. A series of ANOVAs were conducted to test for significant differences between Indigenous and non-Indigenous groups. A significant main effect was present for Indigenous students' confidence in relation to contributing to society in comparison to scores for non-Indigenous students ($F(1,1523)=4.26, p<.05$). No other significant main effects were present. These results indicate that Indigenous and non-Indigenous students share similar confidence levels in regard to completing school, getting the type of job they want, and being able to support a family. The results also suggest that Indigenous students feel in comparison to non-Indigenous students, more confident in being able to make a contribution to society and their community.

Students' ratings of their parents' confidence suggest that Indigenous students mostly felt that their parents were confident that they could achieve their aspirations. A series of ANOVAs were conducted to test for significant differences between Indigenous and non-Indigenous groups. No significant effects were present. These results indicate that both Indigenous and non-Indigenous students feel that their parents' have confidence in them achieving their aspirations. Similarly students' ratings of their teachers' confidence, suggest that Indigenous students mostly felt that their teachers were confident that they could achieve their aspirations. A series of ANOVAs were conducted to test for significant differences between Indigenous and non-Indigenous groups. A significant effect was present for students' perceptions of the confidence their teachers had in them being able to get the type of job they aspired to ($F(1,1523)=7.93, p<.01$). Examination of this effect suggests that Indigenous students felt that their teachers were confident that they would get the job they aspired to ($M=4.82$) in comparison to non-Indigenous students' ratings of teachers' confidence ($M=4.63$). No other significant effects were present. These results indicated that both Indigenous and non-Indigenous students feel that their teachers' have confidence in them achieving their aspirations, and that Indigenous students feel in particular that their teachers' are confident that they will be able to achieve their job aspirations.

Student perceptions of the relevance of schooling and further education

In order to identify the extent to which students perceived their current studies and further education to be useful to them in attaining their aspirations, students were asked to rate the extent to which schooling, TAFE, and University would be useful in helping them to attain their aspirations using a 6 point Likert scale ranging from 1 'Not at all useful' to 6 'Very useful'.

An examination of the means of Indigenous students' ratings, suggest that Indigenous students mostly felt that all areas would be somewhat useful to useful. A series of ANOVAs were conducted to test for significant differences between Indigenous and non-Indigenous groups. A significant main effect was present for the usefulness of TAFE for helping students to achieve their aspirations ($F(1,1638)=8.36, p<.01$), whereby Indigenous students rated the usefulness of attending TAFE ($M=3.85, n=504$) higher in comparison to ratings by non-Indigenous students ($M=3.66, n=1136$). No other significant differences were present. These results indicate that whilst Indigenous and non-Indigenous students both perceive schooling and university to be useful for helping them to achieve their aspirations, Indigenous

students perceive TAFE to be more useful to helping them to achieve their aspirations compared to non-Indigenous students.

To further explore students' perceptions in regard to the usefulness of specific school subjects in helping students to achieve their aspirations, students were asked to rate the extent to which specific school subjects (English; math; science; personal development; health and physical education; art and music; and social science) would be useful in helping them to: achieve what they aspired to do after they finished school, do well at TAFE if they went to TAFE after they finished school, and to study at University after they left school on a 6 point Likert scale ranging from 1 'Strongly disagree' to 6 'Strongly agree'.

Examination of the means suggests that Indigenous students most highly value maths and physical education as useful school subjects for helping them to achieve what they want to do after they leave school. A series of ANOVAs were conducted to test for significant differences between Indigenous and non-Indigenous groups. Significant main effects were present for math, science, physical education, art and music, and social science subjects, whereby Indigenous students rated the usefulness of these subjects in helping them to achieve their aspirations higher than compared to non-Indigenous students. No significant effects were present for English subjects. These results suggest that Indigenous students value most school subjects as more useful in helping to achieve their aspirations compared to non-Indigenous students, with the exception of English subjects which were equally valued by both Indigenous and non-Indigenous students.

An examination of mean scores for Indigenous and non-Indigenous students' perceptions in regard to the usefulness of specific school subjects for helping them to do well at TAFE if they went to TAFE after they finished school suggests that Indigenous students most highly valued English and mathematics. A series of ANOVAs were conducted to contrast Indigenous and non-Indigenous students' perceptions. Significant main effects were present for all subjects, with the exception of English. These results suggest that Indigenous students perceive all subjects to be more useful in helping them to do well at TAFE compared to non-Indigenous students, with the exception of English which was equally valued by Indigenous and non-Indigenous students.

An examination of mean scores for Indigenous and non-Indigenous students' perceptions in regard to the usefulness of specific school subjects for helping them to do well at university if they went to university after they finished school suggests that Indigenous students most highly valued English and mathematics and somewhat agreed to agreed that these subjects would be useful. A series of ANOVAs were conducted to contrast Indigenous and non-Indigenous students' perceptions. Significant main effects were present for ratings of the usefulness of science, physical education, art and music, and social science, whereby Indigenous students rated these subjects as more useful for helping them with university studies compared to non-Indigenous students. No significant differences were present for math and English, which both Indigenous and non-Indigenous groups equally valued. These results indicate that Indigenous students compared to non-Indigenous students perceive science, physical education, art and music, and social science to be useful for helping them with university, compared with non-Indigenous students. Both Indigenous and

non-Indigenous students equally valued maths and English as subjects that were useful for helping them with university.

Sources and Usefulness of Career Advice

In order to identify the frequency of advice received from arrange of sources and glean students' perceptions as to the usefulness of this advice students were asked to rate how often they got career advice from different people/sources on a 5 point Likert scale ranging from 1 'Never' to 5 'Very often' and rate the extent to which they had found this advice useful on a Likert scale ranging from 1 'Not useful' to 5 'Very useful' .

An examination of the means of Indigenous students' ratings show that Indigenous students most frequently obtain career advice from family and the mean score suggests they do this between often to very often. The next most frequent sources were friends (often), followed by teachers (a little to often) and community members (a little), then careers advisors (a little). Interestingly the source the get least advice from is Centrelink (almost never to a little) and government organisations (almost never to a little). These results suggest that family and friends are the most frequently consulted sources for career advice for both Indigenous and non-Indigenous students. This is of concern in regard to Indigenous students, given that many Indigenous families historically have not been able to access appropriate education and as such their educational and career opportunities have been limited. Indigenous peers may also be at an early stage of understanding potential options for further education and as such may experience difficulty in providing informed advice.

A series of ANOVAs were conducted in order to ascertain whether the frequency of advice from sources was significantly different for Indigenous and non-Indigenous students. Significant differences were present for all sources with the exception of TV and radio and newspapers. Indigenous students in comparison to non-Indigenous students reported that they more often got advice from the sources listed. However, the amount of advice even Indigenous students reported receiving from most sources was very little with the exception of family where advice was sought often. These results suggest that whilst Indigenous students report receiving more frequent advice from a wide range of sources in comparison to Indigenous students with the exception of the media, the actual amount of advice that they receive from most sources with the exception of family is 'a little'.

An examination of the means of Indigenous students' ratings in relation to how useful they have found the advice from a variety of sources show that ratings reflecting usefulness are similar in pattern to the ratings of frequency of advice. Indigenous students rate advice from family as the most useful, followed by advice from friends (useful) and teachers (a little useful to useful). The advice Indigenous students have found least useful is advice from the media, other community organisations and Centrelink. These results suggest that family and friends are the most useful sources for career advice for both Indigenous and non-Indigenous students.

A series of ANOVAs were conducted in order to ascertain whether the usefulness of advice from sources was significantly different for Indigenous and non-Indigenous students. Significant main effects were present for the usefulness of advice from family, members of my community, other community members, TAFE, career expos, Centrelink, and government organisations. Indigenous students in comparison to non-Indigenous students rated the usefulness of advice received from these groups as more useful in comparison to non-Indigenous students. No significant differences were present for the usefulness of advice from teachers, careers advisors, TV and radio, newspapers, and universities. Both groups viewed the usefulness of advice from these sources similarly. These results suggest that Indigenous students compared to non-Indigenous students consider the advice that they receive from 7 specific sources as more useful than non-Indigenous students perceive such advice to be. In particular, Indigenous students in comparison to non-Indigenous students particularly perceive advice from the family to be useful. The mean scores assigned to the usefulness of all sources of advice with the exception of advice from family suggest overall that the quality of advice received is often only somewhat useful.

Barriers to Achieving Aspirations

In order to identify students' perceptions of what barriers might impede them from achieving their aspirations students were asked to rate the extent to which they felt 9 factors (support of teachers, support of family, school absences, school achievement, availability of further education facilities, available job opportunities, employer attitudes, knowledge of what further education or job training advice they needed to achieve their goals, amount of career advice they had received) might limit or stop them from achieving what they wanted to do after they left school on a 5 point Likert scale ranging from 1 'not at all' to 5 'a great deal'.

An examination of the mean responses from Indigenous students identified family support as the key barrier to achieving their goals, followed by the amount of career advice they had been given, their knowledge of what further education or job training they needed to do, and their academic achievement. Interestingly school absences were seen as the least barrier to their future. Non-Indigenous students also saw family support as a key barrier but the mean score assigned to this variable was lower than for Indigenous students. Interestingly their record of achievement at school was seen as the next barrier. These results suggest that whilst family support is a barrier for both Indigenous and non-Indigenous students, for Indigenous students the next key barriers are in relation to the amount of career advice they had received and their knowledge of what further education and training they needed to. Hence barriers identified by Indigenous students included access to information to help them better plan their futures. It is particularly disturbing to note that both Indigenous and non-Indigenous students saw family support as a key barrier. However, higher ratings from Indigenous students were evidenced. These results suggest that the amount of support and encouragement students are receiving from family may limit students from achieving their aspirations.

A series of ANOVAs was undertaken to test for differences between Indigenous and non-Indigenous students' perceptions of barriers to achieve their aspirations. Significant main effects were present for all barrier variables, whereby Indigenous

students compared to non-Indigenous students rated all barriers with higher scores in regard to limiting or stopping them from achieving what they want to do. These results are astounding as to the consistency of significant effects across all variables and as to the strength of these effects (F values range from 11.37 to 28.61, $p < .001$) and suggest that Indigenous students anticipate many barriers in the process of trying to achieve their aspirations.

Given the strength of effects a series of cross-tabulations was undertaken to further scrutinize the data in relation to each barrier variable. A total of 52.7% of Indigenous students reported that to 'a great deal' the amount of support and encouragement they get from their family will limit or stop them from achieving their aspirations. Given 39% of non-Indigenous students also responded in the same manner, an additional 13.7% of Indigenous students reported that family support would limit or stop them from achieving their aspirations. Overall 43.2% of the combined student sample reported that family support would limit or stop them from achieving their aspirations. This finding suggests that family support is a key barrier to Indigenous students achieving their aspirations and is also of concern to many non-Indigenous students.

It is disturbing to note that 42.1% of Indigenous students perceived that the amount of career advice that they had been given in how to go about achieving their goals would limit or stop them from achieving their aspirations to a great deal. These results suggest that many Indigenous students are not receiving adequate quality career education advice.

A total of 31.2% of Indigenous students reported that their school achievement would limit or stop them from achieving their aspirations to 'a great deal'. In comparison to non-Indigenous students (26.6%) this figure contained an additional 14.6% of the Indigenous population sample. These findings reflect the educational disadvantage that Indigenous students experience.

It is disturbing to note that 42.1% of Indigenous students reported that their knowledge of what further education or job training they needed to do to achieve their goals would limit or stop them from achieving what they wanted to do after they left school to 'a great deal'. In comparison to non-Indigenous students (28.4%) this figure contained an additional 13.7% of the Indigenous population sample. These findings suggest that Indigenous students feel that the amount of knowledge they have in regard to career education might limit or stop them from achieving their aspirations.

A total of 36.9% of Indigenous students reported that access to further education facilities in their local area would limit or stop them from achieving what they wanted to do after they left school to 'a great deal'. In comparison to non-Indigenous students (27.2%) this figure contained an additional 9.7% of the Indigenous population sample. These findings suggest that access to further education facilities in the local area is perceived by some 36.9% of Indigenous students participating in this study as a barrier that might limit or stop them from achieving their aspirations.

A total of 29.8% of Indigenous students reported that employer attitudes towards people from their culture would limit or stop them from achieving what they wanted to do after they left school to 'a great deal'. In comparison to non-Indigenous students (21.2%) this figure contained an additional 8.6% more of the Indigenous population

sample. A total of 32.2% of Indigenous students reported that employer attitudes would 'somewhat' limit their future aspirations in comparison to 21.7% of the non-Indigenous population. As such 62% of Indigenous students reported that employer attitudes may limit their aspirations, in contrast to 42.9% of non-Indigenous students ratings for these variables, such that 19.1% more of the Indigenous sample expressed that employer attitudes may be a barrier to their aspirations. These findings suggest that Indigenous students perceive that employer attitudes might limit or stop them from achieving their aspirations.

A total of 29.6% of Indigenous students reported that the available job opportunities in the local area would limit or stop them from achieving what they wanted to do after they left school to 'a great deal'. In comparison to non-Indigenous students (21.9%) this figure contained an additional 7.7% more of the Indigenous population sample. These findings suggest that Indigenous students perceive that job opportunities in their area might limit or stop them from achieving their aspirations.

A total of 29.5% of Indigenous students reported that the amount of support and encouragement that they receive from their teachers would limit or stop them from achieving what they wanted to do after they left school to 'a great deal'. In comparison to non-Indigenous students (17.3%) this figure contained an additional 12.2% more of the Indigenous population sample. These findings suggest that more Indigenous students perceive that teacher might limit or stop them from achieving their aspirations.

A total of 22.1% of Indigenous students reported that the number of days they had been away from school would limit or stop them from achieving what they wanted to do after they left school to 'a great deal'. In comparison to non-Indigenous students (13.8%) this figure contained an additional 8.3% more of the Indigenous population sample. These findings suggest that more Indigenous students perceive that being absent from school might limit or stop them from achieving their aspirations.

The role of self-concept

In order to elucidate the relation between self-concept and students' aspirations multiple dimensions of self-concept were measured. An examination of means shows that mean Indigenous students' mean self-concept scores were highest for parent, general, physical and same sex self-concept. Non-Indigenous students' self-concepts were highest for same sex, parent, and general self-concept.

A series of ANOVAs were undertaken to test for significant differences between self-concept levels of Indigenous and non-Indigenous students. Significant main effects were present for appearance, general, physical, and art self-concept, whereby Indigenous students scores were higher compared to non-Indigenous students' scores. Significant effects were also present for math, school, verbal, honesty, emotional, opposite sex and same sex relations self-concept, whereby scores for Indigenous students were lower compared to scores for non-Indigenous students. No significant differences were present for parent self-concept. Indigenous students have higher self-concepts compared to non-Indigenous students in the stereotypical facets of art and physical self-concept as well as general and appearance self-concept. However, Indigenous students self-concepts are lower compared to non-Indigenous students'

scores for academic facets of self-concept (math, school, verbal), peer relations (opposite sex, and same sex relations) and honesty, emotional self-concept. These results demonstrate that for 7 of 11 facets of self-concept measured Indigenous students had lower self-concept compared to their non-Indigenous peers.

A multiple regression analysis was undertaken to test the relation between academic self-or non-Indigenous) and schooling aspirations and future aspirations. Academic self-concept was found to have a strong positive relation with schooling aspirations ($B=.27$, $p<.001$) and future aspirations ($.17$, $p<.001$). Ethnicity was shown to have a small positive relation with schooling aspirations ($B=.07$, $p<.01$) and future aspirations ($B=.06$, $p<.01$). These results suggest that academic self-concept has an important relation to schooling aspirations and future aspirations, whereby a positive academic self-concept is related to wanting to stay on longer at school and wanting to undertake further education. The results also suggest that ethnicity can have a small positive relation with schooling aspirations and future aspirations, whereby non-Indigenous students compared to Indigenous students have higher aspirations.

Given the above results in relation to self-concept it is important to emphasize the significance of these results. Results from an established literature have demonstrated that academic self-concept has a causal impact on academic achievement and a variety of desirable outcomes (e.g. school attendance, course selection, going to university – see Craven, Marsh & Burnett, in press, for an overview) such that enhancing academic self-concept results in enhancing academic achievement beyond levels determined by prior academic achievement alone. As such enhancing self-concept is a vital tool for maximizing Indigenous students' human potential which has been long recognized. For example, the *Australian Royal Commission into Aboriginal Deaths in Custody* (Johnston 1991) identified low self-esteem as a critical variable contributing to Aboriginal disadvantage and deaths and recently, the New South Wales Department of Aboriginal Affairs has emphasised that: "The key reason for Aboriginal children being disadvantaged educationally, is that the current education system fails to acknowledge the vital importance of maximizing Aboriginal children's self-concept as the critical link between schooling and successful outcomes" (Burney, 2002). This critical importance of self-concept for participation in schooling was highlighted by the National Board of Employment, Education and Training (NBEET) (1995, p. 2) study finding that "a significant number of students, when asked to reflect on why they had left schools, said that they had felt depersonalised and had lost self esteem" (p. 45). Recognising this as a critical finding the NBEET (1995, p. xi) study listed as the first conclusion that Aboriginal students need to "develop a strong sense of personal identity and self-esteem". Indeed, recent research for the Commonwealth found that a strong sense of identity self-concept for Aboriginal children and young people is related to successful educational outcomes (Purdie, Tripcony, Boulton-Lewis, Fanshawe, & Gunstone, 2000). Hence, in Australia government reports have acknowledged enhancing self-esteem as a vital key to improve educational outcomes for Aboriginal Australians.

Whilst maximising and enhancing Aboriginal students' self-concepts is acknowledged as an important goal in itself it is also widely valued for its presumed impact on other desirable educational outcomes. For example, Smith (1993, p. 30) noted that if an Aboriginal child does not feel part of the class "this may have negative consequences to the child's self-esteem, which often affects the child's ability to succeed socially

and academically in the classroom". Gibson (1993, p. 43) also asserted that what needs to be acknowledged is "the influence of low self-esteem in contributing to the relatively low academic achievement of urban students". These anecdotal conclusions by experienced educators are further evidenced by NBEET's (1995, p. x) study conclusion which emphasised that "Aboriginal young people have a strong and growing sense of identity which, if recognised and supported by the school, can support academic achievement" and further identified the key objective of the need to assist "Aboriginal students in their personal development, especially in the area of identity and self-esteem" (p. xvi). Hence enhancing self-concept of Aboriginal students is also considered to be an important mediating variable that positively affects academic achievement and other desirable outcomes.

In a report to the NSW Minister for Education and Training advocating the need for self-concept research to be undertaken, the NSW AECG emphasised that it has "on numerous occasions raised with concern the lack of quality research into Aboriginal education" (Davison, 2001, p. 1). Hence whilst reports, Aboriginal Education State/Territory policy statements, and Aboriginal Education organisations have emphasised the need to maximise Aboriginal students' self-concepts, the lack of research in this area means that education authorities and teachers have little basis on which to do so. Moreover, teachers have not been provided with: the means to accurately assess Indigenous students' self-concept; evidence to demonstrate the value and rationale for enhancing Indigenous students' self-concepts as a critical goal of schooling; demonstrated effective practical strategies for enhancing Indigenous students' self-concepts in school contexts; nor appropriate educational theory and demonstrated research evidence on which to base school and classroom practice.

Hence the results in relation to self-concept in the present investigation suggest that Indigenous students do indeed have lower self-concepts in relation to academic facets of self-concept. As such these results are particularly disturbing in that a body of research has demonstrated that a positive self-concept impacts on academic achievement and other desirable educational outcomes (see Craven, Marsh and Burnett, in press; Marsh, 2002). The results also demonstrate that Indigenous students' self-concepts can be reliability measured by the instrument utilized in this study, and provide strong support for the body of theory and research that this instrumentation emanates from (see Craven, Marsh and Burnett, in press; Marsh and Craven, 1997). The latter provides a sound foundation for developing potentially potent interventions to enhance Indigenous students' academic self-concepts, which seems a vital initiative given the results described above.

Implications of the Findings

A number of key implications ensued from these findings including:

11. That effective strategies need to be put in place to assist Indigenous students set and attain higher schooling, future education and employment aspirations, including strategies that in particular encourage more Indigenous students to aspire, achieve entry and be positioned to successfully complete University.

I2 Maximizing Indigenous students' ability to enter the workforce has the potential to assist in strengthening the number of working Australians committed to addressing critical social issues of our time.

I3 Indigenous students highly value schooling as relevant but would benefit from career advice that enabled them to more readily discern the specific relevance of school subjects as a foundation to achieving their aspirations.

I4 It is important for education systems to perceive and address career education as a key component of schooling and fundamental to life education.

I5 It is particularly important for Indigenous students to have access to accurate career education advice from a wide range of informed sources.

I6 Government organisations need to develop strategies for enhancing the quality of career advice available to Indigenous students by synthesizing career advice for a diversity of industries in a range of media (e.g. websites, printed publications), encouraging career advisors to verbally explain the availability of these materials and in particular how to access Internet resources to Indigenous students; offering expert verbal advice tailored to individual needs (e.g. a free telephone consultation source), and promoting the availability of strategic guides to the use of such resources in an accessible manner to Indigenous students (e.g. t-shirts, stickers, bookmarks, posters).

I6 Indigenous students need a much stronger knowledge foundation to serve as a basis for shaping and casting achievable aspirations.

I7 A perceived lack of support and encouragement from family may limit Indigenous students from achieving their aspirations.

I9 Implementing effective strategies to optimise student resiliency, academic self-concept, and determination to succeed would be beneficial for assisting Indigenous students to achieve their aspirations.

I10 Parents of Indigenous children need to be empowered with information that can assist them to help their children define, access information about and achieve their aspirations.

I11 Enhancing Indigenous students' academic self-concepts needs to be seen as a priority and fundamental to ensuring that Indigenous students set and attain academic aspirations commensurate with non-Indigenous students.

I12 Parents of Indigenous children need to be well-informed as to the potential of their influence in shaping their children's future aspirations.

I13 The broader socio-economic issues that result in Indigenous families being in lower SES groups, need to be addressed and compensated for in addressing short and long-term strategies for improving Indigenous aspirations.

I14 Strategies need to be put in place to: monitor and address Indigenous students' absentee rates, foster and encourage Indigenous students' enjoyment of school, and encourage teachers to acknowledge Indigenous students' achievements to position students to attain their aspirations.

The implications emanating from the study findings summarized above, have the potential to facilitate an important turning point in Indigenous Education. To translate the implications of the study into action is a vital challenge. The primary report also put forth some possible ideas as a foundation for stimulating discussion in relation to how some of the implications of the study could potentially be actioned by various stakeholders. Some of these ideas include:

- Strengthening and reconceptualizing university recruitment strategies;
- Strengthening career education in the schooling sector;
- Facilitating Indigenous student access to accurate career and further education advice;
- Optimizing Indigenous family support and encouragement;
- Addressing barriers to Indigenous students' achieving their aspirations;
- Strengthening Indigenous students' psychological tools; and
- Capitalising on the goodwill of Australia's governments, industry and business sector to facilitate employment.

Summary

In summary, Indigenous Australians dream of a future that results in getting a job that makes a difference to community and social issues, however, their perceptions of what is attainable are limited by external factors that seem to impede Indigenous students imagining (as a basis for shaping and creating) their preferred futures. As James Wilson-Miller renowned Aboriginal historian says: "Australia is far better than it once was for Indigenous people but not as good as it might become". The findings of this study suggest that there is much work to be done to address Indigenous Australians' perceptions and make Indigenous Australians' dreams a reality.

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