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**Turning Points in Indigenous Education: New Findings That Can Really Make a Difference and Implications for the Next Generation of Indigenous Education Research**

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Indigenous Australians have been recognised by all Australian governments as the most educationally disadvantaged Australians. As such, Australian education has failed to provide Indigenous Australians with commensurate educational outcomes as their non-Indigenous peers. In part this failure can be attributed to a dearth of quality Indigenous Education research. Recently three large-scale commissioned Department of Education, Science and Training studies have been undertaken (Craven, Tucker, Munns, Hinkley, Marsh, and Simpson, 2005; Craven, Halse, Marsh, Mooney, & Wilson-Miller, 2005a; 2005b). The findings of these studies offer some potentially powerful turning points for Indigenous Education. The first study critically analysed secondary Indigenous students' self-concepts; aspirations; and perceptions of barriers to attain their aspirations in comparison to their non-Indigenous peers and important implications for reconceptualising educational strategies for Indigenous secondary students were identified. The remaining studies critically analysed the impact of undertaking Indigenous Studies teacher education courses on preservice and postgraduate primary teachers' abilities to teach Indigenous Studies and Indigenous students. Results demonstrate that Indigenous Studies teacher education courses make a positive difference. These studies also have important implications for strengthening Indigenous Education research. The purpose of this paper is to present an overview of the: (a) empirical results of these investigations; (b) implications of the findings for Indigenous Education; and (c) implications of this research for strengthening the next generation of Indigenous Education research.

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*There can be no keener revelation of a society's soul than the way it treats its children.*

**Nelson Mandela, 1995.**

The words of Nelson Mandela are particularly apt in relation to Indigenous children in Australia since they continue to be significantly more disadvantaged than their non-Indigenous peers on all socio-economic indicators. Education is fundamental to grasping life opportunities, yet clearly Australian education systems have failed generations of Indigenous children by not empowering Indigenous students to realise their full human potential and achieve outcomes commensurate with their peers. Whilst enhancing Indigenous children's educational outcomes is fundamental to 'breaking the cycle', it needs to be recognised that the majority of non-Indigenous teachers have never even met an Indigenous person prior to meeting Indigenous students in their classroom. As such many Australian teachers are often ill-equipped to either understand or address Indigenous children's educational disadvantage as a complex and critical social justice issue of our time. Furthermore, the historical and ongoing omission of Indigenous Studies from many Australian preservice teacher education courses serves to compound and perpetuate this problem, resulting in new generations of teachers not being taught the knowledge and skills to understand and effectively teach both Indigenous children and all Australian children about Indigenous Australia. Yet teacher education is fundamental to addressing Indigenous education disadvantage and entrenched ignorance about Indigenous Australia, and vital to ensuring genuine reconciliation between Indigenous and non-Indigenous Australians.

These problems have been further compounded by the lack of quality Indigenous education research in Australia (Bin-Sallik, Blomely, Flowers, & Hughes, 1994a, 1994b; Bourke, Dow & Lucas, 1994; Craven & Parente, 2003; Craven & Tucker, in press). Even a cursory search of education databases demonstrates that Indigenous education research is not underpinned by a scholarly body of research findings. Existing research is also plagued by methodological flaws including: a preponderance of 'one shot' studies; weak research designs; a lack of empirical research based on large sample sizes; unsophisticated research methodology; cross-sectional data rather than longitudinal data that would allow stronger tests to identify key variables and evaluate potentially powerful programs for change; and atheoretical approaches (Craven, Tucker, Munns, Hinkley, Marsh, & Simpson, 2005). Also of the

intervention programs designed to address Indigenous educational disadvantage and teacher education, very few have been evaluated by sound empirical research to demonstrate that the stated aims of the intervention have resulted in tangible outcomes. Theory, research and practice are inextricably intertwined, and neglect in any one area will undermine the other areas. Hence it is unlikely that either Indigenous educational disadvantage or ignorance about Indigenous Australia in the broader community can be effectively addressed unless intervention is firmly founded upon theory and research.

Recently, the Commonwealth of Australia commissioned three large-scale research studies with a significant empirical component to begin to address some of these issues. The first study critically analysed secondary Indigenous students' self-concepts; aspirations; and perceptions of barriers to attain their aspirations in comparison to their non-Indigenous peers. The remaining studies critically analysed the impact of undertaking Indigenous Studies teacher education courses on preservice and postgraduate primary teachers' abilities to teach Indigenous Studies and Indigenous students. Taken together these three studies are rare large-scale empirical studies focused on Indigenous education issues. The findings of these studies offer some potentially powerful turning points for Indigenous education and have implications for the next generation of Indigenous education research. The purpose of this paper is to present an overview of some of the: (a) empirical results of these investigations; (b) implications of the findings for Indigenous Education; and (c) implications of this research for strengthening the next generation of Indigenous Education research.

## **Background Context**

### ***Education the Cornerstone of Social Justice for Indigenous Students***

An Organisation for Economic Co-operation and Development (OECD) (Artelt, Baumert, Julius-McElvany, & Peschar, 2003) study has demonstrated that Australia is falling behind other industrialised countries in closing the ever increasing gap in academic attainments of its best and poorest students, the latter of whom are primarily Indigenous Australians. National reports and all Australian governments

have also acknowledged that Indigenous Australians are significantly educationally disadvantaged and participate less in education compared to the rest of the population (e.g. Hughes, 1988; Commonwealth of Australia, 1994; 1995; 2002). Yet as Linda Burney - a leading Indigenous politician has emphasised: “Education is the corner stone of social justice, because it is the basis of opportunity. ... It is education that can bring about equity — equity of outcomes” (Burney, 2003). However, education has failed and continues to fail generations of Indigenous students. For example, Year 12 retention rates for Indigenous Students in 2001 were 36.4% compared to 73.3% for non-Indigenous students (Department of Education, Science and Training (DEST), 2001, p. 1). Of those Indigenous students who stay at school they are “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). Furthermore, despite a strong commitment by the Commonwealth “there is no consistent forward trend in improving the well-being of Indigenous peoples, and particularly no forward trend towards a reduction in the disparity between Indigenous and non-Indigenous Australians” (Jonas, 2003; p. 17). Hence there is a dire need to develop strategic directions for identifying new solutions to underpin effective intervention.

### ***Teacher Education: A Vital Key to Reconciliation***

Further compounding the above problem is historically preservice teachers have not been taught how to teach either Indigenous students or Indigenous Australian Studies despite decades of reports calling for the introduction of mandatory Indigenous Studies teacher education courses (e.g. Aboriginal Consultative Group, 1975; Australian College of Education, 1999; Australian Council of Deans of Education, 1998, 2001; Craven, 1999a; 1999b, 2000, 2003; National Aboriginal Education Committee; 1986). To expedite this process, the Teaching the Teachers: Indigenous Australian Studies Project of National Significance (Craven, 1996a; 1996b; 1996c; 1996d; 1999) was commissioned by the Commonwealth to develop theoretical models for designing core Indigenous Australian Studies teacher education courses, a model teacher education subject, and example teacher-orientated resources. This project has resulted in a historic shift in education whereby subsequent to the

project's launch some 50% of primary teacher education courses now offer a core Indigenous Studies course (Dunkin, 2002). However the effectiveness of these recently introduced courses has not been evaluated to ascertain if the aims of such courses are resulting in the expected outcomes. This is unfortunate as such research could serve to strengthen teacher education in this area and act as an impetus to encourage the 50% of preservice primary teacher education institutions who have not introduced such courses to consider the advantages of doing so.

### ***The Dearth of Indigenous Education Research***

Whilst it is clear that the issues in relation to Indigenous education are dire, there has been a dearth of research in Indigenous Studies research in relation to schooling (see Bin-Sallik et al. 1994a, 1994b; Bourke et al., 1994; Craven & Parente, 2003; Craven & Tucker, in press). For example, Bin-Sallik et al. (1994) in their seminal review of Indigenous Education research noted that much of the literature they reviewed was descriptive (1994a, p. 36); in general "there is almost no empirical research" (p. 7); there is "a noticeable absence in the current literature, of analysis of how 'to get things done'" (1994b; p. 19), and they found a very small number of references to the schooling sector. A decade later, Mellor and Corrigan (2004) in reviewing contemporary Indigenous education research also lamented the lack of empirical research noting that: "There is not, in Australia, a research tradition of quantitative measurement in the Indigenous education literature. To ignore such measurement only continues to do injustice to the gravity of the problem" (p. 46-47). They also noted that the research methodology employed in current studies is limited by factors such as: small case studies; focusing on a small subset of the population (e.g. communities with a high Indigenous population); isolating Indigenous education research from the broader discourses in other disciplines such as psychology, sociology and health; and that the relation between cause and effect has been asserted rather than demonstrated by research (p. 46). Mellor and Corrigan also lamented that many of the issues considered in their review are "the subject of long-held conversations in the Indigenous and social communities. The lack of formalisation of these conversations in the academic or policy research regimes and conventions means that they do not impact on the literature in the way that they should" (p. 3). They also suggested that: "the first

step, as with any other populations, is to research Indigenous views of the desired education outcomes”.

Craven and Tucker (in press; also see Craven & Parente, 2003) were commissioned by NSW Aboriginal Education Consultative Group (AECG) to ascertain their members’ perspectives of the importance of undertaking self-concept research to address Indigenous Education issues and strategic research directions. Focus group discussions were held with 18 AECG regional representatives, and 20 members of the AECG. Individual follow-up interviews were conducted with 11 AECG regional representatives deriving from 7 AECG regions and the State Secretariat. Content analysis was undertaken by two coders to identify key themes, and results were scrutinized by the State Executive of the AECG who served as experts in checking the results. The results demonstrated that AECG members view self-concept research as critically important for addressing Indigenous students’ educational and economic disadvantage. Craven and Tucker also emphasised “it is disturbing to note that no participants were aware of any research being conducted in their communities...This lack of proactive research funding strategies is counter-conducive to addressing continued Aboriginal educational and economic disadvantage and shaping better futures for Aboriginal Australians”. Craven and Tucker concluded that “Aboriginal community members consider there is a dire need for more Aboriginal Education research to be undertaken. As such, governments need to be more proactive in stimulating and funding Aboriginal Education research as a national priority”.

### **New Directions**

Recently the Department of Education, Science and Training commissioned three large-scale studies that contribute to addressing some of the above issues. Whilst these studies have qualitative and quantitative components in this paper the quantitative findings are summarised to focus the paper on rare empirical studies in Indigenous education research. The first study sought to examine Indigenous students’ aspirations, barriers to achieving aspirations, sources and usefulness of career advice, and self-concepts in comparison to their peers (Craven, Tucker, Munns, Hinkley, Marsh, and Simpson, 2005). The second study (Craven, Halse, Marsh, Mooney, & Wilson-Miller, 2005a) examined the impact of 3 different types

of teacher education courses (Indigenous Studies as a core or elective subject or a perspective across the curriculum) on preservice primary teachers' abilities and commitment to teach Indigenous Studies and Indigenous students. The third study (Craven, Halse, Marsh, Mooney, & Wilson-Miller, 2005b) analysed the impact of undertaking a core Indigenous Studies teacher education subject on Australian primary teachers' abilities and commitment to teach Indigenous Studies, and Indigenous students in comparison to primary teachers who had not undertaken such a course. In the following section the results and implications of these studies are summarised separately for each study and the implications for future Indigenous education research are discussed.

***'Indigenous Students' Aspirations: Dreams, Perceptions and Realities' - The Craven, Tucker, Munns, Hinkley, Marsh, and Simpson (2005) Study***

**Research design.** Craven et al. (2005) compared and contrasted Indigenous and non-Indigenous secondary students' academic and non-academic self-concepts, schooling and post-schooling aspirations; and the relation of SES and academic self-concept to educational outcomes. They also examined the key sources and quality of career advice received; and the barriers students may face in achieving their aspirations. A total of 1673 students (524 Indigenous and 1149 non-Indigenous) from urban and rural regions from 3 Australian States (New South Wales, Queensland, & Western Australia) participated in the quantitative component of the study by completing a survey. Indigenous and non-Indigenous student participants were drawn from the same secondary schools in each geographical location.

The SDQII-Short (Marsh, Ellis, Parada, Richards, & Heubeck, in press) was used to measure self-concept and general self-esteem. A researcher-devised scale was used to measure Art self-concept. Researcher-devised likert scales were utilized to measure students': aspirations, SES, efficacy in achieving future goals; school enjoyment; school absences; perceptions of their teachers' ratings of their overall academic ability; perceptions of the usefulness of education for achieving their aspirations; key sources and usefulness of career advice; the amount of thought they had given to achieving their aspirations; and perceptions of barriers to achieving aspirations. The survey was read aloud to class or year groups of students at school.



Descriptive statistics, MANOVAs and ANOVAs were conducted to compare students' perceptions. To test the relation of SES and academic self-concept to educational outcomes path analyses were undertaken based on the total group, Indigenous group, and the non-Indigenous group.

***The nature of aspirations.*** Craven et al. found that significantly more Indigenous students in comparison to non-Indigenous students aimed to leave school before completing Year 12 ( $F(1,1645)=4.64, p<.05$ ). Many Indigenous students (37.1%) aimed to get a job after leaving school whereas most non-Indigenous students aimed to go to university (78.6%), although a large proportion of Indigenous students (30.1%) shared this aspiration, less than half the percentage of Indigenous students in comparison to non-Indigenous students aspired to go to University. Interestingly, a higher percentage of Indigenous students (24.6%) compared to non-Indigenous students (19.4%) aimed to undertake vocational education and training as a post-schooling option. In addition, Indigenous students rated the usefulness of attending TAFE ( $M=3.85$ ) significantly higher in comparison to ratings by non-Indigenous students ( $M=3.66$ ) and no significant differences were present in regard to the usefulness of schooling and university.

Craven et al. also asked students to indicate how much thought they had given to their post-school aspirations. 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, hence more Indigenous students, compared to non-Indigenous students were unaware of their future options.

***Key sources and usefulness of career advice.*** Craven, Tucker et al. based on an examination of the means of students' ratings found that both Indigenous and non-Indigenous students most frequently obtain career advice from family and friends. However, Indigenous students' ratings were statistically significant in comparison to non-Indigenous students' ratings indicating that they more often got advice from most of the sources listed (see Table 1). However, the amount of advice even Indigenous students reported receiving from most sources was very little with the exception of family and friends.

Indigenous students in comparison to non-Indigenous students rated the usefulness of advice received from family, members of my community, other



*Table 1: Mean scores for Indigenous and non-Indigenous students and results of ANOVAs*

	Indigenous		Non-Indigenous		F	Sig.
	M	SD	M	SD		
<i>Usefulness of Schooling/Further Education</i>						
Value School	3.88		3.85		$F(1,1642)=.23$	
Value TAFE	3.85		3.66		$F(1,1638)=8.36$	**
Value University	4.02		4.07		$F(1,1637)=.47$	gg
<i>Extent of Career Advice</i>						
Family	4.42	.88	4.22	.95	$F(1,1603)=15.09$	***
Friends	3.87	1.04	3.82	1.01	$F(1,1607)=.88$	
Teachers	3.49	1.12	3.26	1.14	$F(1,1612)=13.37$	**
Community members	3.32	1.28	2.85	1.26	$F(1,1608)=46.40$	**
Careers advisor	3.25	1.25	3.08	1.30	$F(1,1603)=6.20$	*
TAFE (Vocational training)	3.21	1.39	2.83	1.37	$F(1,1605)=25.36$	***
Universities	3.15	1.46	2.98	1.47	$F(1,1601)=4.73$	*
Career Expos	3.15	1.42	2.75	1.36	$F(1,1600)=29.42$	***
Newspapers	3.03	1.31	2.96	1.23	$F(1,1609)=1.20$	
Other community Organisations	2.97	1.29	2.49	1.23	$F(1,1604)=51.28$	***
TV and radio	2.97	1.30	2.89	1.24	$F(1,1609)=1.24$	
Government Organisations	2.91	1.41	2.54	1.35	$F(1,1604)=25.33$	***
Centre link (Government employment agency)	2.90	1.38	2.45	1.34	$F(1,1599)=37.31$	***
<i>Usefulness of Career Advice</i>						
Family	4.34	.94	4.20	.94	$F(1,1600)=7.77$	**
Friends	3.88	1.08	3.85	1.02	$F(1,1602)=.15$	
Teachers	3.63	1.20	3.59	1.16	$F(1,1604)=.65$	
Community members	3.56	1.25	3.15	1.25	$F(1,1597)=35.64$	***
Careers advisor	3.59	1.25	3.65	1.25	$F(1,1599)=.65$	
TAFE (Vocational training)	3.47	1.37	3.23	1.37	$F(1,1595)=10.33$	***
Universities	3.54	1.46	3.47	1.43	$F(1,1593)=.81$	
Career Expos	3.39	1.39	3.16	1.38	$F(1,1591)=9.63$	**
Newspapers	3.10	1.30	3.05	1.21	$F(1,1593)=.51$	
Other community Organisations	3.14	1.29	2.81	1.25	$F(1,1593)=22.90$	***
TV and radio	3.03	1.28	2.96	1.22	$F(1,1596)=1.06$	
Government Organisations	3.20	1.41	2.84	1.38	$F(1,1591)=21.28$	***
Centre link (Government employment agency)	3.15	1.36	2.83	1.37	$F(1,1593)=17.70$	***
<i>Barriers to Achieving Aspirations</i>						
Family support	3.98	1.37	3.54	1.52	$F(1,1520)=29.76$	***
Career advice	3.84	1.29	3.41	1.36	$F(1,1510)=32.08$	***
Achievement	3.78	1.15	3.52	1.29	$F(1,1509)=13.56$	***
Knowledge	3.78	1.32	3.48	1.36	$F(1,1506)=15.73$	***
Facilities	3.73	1.31	3.39	1.39	$F(1,1506)=19.91$	***
Employer attitudes	3.63	1.26	2.96	1.52	$F(1,1495)=68.98$	***
Job opportunities	3.60	1.28	3.36	1.28	$F(1,1501)=11.37$	***
Teacher support	3.54	1.32	3.14	1.34	$F(1,1522)=28.61$	***
Absences	3.30	1.23	2.93	1.28	$F(1,1512)=26.97$	***

**Note. I – Indigenous group, NI – Non-Indigenous Group.**

community members, TAFE, career expos, Centrelink, and other government organisations as significantly higher in comparison to non-Indigenous students (see Table 1). However it is important to emphasise that with the exception of family, even Indigenous students did not consider most sources of advice to be useful. No significant differences were present for the usefulness of advice from teachers, career advisors, TV and radio, newspapers, and universities. It is also important to note that Craven et al. found that neither Indigenous nor non-Indigenous students perceived advice from career advisors to be useful.

***Perceptions of barriers to achieving aspirations.*** Craven et al. asked students to rate the extent to which they felt 9 factors (see Table 1) might limit or stop them from achieving what they wanted to do after they left school. All potential barriers were statistically significant for Indigenous students in comparison to non-Indigenous students (see Table 1). 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. 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. Their record of achievement at school was seen as the next barrier.

***Self-concept.*** A MANOVA was conducted to test whether significant differences were present between Indigenous and non-Indigenous students' self-concepts. Given this MANOVA was significant ( $F(1, 1635)=20.44, p<.0001$ ), a series of ANOVAs was undertaken which found that Indigenous students, compared to non-Indigenous students, had significantly higher appearance, general self-esteem, physical, and art self-concepts, and significantly lower scores for academic facets of self-concept (Math, School, Verbal), peer relations (Opposite Sex and Same Sex relations), and Honesty, and Emotional Stability self-concept (see Table 2). No significant differences were present for parent relations self-concept.

***The Relation of Academic self-concept to SES and educational outcomes.*** Craven, Tucker et al. undertook three path analyses based on the total, Indigenous, and non-Indigenous samples examining the relation of academic self-concept and SES to educational outcomes. They found that an important component of the effect of SES on outcomes was indirect and mediated through academic self-concept. As such for Indigenous students a high academic self-concept and high SES was found to be

associated with wanting to stay on at school longer, efficacy in achieving future goals, school enjoyment, and higher perceptions of teacher ratings of ability. In addition, the direct effects of academic self-concept (and the indirect effects of SES mediated through academic self-concept) tend to be as large or larger for Indigenous students as non-Indigenous students.

*Table 2: Mean self-concept scores for Indigenous and non-Indigenous students*

	Indigenous			Non-Indigenous			F	p
	M	N	SD	M	N	SD		
Math	3.60	524	1.32	3.76	1149	1.48	$F(1,1671)=25.38$	*
Verbal	3.81	524	1.30	3.94	1148	1.32	$F(1,1670)=3.45$	*
School	4.21	523	1.08	4.37	1148	1.14	$F(1,1669)=7.43$	**
Same sex	4.72	521	1.08	4.99	1148	.92	$F(1,1667)=27.49$	***
Opposite sex	4.46	522	1.16	4.61	1148	1.11	$F(1,1668)=6.26$	*
Honesty	4.12	524	1.07	4.36	1149	1.03	$F(1,1671)=18.94$	**
Emotional	3.35	523	1.27	3.69	1148	1.28	$F(1,1669)=25.80$	**
Appearance	4.13	522	1.42	3.83	1140	1.41	$F(1,1660)=15.86$	**
Physical	4.85	524	1.07	4.45	1148	1.30	$F(1,1670)=37.83$	**
Art	4.28	514	1.66	3.61	1135	1.78	$F(1,1647)=52.96$	***
General	4.88	524	.86	4.74	1148	.94	$F(1,1670)=7.86$	**
Parent	4.95	523	1.09	4.85	1148	1.18	$F(1,1669)=3.10$	

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Discussion and Implications.** Craven, Tucker et al. (2005) suggested a number of detailed practical strategies to address the results above, and I refer the reader to this report to glean this information and present here some of the key broad implications of the study. The results of Craven, Tucker et al. indicate that Indigenous students' preferences are being directed to the vocational training sector and as such Indigenous students more frequently aspire to non-professional occupations in comparison to non-Indigenous students. The results also imply that more effective strategies need to be put in place to assist Indigenous students set and attain higher aspirations, including strategies that in particular encourage more Indigenous students to aspire to University. Given Indigenous students are under-represented in tertiary education, Universities may also need to develop better recruitment strategies.

More Indigenous students in comparison to non-Indigenous students reported being unaware of their future career options. Family and friends were the most frequently consulted and useful sources for career advice. However, since many Indigenous families historically have not been able to access appropriate education, the quality of advice received by Indigenous students from family is unlikely to be commensurate with the quality of advice received by non-Indigenous students from

similar sources. Overall these results imply that it is important for education systems to strengthen the quality of career education in secondary schools such that Indigenous students are receiving useful advice from a range of credible sources. It would also seem useful to empower Indigenous families with the knowledge and skills to assist students to access career advice.

It is of concern to note that Indigenous students compared to non-Indigenous students rated 9 potential barriers with significantly higher scores in regard to limiting or stopping them from achieving their aspirations. Hence, Indigenous students in contrast to non-Indigenous students anticipate many barriers in the process of trying to achieve their aspirations. These results suggest that there is a need for a more concerted strategic approach by a diversity of agencies to address barriers Indigenous students perceive as limiting the achievement of their aspirations.

For 7 of 11 facets of self-concept measured Indigenous students had lower self-concept compared to their non-Indigenous peers. Previous research has established the causal relation between self-concept and other desirable educational outcomes including academic achievement (e.g. Marsh, Byrne & Yeung, 1999; Marsh & Yeung, 1997a; 1997b; Marsh & Craven, 2005). In addition, Judge and Bono (2001) presented a meta-analysis showing that components of a positive self-concept construct were among the best predictors of job performance and job satisfaction. As such enhancing Indigenous students' self-concepts offers a research-based new solution for intervention. Furthermore, the results based on path analyses suggest that academic self-concept has important relations with educational outcomes and that the relation of SES to desirable educational outcomes may be partially mediated through academic self-concept. These results imply that academic self-concept may be a potent determinant of a wide variety of desirable educational outcomes, however given these results are based on correlational data, causality cannot be inferred. Hence, it would be useful for future researchers to implement longitudinal causal modelling studies exploring this issue.

Overall the results pertaining to self-concept clearly demonstrate the usefulness and need for future research to take into account the multidimensionality of the self-concept construct when examining Indigenous students' self-concepts to identify self-concept facets that may benefit from targeted educational intervention. In addition the results of this study provide strong support for the body of theory and research underpinning this investigation (see Craven, Marsh & Burnett, 2003; Marsh &

Craven, 1997), and suggest that advances in self-concept theory could be readily applied to address Indigenous education issues.

***‘Teaching the Teachers Aboriginal Studies: Recent successful strategies’ - The Craven, Halse, Marsh, Mooney, & Wilson-Miller, (in press - a) Study***

**Research design.** The second study considered in this paper (Craven et al, 2005a) was designed to evaluate the differential impact of core, elective and Indigenous Studies teacher education subjects on Australian preservice teachers’ abilities to appreciate, understand and effectively teach Indigenous Studies, and Indigenous children in Australian schools.

Participants were preservice teachers ( $n=797$ ) from 16 universities (9 with mandatory core Indigenous Studies subjects ( $n=408$ ), 3 offering electives ( $n=160$ ), 5 offering perspectives across the teacher education curriculum ( $n=229$ )) from five Australian states. Students participating in mandatory and elective subjects were invited via a written invitation to complete the survey on 2 occasions - before commencing their subject and after they had completed their subject - whereas students enrolled in courses incorporating Indigenous perspectives across the teacher education curriculum were invited to complete the survey on one occasion.

A series of oneway Analysis of Variance (ANOVAs) were undertaken to test for differences in responses to selected items and scale scores across the 3 different types of teacher education courses (mandatory, elective, & perspectives). Post hoc analyses were undertaken to elucidate significant course type effects. Statistically significant differences between core and elective courses were further scrutinised by undertaking Analysis of Covariance (ANCOVA) to control for T1 effects. Breakdowns of response frequency distributions were examined in relation to preservice teachers’ suggestions for future teacher education courses.

***The Impact of Mandatory Subjects.*** Craven et al. (2005a) found that significant differences were present between groups for all facets of self-concept with the exception of general teaching self-concept and the results for core vs elective courses were also statistically significant when T1 self-concept scores were controlled for in a series of ANCOVAs, offering further support for these findings (see Table 3). These results are important in that they offer strong support based upon a construct

*Table 3: Levels of significance for post hoc multiple comparisons of teacher education courses for self-concept and values*

	Core Vs Elective (ANOVA)	Core Vs Elective (ANCOVA)	Core Vs Perspective	Elective Vs Perspective
<b><i>Self-concept Facet</i></b>				
Knowledge of Content	p<.001	p<.001	p<.001	p<.001
Aboriginal Studies Teaching	p<.001	p<.001	p<.001	p<.001
Teaching Aboriginal Students	p<.001	p<.001	p<.001	p<.003
Aboriginal Community Consultation	p<.001	p<.001	p<.001	p<.001
Total Aboriginal Studies Teaching	p<.001	p<.001	p<.001	p<.001
<b><i>Cognitive Self-Concept Facets</i></b>				
Knowledge of Content	p<.001	p<.001	p<.001	p<.001
Aboriginal Studies Teaching	p<.001	p<.001	p<.001	p<.001
Teaching Aboriginal Students	p<.001	p<.001	p<.001	p<.003
Aboriginal Community Consultation	p<.001	p<.001	p<.001	p<.001
Total Cognitive	p<.001	p<.001	p<.001	p<.001
<b><i>Affective Self-Concept Facets</i></b>				
Knowledge of Content	p<.044	p<.045	p<.001	p<.030
Aboriginal Studies Teaching	p<.121	p<.019	p<.001	p<.001
Teaching Aboriginal Students	p<.310	p<.108	p<.001	p<.274
Aboriginal Community Consultation	p<.186	p<.156	p<.001	p<.026
Total Affective	p<.049	p<.042	p<.001	p<.017
<b><i>Values</i></b>				
Valuing Rationale	p<.038	p<.006	p<.001	p<.045
Commitment to Teaching	p<.002	p<.004	p<.001	p<.001
Valuing Teaching	p<.001	p<.003	p<.001	p<.278
Importance of Aboriginal Studies	p<.024	p<.100	p<.001	p<.002
Valuing Departmental Policy	p<.042	p<.046	p<.001	p<.002

validity approach to the study of intervention effects (see Craven et al., 2003) and demonstrate the context specificity of the results. Students who had undertaken mandatory subjects had statistically significant higher knowledge, teaching Indigenous students, teaching Indigenous Studies, Indigenous community

consultation, and total Indigenous Studies teaching self-concepts compared to either students who had undertaken elective or perspective courses (see Table 3). Students who had undertaken elective courses had higher self-concepts in all facets compared to students who had undertaken perspective courses. The results for mandatory versus elective subjects were also statistically significant when T1 self-concept scores were controlled for, offering further support for these findings.

Parallel analyses were also conducted separately for cognitive and affective components of self-concept. Post hoc analyses examining cognitive components of self-concept demonstrated that students who had undertaken a core course had statistically significant higher: knowledge, teaching Aboriginal students, teaching Aboriginal Studies, Aboriginal community consultation, and total Aboriginal Studies teaching cognitive self-concepts compared to either students who had undertaken elective or perspective courses (see Table 3). Students who had undertaken a core course had statistically significant higher knowledge and total Aboriginal Studies teaching affective self-concepts compared to either students who had undertaken elective or perspective courses and these differences were also statistically significant when T1 scores were controlled for in the ANCOVA (see Table 3). In addition, after controlling for T1 scores students who had undertaken a core course had significantly higher Aboriginal Studies teaching affective self-concepts in comparison to scores for students who had undertaken an elective course (see Table 3). Students who had undertaken a core course also had statistically significant higher scores ( $p < .001$ ) on all affective facets of self-concept in comparison to students who had undertaken perspective courses (see Table 3).

Results based on ANOVAs indicated that for all 5 facets of values measured statistically significant differences ( $p < .001$ ) were present for the different types of teacher education courses. Multiple comparisons of the different types of teacher education courses based on post hoc analyses demonstrated that student teachers who had undertaken a core course had statistically significant higher scores for all values measured compared to students who had undertaken either an elective or perspective course (see Table 3). Significant differences between scores for student teachers undertaking core courses compared to scores for student teachers undertaking elective courses were also present for 4 of the 5 values areas measured when T1 scores were controlled for.



Results based on ANOVAs indicated that for 21 topics measured, statistically significant differences ( $p < .001$ ) were present for the different types of teacher education courses. Student teachers who had undertaken a core course had statistically significant higher scores in regards to what they reported learning about each topic compared to students who had undertaken either an elective or perspective course and students who had undertaken an elective course reported learning more about each topic compared to students who had undertaken a perspective course (see Table 4).

*Table 4: Levels of significance for post hoc multiple comparisons of teacher education courses for amount taught about topics*

Topic	Core Vs Elective (ANOVA)	Core Vs Elective (ANCOVA)	Core Vs Perspective	Elective Vs Perspective
Rationale	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Community Involvement	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Teaching Resources	$p < .001$	$p < .011$	$p < .001$	$p < .001$
Teaching Strategies	$p < .001$	$p < .001$	$p < .001$	$p < .021$
Units of Work	$p < .001$	$p < .049$	$p < .001$	$p < .003$
Perspectives	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Teaching Indigenous Children	$p < .001$	$p < .001$	$p < .001$	$p < .001$
History of Indigenous Education	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Culture	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Precontact	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Early Settlement	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Government Policies	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Indigenous/Australian History	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Comparative Studies	$p < .001$	$p < .025$	$p < .001$	$p < .001$
Reconciliation	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Rights/Issues	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Culture Today	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Misconceptions	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Stolen Generations	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Native Title	$p < .001$	$p < .001$	$p < .001$	$p < .001$
Disadvantage	$p < .001$	$p < .001$	$p < .001$	$p < .001$

***Discussion and Implications.*** The results of the Craven et al. (2005a) study offer important empirical evidence supporting the value of mandatory Indigenous Studies teacher subjects in enhancing preservice teachers' Indigenous Studies self-concepts in multiple specific facets of teaching self-concept considered as fundamental to classroom teaching. Elective subjects were found to be more effective than perspectives, however these were not as effective as core courses. Core courses in comparison to elective or perspective courses and elective courses in comparison to perspective courses impact more positively on student teachers' cognitive facets of Indigenous Studies self-concept and the affective facets of appreciation and enjoyment of: learning more about Indigenous Studies content, and teaching Indigenous Studies. As such these results offer important empirical support for the value of core courses in relation to impacting positively upon affective self-concept domains. The results also suggest that mandatory courses have a significant positive impact on preservice teachers' values and commitment to teach Indigenous Studies.

Overall the results have important implications for the design of teacher education courses in that what works in relation to teaching teachers to teach Indigenous Studies is mandatory core subjects. As such, the study findings support the validity of calls for Australian teacher education institutions to introduce mandatory Indigenous Studies subjects. It is also important to note that ideally teacher education courses should be designed based on a multifaceted approach whereby core courses are introduced and supplemented with elective courses and perspectives across the curriculum to reinforce the place and validity of Indigenous Studies in the teacher education curriculum. There also remains much to be done in that not all Australian teacher education institutions appreciate the rationale for infusing Indigenous Studies content into the teacher education curriculum and existing mandatory subjects also need to be more critically examined and refined. However given Australia's recent progress whereby half of all primary teacher education courses include a mandatory Indigenous Studies subject (Dunkin, 2002) a new dawn in teacher education is breaking.

***‘Teaching the Teachers Aboriginal Studies: Impacts on teaching.’ – The Craven,  
Halse, Marsh, Mooney, & Wilson-Miller (2005b). Study***

***Research Design.*** The final study (Craven et al., 2005b) was designed to evaluate the impact of preservice primary teacher education Aboriginal Studies courses on teachers’ abilities to effectively teach Indigenous Studies in primary schools and used similar instrumentation as for the previous study with preservice teachers. An invitation to participate in the study was distributed by mail to potential participants who had undertaken a core or elective Indigenous Studies teacher education course via selected universities and Principals in New South Wales Department of Education and Training primary schools. Participants were also invited to give an envelope containing another copy of the survey and information about the study to a colleague who taught in the same school. This resulted in 392 teachers from 201 primary schools agreeing to participate in the study. Of which: 129 had undertaken a core course, 69 teachers had undertaken an elective course, and 190 teachers who had not undertaken such courses. This resulted in a total of 198 teachers comprising the experimental group (teachers who had undertaken a core or an elective course) and 190 teachers comprising the control group (teachers who had not undertaken a core or an elective course). A series of one way ANOVAs were conducted to test comparisons between the experimental and control groups.

***Impact of Indigenous Studies teacher education courses.*** Consistent with the results from Craven et al. (2005a) the results demonstrated that teachers who had undertaken an Indigenous Studies teacher education course reported statistically significant higher scores in relation to 21 Indigenous Studies content areas measured in relation to pedagogy, history, and current issues compared to teachers who have not undertaken such courses. Teachers who had undertaken Indigenous Studies teacher education courses also had statistically significant higher overall self-concepts compared to control teachers in regards to: their perceptions of their knowledge of Aboriginal Studies subject matter, teaching Aboriginal students, and their self-concept of their overall ability to teach Aboriginal Studies and teach Aboriginal students effectively. No significant differences were present for teachers’ self-concepts in relation to their overall ability to teach Aboriginal Studies and to consult with Aboriginal community members.

Significant differences were also present for cognitive self-concept facets for: knowledge of subject matter, teaching Aboriginal Studies, teaching Aboriginal students, and Aboriginal Studies total self-concepts and for the affective component of teaching Indigenous students whereby scores for the experimental group compared to the control group were higher. No significant differences between the groups were present for cognitive elements of community consultation self-concept or other affective domains.

No significant differences between groups were present for any of the scales measuring valuing dimensions. However the lowest rating assigned by both groups was to the variable commitment. These results seem to suggest that teacher education courses may not be assisting preservice teachers to develop appropriate values.

***The relation among variables.*** Path analysis was undertaken to explore the relation between self-concept and the extent to which teachers' actually undertook teaching activities to ascertain to what extent self-concept was related to implementation in the classroom for both the control and experimental groups. Since the data is correlational rather than longitudinal, causality cannot be inferred, however interesting patterns of statistically significant relations were found. For the experimental group self-concept shared a strong relation with teaching pedagogy (.57\*\*\*), teaching history (.52\*\*\*), teaching current issues (.54\*\*\*), students' knowledge (.86\*\*\*), and the implementation and appreciation of departmental requirements (.76\*\*\*). This pattern of results was similar for the control group. These results suggest that teachers' self-concepts have an important relation to desirable educational outcomes. Teachers' values shared a very strong relation with self-concept for both the experimental (.87\*\*\*) and the control group (.80\*\*\*) and these results suggest that teachers' values also have an important relation to educational outcomes.

***Discussion and Implications.*** The results of the Craven et al. (2005b) study are important in that this study is the first empirical study to begin to elucidate the impact of Indigenous Studies teacher education courses. Clearly the study demonstrates that preservice Indigenous Studies courses do make a positive difference. Teachers who have undertaken such courses report knowing significantly more about subject matter and teaching Indigenous students and have higher teaching self-concepts across a range of domains, compared to teachers who have not

undertaken such courses. They also have statistically significant higher self-concepts in relation to their ability to teach Indigenous students and their enjoyment thereof. These results offer empirical evidence for ensuring teacher education courses include Indigenous Studies teacher education courses. Results of path analyses also suggest that teachers' self-concepts have an important relation to what teachers actually teach and attest to the relation of teachers' self-concept to desirable educational outcomes. However, future research needs to capitalize on longitudinal data to explore further the nature of these relations. In addition, it would be useful to test the impact of undertaking a core course on students' educational outcomes by using student measures in addition to teacher measures.

Path analyses also demonstrated that the values that teachers hold in regards to teaching Indigenous Studies and students had a strong positive relation to self-concept for both teachers who had undertaken Indigenous Studies teacher education courses and those who had not. Preservice Indigenous Studies teacher education courses were also found to impact more on cognitive components of self-concept (feelings of competence) rather than affective components of self-concept (enjoyment of teaching and learning about Aboriginal Studies). What teachers learn in preservice teacher education courses also relates to the extent that they teach Aboriginal history in schools and draw upon appropriate pedagogy to teach both Aboriginal Studies and Aboriginal students.

### **Implications for Strengthening the Next Generation of Indigenous Education Research**

The above summaries of some of the insights gleaned from recent empirical research offer important potential turning points for addressing Indigenous educational disadvantage; strengthening teacher education; and ensuring teachers have the knowledge, skills, and attitudes to effectively teach Indigenous students and Indigenous Studies to all Australian students. The results of these studies also further serve to highlight the promising potential of empirical self-concept research to inform new solutions and test the tangible benefits of intervention. Some of the strengths common to these studies are that they: are rare empirical studies, draw upon large

sample sizes, include a control group, and are informed by recent advances in self-concept and motivation theory and research.

Given the findings offer new solutions for intervention they also have important implications for strengthening the next generation of Indigenous Education research and as such creating new turning points for future research. In particular the results of this research offer empirical evidence to further support recent calls by researchers and Indigenous community members for a national concerted program of Indigenous education research (Bin Sallik, 2005; Craven et al., 2005; Craven & Parente, 2003; Craven & Tucker, in press; Hughes, 2004; Mellor & Corrigan, 2004). Unless such a program takes place as Craven et al. (2005) conclude “it is unlikely that desirable educational outcomes for Indigenous students will be enhanced unless intervention is firmly founded upon theory and research that demonstrates that such intervention strategies are effective”. In the preface to the Craven et al. (2005) study Professor MaryAnn Bin-Sallik, a leading Aboriginal educator, concurs with this view, emphasizing:

Scholarly research can make an important difference and identify much needed fresh insights on how to address critical educational issues of our time. As the authors emphasize, there is indeed a dire need to establish a concerted national programme of Indigenous Education research to develop a body of scholarly literature that can really put to the test presumed successful strategies, identify causal mechanisms that make a difference, and generate new solutions that are demonstrated by research to result in tangible outcomes (Bin-Sallik, 2005).

Similarly, Professor Paul Hughes contends: “if we as Indigenous peoples are to become full citizens, able to fulfil our potential in this country, the need is manifest. More and better research is the key”.

Hallmark features of a new generation of rigorous Indigenous research could capitalize upon: the best available theory to locate Indigenous education research in the scholarly literature, utilization of the strongest available research methodologies, sophisticated longitudinal research designs, large-scale empirical studies being seen as a high priority to facilitate the application of sophisticated research methods in the context of large representative sample sizes, rigorous qualitative research to elucidate and enrich the findings of a vibrant research programme, and the development and rigorous evaluation of potentially powerful interventions grounded in theory and research with broad implications. More specifically the Commonwealth Government

needs to consider: listing Aboriginal Education research as a national research priority area, encouraging the ARC to fund world-class research in this area, developing funding initiatives (e.g. similar to the ARC Special Investigator's Scheme) whereby researchers are invited to apply for funds to undertake a concerted programme of Aboriginal Education research over an extended period. We can no longer as a society continue to fail generation after generation of Indigenous Australians and ignore the need for quality research that can identify the keys to unlocking Indigenous education disadvantage and ensure new solutions result in tangible outcomes.

### **Summary**

The studies described in this paper demonstrate that empirical research can unlock new solutions to create turning points that can make a difference. The empirical findings of these investigations also demonstrate that much more remains to be done to create a scholarly body of research that can make a real difference. In this paper I have also suggested some potential turning points for strengthening the next generation of Indigenous education research to drive the national agenda in Indigenous education and result in tangible outcomes. For too long we as a nation have continued to ensure Indigenous students fail to achieve their dreams by basing policy on presumed successful strategies rather than strategies demonstrated by research to result in the expected outcomes. 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" (personal communication). Clearly, a concerted program of Indigenous education research is a vital key to making a socially just society that both Indigenous and non-Indigenous Australians can be proud of.



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