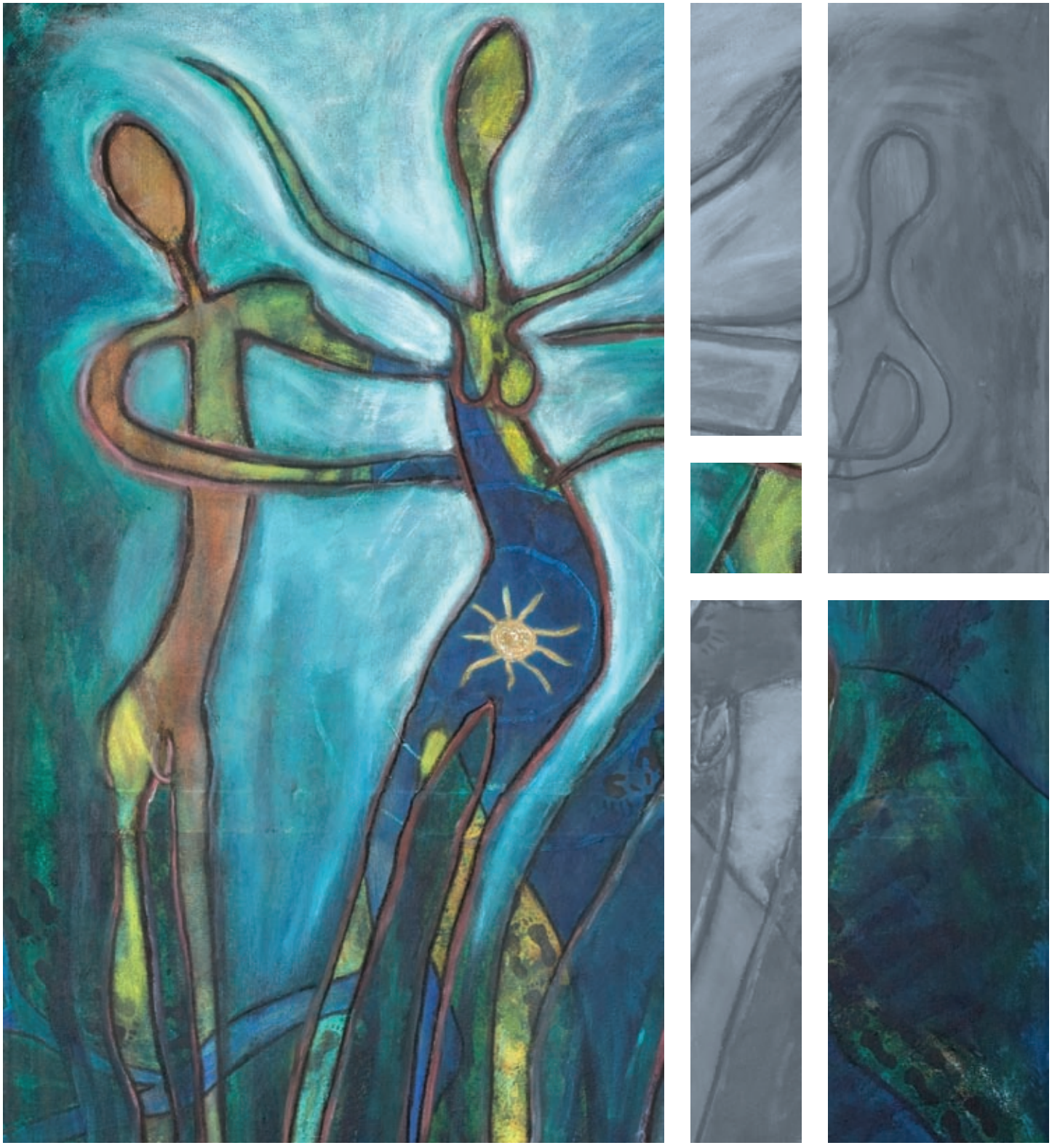


Cultural dimensions of Indigenous participation in education and training

Alfred Michael Dockery
Curtin Business School
Curtin University

MONOGRAPH SERIES 02/2009

NCVER

Australian Government
Department of Education, Employment and Workplace Relations

Cover: ***'Spirit of Embracement'***, *Julie Ferguson*
Acrylic and oil stick on canvas

This work identifies my spiritual beliefs in our cultural heritage. The woman is central as she was the source of the future, which is in keeping with the concept of matriarchal society – women were the law keepers and the strength within the family unit. As a woman myself, I strongly believe that this spiritual concept is carried on through me. Men were the hunters and supporters of the family and tribal units. Together they kept the family, tribe, spiritual beliefs, and therefore the culture, alive.

This work is from NCVER's collection
which features work from VET students.

NCVER MONOGRAPH SERIES 02/2009

Cultural dimensions of Indigenous participation in education and training

Alfred Michael Dockery

Curtin Business School, Curtin University

Publisher's note

To find other material of interest, search VOCED (the UNESCO/NCVER international database <http://www.voced.edu.au>) using the following keywords: cultural awareness; cultural factor; disadvantaged; economic indicator; educational level; educational opportunity; employment; equal opportunity; equity; Indigenous education; Indigenous people; outcome of education; participation; remote area; research study; social indicator; training; vocational education

The NVETRE program is based upon priorities approved by ministers with responsibility for vocational education and training (VET). This research aims to improve policy and practice in the VET sector. For further information about the program go to the NCVER website <http://www.ncver.edu.au>. The author/project team was funded to undertake this research via a grant under the NVETRE program. These grants are awarded to organisations through a competitive process, in which NCVER does not participate.

NCVER MONOGRAPH SERIES

In 2007 the NCVER Board agreed to establish an editorial board to peer review work commissioned or undertaken by NCVER for publication in a Monograph Series. Each contribution to the Monograph Series is subject to peer review by two editorial board members. Research accepted for publication in the Monograph Series will assist university-based researchers make use of their NCVER published work in the Research Publications Return of the Higher Education Research Data Collection and in Excellence in Research for Australia evaluations. The members of the editorial board include:

Dr Tom Karmel
Ms Francesca Beddie
Professor Gerald Burke
Emeritus Professor Anne Edwards
Professor Barry McGaw AO
Dr Robin Ryan

ISSN 1837-0659

ISBN 978 1 921413 30 8 print edition
978 1 921413 31 5 web edition

TD/TNC 97.03

Published by NCVER
ABN 87 007 967 311

Level 11, 33 King William Street, Adelaide SA 5000
PO Box 8288 Station Arcade, Adelaide SA 5000, Australia

ph +61 8 8230 8400 fax +61 8 8212 3436
email ncver@ncver.edu.au
<http://www.ncver.edu.au>
<http://www.ncver.edu.au/publications/2174.html>

About the research

Cultural dimensions of Indigenous participation in education and training

A Michael Dockery, Curtin Business School, Curtin University

It has been well documented that Indigenous Australians experience marked disadvantages across all dimensions of socio-economic wellbeing when compared with the life circumstances enjoyed by non-Indigenous Australians. This includes poorer educational outcomes, employment and economic status.

Central to this is the tension between the objectives of strengthening Indigenous cultural attachment and maintenance of elements of traditional lifestyles on the one hand and the objectives of achieving equity in mainstream social and economic indicators on the other.

This study examines the role of traditional Indigenous culture in shaping Indigenous Australians' engagement with education and training. It provides an important innovation to the existing literature by explicitly attempting to measure 'cultural attachment' and to model its relationships with socio-economic outcomes.

Key messages

- In non-remote areas, cultural attachment is complementary with both educational attainment and participation in vocational education and training.
- Whether individuals are living in remote or non-remote Australia, we can reject the view that there is a trade-off between maintenance of Indigenous culture and achievement in education and training.
- There is evidence both of education and training being pursued to enhance objectives relating to cultural maintenance, and of cultural attachment itself having an enabling effect on Indigenous people.
- However, those living in remote and very remote Australia are clearly disadvantaged in terms of their access to education and training, and this disproportionately affects Indigenous Australians with stronger attachment to their traditional culture.

Tom Karmel
Managing Director, NCVER

Acknowledgements

I would like to acknowledge the useful feedback provided by the anonymous reviewers and members of the Indigenous advisory panel established for this project.

Contents

Tables 6

Abstract 7

Introduction 8

The meaning and measurement of 'culture' 10

- What is 'culture' 10
- Measuring culture 11

Indigenous culture 14

- Indigenous culture and educational outcomes 15

Measuring Indigenous culture 17

- The 2002 NATSISS 17
- Measuring culture with the NATSISS 17

Overview of culture and educational attainment 22

- Variation by cultural attachment 23

Educational attainment 27

- Educational attainment 27
- Field of qualification 30

Participation in a VET course 32

- Likelihood of participation 32
- Type of VET course undertaken 33
- Use of VET 34

Conclusion and discussion 37

- Main findings related to the research questions 37
- Discussion 39

References 41

Appendices

- 1: Factor scores (loadings) for calculating index of cultural attachment 43
- 2: Selected multivariate results using the hierarchical measure of cultural attachment 44

Tables

1	Potential indicators of attachment to Indigenous culture	19
2	Cultural attachment by remoteness	20
3	Hierarchical ordering of individuals' cultural attachment	21
4	Educational attainment, Indigenous people aged 21 and over (%)	22
5	Participation in VET in past 12 months by labour force status and remoteness, people aged 15–64	23
6	Use of training by labour force status, people aged 15–64 who had attended a VET course in the last 12 months	23
7	Highest educational attainment by cultural attachment, Indigenous people aged 21 and over (%)	24
8	Field of highest educational qualification, Indigenous people with a post-school education (%)	25
9	Participation in a VET course in the past 12 months (%), by labour force status and cultural attachment, people aged 15–64	25
10	Use of training by cultural attachment and labour force status, people aged 15–64 who had attended a VET course in the last 12 months	26
11	Educational attainment, regression results, people aged 21 and over, NATSISS 2002	31
12	Participation in VET in last 12 months, logistic regression results, people aged 15–64, NATSISS 2002	35
13	Findings of logit models of type of training, people who participated in a vocational course in the past 12 months	36
14	Loadings for the 'cultural attachment' factor	43
15	Educational attainment, regression results, people aged 21 and over, NATSISS 2002	45
16	Participation in VET in last 12 months, logistic regression results, people aged 15–64, NATSISS 2002	46

Abstract

The preservation of Indigenous cultures is a controversial issue in Australia. On the one hand, the maintenance of traditional Indigenous culture has been viewed as a barrier to integration with mainstream society and the achievement of socio-economic equality between Indigenous and non-Indigenous Australians. An alternative view sees maintenance of Indigenous culture to have a value in its own right, and to be an integral component of any solution to the current plight of Indigenous people. If policy is to follow this latter view then it is important that economic and social institutions can accommodate the different values and preferences associated with Indigenous culture.

Despite the importance of these issues, there is very little empirical evidence on the link between Indigenous culture and socio-economic outcomes, including educational attainment. Two critical and related empirical issues are whether Indigenous culture acts as a barrier to educational attainment, and whether the existing education and training system adequately accommodates the cultural differences between Indigenous and non-Indigenous Australians. This research seeks to address these issues by explicitly measuring Indigenous culture and exploring the links between cultural attachment and vocational education and training outcomes for Indigenous people, using data from the Australian Bureau of Statistics' 2002 National Aboriginal and Torres Strait Islander Social Survey.

The results suggest that, in non-remote areas, cultural attachment is complementary with both educational attainment and participation in vocational training. Given the importance afforded to education as a means to addressing Indigenous disadvantage, this rejects the view underpinning the policies of assimilation that there is a trade-off between cultural maintenance and the achievement of mainstream socio-economic outcomes. From an equity perspective, the results also reflect positively on the sensitivity of Australia's education and training system to cultural needs. There is evidence both of education and training being pursued to enhance objectives relating to cultural maintenance, and of cultural attachment itself having an enabling effect on Indigenous people. Lower access to education and training in more remote areas does, however, disproportionately impact upon Indigenous Australians with stronger cultural attachment.

Introduction

More than two hundreds years after European settlement, the failures of policy relating to Indigenous people in Australia can be readily seen in the gap between the standard of living enjoyed by the mainstream Australian population and the circumstances of descendants of the original Australians. This is perhaps most apparent in the dramatically lower life expectancy of Indigenous Australians—a gap of around 20 years—and the high rates of incarceration, substance abuse and suicide among Indigenous Australians, but extends to virtually every conceivable measure of wellbeing (see, for example, Steering Committee for the Review of Government Service Provision 2007). In aggregate, very little progress has been made in addressing Indigenous disadvantage over the past few decades and, moreover, there continues to be a lack of consensus between the government and various interest groups on the direction such policy should take.

A misunderstanding and lack of appreciation of Indigenous culture has underpinned many of the destructive consequences of colonisation on Indigenous people. For much of the history of Australian Indigenous relations, Indigenous culture has been seen as 'primitive' or 'backward', and something that Indigenous people would ultimately need to leave behind if they were to succeed in the mainstream economy. This was the assumption underlying the assimilationist policies that prevailed until the emergence of the 'self-determination' approach of the 1970s and 1980s. Self-determination embodies both a recognition of the legitimacy and value of Indigenous culture in its own right, and the belief that Indigenous people should be empowered to choose and pursue their desired balance between cultural maintenance and engagement with the mainstream society. Further, if the preservation of Indigenous culture is to be genuinely accepted as a legitimate policy objective, then it is imperative that institutions and the delivery of services accommodate cultural differences between Indigenous and non-Indigenous Australians.

Many commentators, both Indigenous and non-Indigenous, have argued that getting Indigenous people into jobs is the best solution to Indigenous disadvantage and the 'failure' of the self-determination approach is popularly accepted and propagated in the Australian media. However, in a recent review of the major post-1985 Commonwealth Indigenous employment programs, Dockery and Milsom (2007) are highly critical of the failure of the policy formation and evaluation process to link outcome measures with stated policy objectives. The failure of these programs must be considered primarily as a failure of implementation and commitment. This shouldn't be taken to mean that cultural identity and aspirations associated with cultural identity cannot be achieved alongside improvements in mainstream socio-economic outcomes and in Indigenous wellbeing more generally.

Increasing Indigenous educational attainment is commonly seen as one of the important ways of addressing Indigenous disadvantage, a point upon which there seems consensus. Several empirical questions have an important bearing upon these issues. Is the existing vocational education and training (VET) system compatible with Indigenous people's cultural values and aspirations? Do Indigenous people face a choice or at least a trade-off between cultural attachment and achievement in vocational education and training? If so, why? This report provides a significant innovation to the existing Australian literature by developing explicit measures of Indigenous culture and empirically testing how attachment to their traditional culture shapes Indigenous

people's participation in vocational education and training and how appropriately it meets their needs. Specifically, the research questions addressed are:

- What role does 'culture' play in shaping Indigenous Australians' pattern of participation in VET? Factors considered include:
  - level and field of qualifications attained
  - rate of participation in VET courses
  - type of training undertaken
  - relevance of training.
- What role does the Community Development Employment Project (CDEP) scheme play in facilitating VET participation?
- To what extent does the VET system support individuals who have a strong attachment to Indigenous culture?
- To what extent do Indigenous Australians face a trade-off between pursuing mainstream labour market outcomes through VET and Indigenous cultural attachment?

Culture is defined for the purposes of this study as the set of beliefs and values of an identifiable group of people that have been transmitted through generations, and that are manifest in distinctive symbols, languages and practices. Following a review of the meaning of culture in the next chapter, the chapter specifically on Indigenous culture provides a brief overview of Australian Indigenous cultures and the existing literature relating aspects of those cultures to educational outcomes. The empirical work is based on data from the Australian Bureau of Statistics' 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). An introduction to this survey appears in the chapter on measuring Indigenous culture, and a measure of 'cultural attachment' is then developed from a factor analysis of data from a range of survey questions relating to participation in or recognition of practices and social structures unique to Indigenous Australians. This measure is then used in descriptive analysis and multivariate analyses of the relationships between cultural attachment and educational attainment and vocational training experiences.

The conclusion suggests that the most important empirical finding is the rejection of the hypothesis that Indigenous peoples' engagement with their traditional cultural directly limits educational attainment or participation in vocational training. Where VET is accessible, those with stronger cultural attachment are more likely to make use of it. This suggests that the delivery of VET in Australia is, by and large, culturally appropriate. However, less access in more remote areas, where links to traditional culture are stronger, means that Indigenous Australians with stronger cultural attachment are disproportionately disadvantaged. In this sense, the evidence is that Indigenous people do face a trade-off between their cultural aspirations and pursuit of further education and training.

The meaning and measurement of 'culture'

The approach taken to analyse the links between Indigenous culture and participation in vocational education and training (VET) in this report must be considered largely exploratory in the absence (to the best of my knowledge) of previous empirical work or any established and accepted framework for the analysis of such a topic. Indeed the attempt to measure culture is, in itself, a somewhat controversial undertaking. To set out the foundations for the analysis that follows, it is important to clarify what is meant by culture in the context of this research and as a precursor to discussing Indigenous culture more specifically. It is also important to establish a meaningful basis upon which culture can be measured and for understanding how those measures may relate to outcomes.

What is 'culture'

There is vast and multi-disciplinary literature on 'culture' and the term has a wide range of interpretations depending upon the discipline from which it is considered. This review concentrates on studies of the role of culture in shaping economic outcomes. In this more limited literature, approaches to defining culture essentially involve classifying people into groups on the basis of some common connection between them, and identifying ways in which the people within those groups differ from others. Therefore, defining culture in practice firstly requires identification of the relevant connections by which to define groups and secondly, identification of the relevant dimensions in which 'differences' between people are to be measured.

The 'connectors' most commonly used are the nationality (country of birth or country of origin), ethnicity and religious affiliation. There is no clear consensus upon what should be measured in order to identify 'cultural' differences between people of different cultures. Dimensions used have included the degree of economic and technological evolution, values, and the personality traits of the individuals within the society (Hofstede & McCrae 2007, pp.60–61). Hofstede and McCrae's own 'operating definition' of culture is:

> The collective programming of the mind that distinguishes one group or category of people from another. This stresses that culture is (a) a collective, not individual, attribute; (b) not directly visible but manifested in behaviors; and (c) common to some but not all people.
>
> (2007, p.58)

Throsby (2001) distinguishes between two senses in which the term culture is used. One is the set of beliefs, customs, values and practices common to a group, and possibly characterised in the form of symbols, text and language which themselves play a role of helping to distinguish the group's distinctive identity. The second sense is more functional and relates to the activities people undertake and the products of those activities. In this sense the term is more likely to be used as an adjective, such as in 'cultural goods', 'cultural institutions' and 'cultural industries'. Throsby (2001, p.4) suggests three characteristics of such cultural phenomena are that:

- the activities concerned involve some form of creativity in their production
- they are concerned with the generation and communication of symbolic meaning
- their output embodies, at least potentially, some form of intellectual property.

Guiso, Sapienza and Zingales warn that definitions of culture must be defined in sufficiently concrete terms to prevent 'cultural explanations from becoming simple ex post rationalizations' (2006, p.3). This stresses the point that any definition adopted must be empirically refutable for the work to meaningfully contribute to our understanding of the role of culture in economic outcomes. Thus Guiso, Sapienza and Zingales' definition is deliberately narrow:

> … we define culture as those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation. (2006, p.2)

Further, they explicitly nominate two potential channels of causal influence from culture to economic and social outcomes, namely beliefs (or 'priors') and values (encompassing preferences). Casson (1993) similarly referred to values and beliefs in describing culture as a 'collective subjectivity'. Subjectivity relates to both individual values (or preferences) and the personal probability that individuals attach to events. Casson argues that individuals will develop similar preferences and beliefs if they are exposed to the same set of influences: 'These influences represent the culture of the group to which the individuals belong' (1993, p.420). The preferences are seen to be influenced by the 'moral aspect' of the culture and the beliefs by 'technical aspects'. Triandis (2000) also considers generational transmission as a defining characteristic of culture itself, but instead considers the shared patterns of attitudes, beliefs and norms as 'cultural syndromes':

> Culture is to society what memory is to individuals. It refers to tools and ideas that are shared and transmitted to succeeding generations because they were once practical at some point in time. (2000, p.13)

For the purposes of the analyses intended here, it seems that a definition based on beliefs and values transmitted over generations is the most fruitful. The transmission through generations is an important dimension. In the United States, for example, economic and social marginalisation along with legal exemptions has led to Native Indian Reserves operating casinos as a means to generate income. However, despite there being a clear observable and measurable association of Indian communities with gambling activities, we would reject it as a defining feature of the culture of Native American Indians since it has no basis in intergenerational traditions. Similarly, contemporary phenomena described as 'youth culture', 'pop culture' or 'consumer culture' would lie outside our definition of culture.

Measuring culture

I argue above that culture needs to be defined along two dimensions: the 'connections' between individuals considered to be of the same culture and the characteristics of those individuals that make them distinct. Two broad measurement issues are therefore how to measure differences between cultures, and how to assign individuals as being of a given culture or not.

In terms of measuring differences between 'cultures', a number of key dimensions upon which cultures differ between societies are proposed, including the distribution of power embodied in institutions and organisations, individualism versus collectivism, and the extent to which roles are determined by rules and institutions and tolerance of individuals whose behaviour deviates from those social expectations (Hofstede 2001, Hofstede & Bond 1998, Hofstede & McCrae 2007, Triandis 2000). The 'cultural' dimensions derived by Hofstede and colleagues are based upon attitudinal differences between countries identified from the IBM company's international employee surveys, conducted between 1967 and 1973. This general approach of measuring culture as differences in value 'norms' between groups of people has been extensively pursued as data well suited to this purpose has become available, notably through the World Values Survey (see Ingelhart 1997 and <http://www.worldvaluessurvey.org>).

While the measurement of culture is necessary for empirical analyses of the links between culture and economic outcomes, this literature remains relatively undeveloped (see Dockery 2009 for a more detailed review). That the values and beliefs individuals hold have significant impacts upon

economic outcomes has long been recognised in economics and other disciplines. In economics it dates at least back as far as Adam Smith's 1759 *The Theory of Moral Sentiments*. Guiso, Sapienza and Zingales note that Karl Marx saw the direction of causality running in the opposite direction: the relationships of production and its underlying technology determining social structures. Writers such as Max Weber and Karl Polanyi saw religion as contributing to the orderly functioning of markets and society (Guiso, Sapienza & Zingales 2006, pp.5–7).

That culture plays *some* role in economic outcomes has hence never been denied in the economics literature, but it has received little attention relative to what that discipline perceives to be the main deterministic factors, such as natural resources, physical capital, technology, education and other forms of human capital. This may be because economists perceive the contribution of culture in explaining economic growth, or differences in the rates of economic growth between countries, to be relatively trivial (Throsby 2001, pp.61–62). However, Guiso, Sapienza and Zingales suggest the reason for economists' reluctance to engage culture as a deterministic variable may also be that measurement is simply too difficult:

> The notion of culture is so broad and the channels through which it can enter the economic discourse so vague that it is difficult to design testable hypotheses. (2006, p.1)

In line with Guiso, Sapienza and Zingales' warning above, a continuing weakness of the literature is that the 'measures' of culture used are rarely linked to a theoretical understanding of what 'culture' means. In much of the empirical literature relating to macroeconomic outcomes, countries or nation-states are used as the unit of analysis. This largely reflects the form in which data have been available, rather than theoretical considerations, and has obvious limitations regarding the extent to which separate cultures exist within countries and transcend national borders. Probably the most common approach to measuring culture is to focus on such categories to derive a binary representation of culture: if a person is a member of that group, however assessed, then they are considered to be 'of that culture'.

Hofstede and his collaborators find cross-country correlations between some of the cultural dimensions uncovered through the IBM surveys and economic growth performance (Franke, Hofstede & Bond 1991; Hofstede & Bond 1988; Gray 1996). While they propose causal links between social values and economic growth (such as arguing that a Confucian culture is conducive to entrepreneurship), these are again essentially ex-post rationalisations. Similarly, cultural explanations have been suggested for a number of major phenomena which could not be readily accounted for by mainstream economic analyses. These include the remarkable growth rates of the east-Asian 'tigers' prior to the Asian economic crisis, and prior to that, the post-war economic success of Japan (Casson 1993; Gray 1996; Hofstede & Bond 1988; Throsby 2001, pp.64–65). Gray (1996) suggests that culture may have a significant indirect effect as well as a direct effect on economic performance through its effect on people's willingness to accept high growth policies at the expense of immediate benefits.

Thriftiness is the value that seems to appear most often as a 'cultural dimension' with a deterministic relationship with aggregate economic performance. This can largely be attributed to its straight-forward translation to a variable within the accepted growth-accounting framework (that is, savings, which facilitate capital investment). Evidence that savings rates or the importance placed on thriftiness as a value differs between those of different religious denominations has contributed to savings being adopted as a 'cultural' measure. However, evidence contrary to the notion that saving can be considered a 'cultural' phenomenon is presented by Carroll, Rhee and Rhee (1994), who find no cultural effects on savings for recent immigrants to Canada. Savings of immigrants are lower than for Canadian-born citizens, but are independent of their country of origin.

The savings link aside, a general weakness of the macroeconomic literature remains the lack of clearly identified channels through which cultural differences impact upon economic outcomes. As with the social capital literature, several studies have emphasised trust as an important cultural variable (see Guiso, Sapienza & Zingales 2004; Tabellini 2006), and this can be explained through its impact on the efficiency of economic exchange. Other approaches used to generate 'instruments'

to capture exogenous cultural effects in cross-country empirical work have included variables based on linguistic traits (Alesina & Giuliano 2007) and historical variables for countries (Tabellini 2006). However, this tends not to tell us much about what the characteristic of the culture is and, hence, what the causal channels might be between culture and outcomes.

Ideally this analysis should be informed by the evidence at the microeconomic level. Countless studies have identified differences in individuals' outcomes across 'independent' variables which could be considered as reflecting cultural background, such as language, country of origin, religion, ethnicity, Aboriginality and so on. Very few studies, however, attempt to relate these 'effects' to characteristics of the associated culture. More often, they are included as 'control' variables to enable the analyst to identify other effects independently of any confounding cultural effects. Several studies have taken differences in outcomes (such as earnings) by religious denomination to reflect 'cultural' differences in values (Chiswick 1983; Gruber 2005; Heineck 2004). The rate of female economic participation is one outcome that is particularly sensitive to ethnicity and religious background (Fernández 2005; Heineck 2004; Reimers 1985). Fernández uses an epidemiological approach by relating female labour force participation rates and data on attitudes in the country of ancestry of second generation of American women to show that cultural proxies significantly shape women's work outcomes.

To facilitate empirical investigation of the links between culture and Indigenous people's participation in vocational education and training and, in light of the discussion contained in this chapter, an explicit definition of culture is adopted. Culture, in this study, is taken to mean beliefs and values that have been transmitted through generations, and that are manifest in distinctive symbols, languages and practices. However, it is 'attachment' to traditional Indigenous culture that is actually measured for the empirical analysis, and this is based upon individuals' engagement with customs and activities related to Indigenous culture.

Indigenous culture

In seeking to identify cultural explanations for differences in Indigenous outcomes in the 'mainstream' society and economy, it is useful to reflect on the defining characteristics of Indigenous cultures and how the values and preferences of Indigenous people may differ from those of non-Indigenous people. Any comprehensive treatment of such questions would need to traverse multiple disciplines and is far beyond the scope of this current project. On a pragmatic note, the empirical analysis is ultimately limited by the available variables in the ABS 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) and, thus, is only likely to be able to reflect basic and observable aspects of Indigenous cultures rather than more complex and deeper insights about them. One important qualification at the outset is that, while we sometimes speak of 'Indigenous culture' as if there is only one Indigenous culture, in reality there is considerable diversity among Indigenous people from different regions.

Some common features, however, are the emphasis placed on kinship and the relationships with other members of Indigenous communities and with the land. That these relationships have special meanings and that the recognition of them is an important part of Indigenous culture seems pervasive across Indigenous groups, which contrasts with the emphasis placed on the individual and the nuclear family within non-Indigenous culture (see, for example, Berry et al. 2001; Christie 1985; Greer & Patel 2000; Long, Memmott & Seelig 2007; Thompson, Gifford & Thorpe 2000). Thompson, Gifford and Thorpe (2000, p.728) offer the following as distinguishing characteristics of Indigenous culture:

- ✧ centrality of family and the extended kinship system
- ✧ low emphasis on individual ownership of possessions relative to obligations and contributions to the other members of the family and community
- ✧ the role of connections to land and to the past in their sense of self-identity: 'Individuals identify with where they are from because this indicates who they are and where their "home country" is'.

In contrast to values like achievement and efficiency emphasised by Western culture, Greer and Patel (2000) claim that '… extensive literature provides evidence of unique Australian indigenous cultural values … which encompass interdependence, relationships, cooperation and coexistence'. Key among these are kinship and the relatedness to, and reciprocal relationships with, the land as identifying characteristics of Indigenous culture (Greer & Patel 2000; Thompson, Gifford & Thorpe 2007; Christie 1985). For Indigenous people the duality between working and living, or work and play, does not hold and there is a greater emphasis upon work contributing to the community and lesser emphasis on personal wealth, meaning that individual income and possessions are shared more widely (Berry et al. 2001, p.5; Greer & Patel 2000).

Studies of language and communication are never far removed from studies of culture. As noted in the previous chapter, distinctive symbols and channels by which beliefs, knowledge and traditions are communicated between individuals and passed on from one generation to the next are one of the ways of identifying cultures. Hence, participation in the unique ceremonies, dances, rituals, art, stories and other such customs of Indigenous Australians that communicate beliefs and values all contribute to making up separate Indigenous cultures.

Indigenous culture and educational outcomes

Having followed Guiso, Sapienza and Zingales (2006) in defining culture in terms of values and beliefs, we can similarly draw on the two potential channels they identify by which culture impacts upon economic and social outcomes: differences in beliefs (or priors) and differences in values (encompassing preferences). Consider that a particular socio-economic outcome, Y, can be achieved through a set of actions, X. Even assuming that people from two different cultures have the same capacity to carry out that set of actions, they may achieve different levels of outcomes because of different preferences: they may place a different value on Y, or different preferences (be it enjoyment or distaste) for carrying out X; or they may have different beliefs regarding the likelihood that X will bring about Y.

> People must make many decisions in life in which they lack previous experience: which college to attend, which profession to undertake, how much to save for retirement. In these situations, choices must be based on prior beliefs. But how are these prior beliefs determined? Culture might play a big role here. (Guiso, Sapienza and Zingales 2006, p.10)

Many Indigenous Australians may justifiably believe that they face barriers in many socio-economic domains and, thus, have lower incentives to commit to the set of actions required to succeed. The set of actions that determine many socio-economic outcomes—for example, in education, health, housing and employment—also involve engagement with institutions. In circumstances in which there is a dominant culture and minority culture, it is likely that the institutions operate in a way which is consistent with the dominant or 'mainstream' culture. Where traditional practices are weakened or no longer operate, Indigenous Australians must engage with mainstream institutions that may be less suited to their own preferences or conflict with other cultural priorities.

Health and housing are two areas where Indigenous culture has been linked to inferior outcomes. In health, for example, Thompson, Gifford and Thorpe (2000) suggest that Indigenous people with diabetes continue to eat high quantities of salt and fat even when warned they are at risk because of the cultural importance of family meals and inappropriateness of requesting an individualised meal. However, housing and health services are predominately delivered in a way that meets mainstream requirements. Cultural misunderstandings (often due to a breakdown in communication) and cultural differences have also resulted in services being less appropriate to Indigenous needs and preferences (see Berry et al. 2001; Long, Memmott & Seeling 2007; Trudgen 2000).

Education is another such area in which cultural differences are important in shaping outcomes, and where Indigenous people face a system tailored to mainstream culture. Today, an Indigenous child in Australia is around half as likely as a non-Indigenous child to complete Year 12. While Indigenous participation in post-secondary education has increased markedly in recent years, non-Indigenous people are still 1.6 times as likely to go to university. Indigenous people are actually more likely to undertake VET, but tend to enter lower-level courses (Steering Committee for the Review of Government Service Provision 2007, chapter 3; Miller 2005).

From the 1960s, anthropological research into the low rates of school retention and otherwise poor educational outcomes of Indigenous children has emphasised the mismatch between the cultures of Indigenous families that shape the socialisation of Indigenous children, and the culture those children were confronted with at school. The main difference cited is that Indigenous children are likely to place more value on cooperation and communal roles, while the school culture emphasises competition and individual achievement as the determinants of educational success (see Dawes 1998, pp.9–19). Assertively speaking up and asking questions is considered positive and a sign of good communication skills in Western societies, but not so in Indigenous and many other cultures (Li, D'Angiulli & Kendall 2007, p.221). From relatively early in childhood, Indigenous children are given greater independence and autonomy from their parents and other adults, and their learning is very outcomes-oriented rather than abstract. Differences in Indigenous children's learning and communication styles are often misinterpreted as laziness or disinterest (Christie 1985, chapter 5; Mellor & Corrigan 2004, p.34).

There is considerable evidence to suggest that Indigenous people do feel alienated in mainstream educational institutions, as well as evidence of differences in aspirations of Indigenous and non-Indigenous students (Craven n.d.; Gelade & Stehlik 2004; Miller 2005). As a result there has been recognition of a need to foster Indigenous people's sense of personal identity and increase self-esteem to improve outcomes. The discussion above would suggest Indigenous people may be less likely to pursue education and training if it is seen as self-serving—such as for greater individual income—and more likely to follow vocations which will benefit the wider community. There can also be different pressures on Indigenous students from outside the education system:

> The young people who have stayed at school beyond the age of compulsion all spoke of the cost of doing this in terms of the social alienation from friends and family members who have left school to join the peer group. They were under constant pressure to leave. Their identity as 'real Aborigines' was constantly being questioned, they were accused of being 'white fellas' because they refused to abandon the schooling system.
>
> (Groome & Hamilton 1995, p.32, cited in Dawes 1998, p.19)

On a range of cultural grounds, Li, D'Angiulli & Kendall (2007, p.230) question the wisdom of policies designed to 'make the child fit the school', citing evidence from Canada and Australia that when Indigenous and other cultural communities exercise control over children's education they typically enact changes that make the school fit the needs of their children. Chandler, Lalonde, Sokol and Hallett (2003) present evidence that Indigenous administration of schools in Aboriginal communities in Canada reduced the rates of youth suicide, as did the promotion of 'cultural continuity' in the communities more generally. Evidence of improved outcomes from engaging with Indigenous culture in school and vocational education and training can also be found in reviews of the Australian literature (Mellor & Corrigan 2004; Miller 2005). For schools, Mellor and Corrigan (2004 p.35) stress:

> Teachers' pedagogical practice must affirm each child's cultural identity. Rather than a child's culture being marginalised in teaching, it must be treated as an asset of real value to each child and to those who interact with them. Evidently such practices are those adopted by good teachers.

Miller identifies community ownership and involvement, and the incorporation of Indigenous identities, cultures, knowledge and values as key factors leading to better outcomes from VET (2005, p.50).

Other factors thought to contribute to poorer Indigenous educational outcomes include higher rates of poverty, perceptions of a weak link between education and employment, and the availability of Community Development Employment Project placements acting as a disincentive to pursuing further education (Mellor & Corrigan 2004, pp.31–34). The latter two factors are particularly relevant to Indigenous people in remote communities (Gelade & Stehlik 2004).

Measuring Indigenous culture

The 2002 NATSISS

The data used for the empirical analysis come from the 2002 National Aboriginal and Torres Strait Islander Social Survey (NATSISS). Like its predecessor, the 1994 National Aboriginal and Torres Strait Islander Survey, the objective of the 2002 survey was to facilitate 'analysis of the interrelationship of social circumstances and outcomes, including multiple disadvantage, that may be experienced by Aboriginal and Torres Strait Islander Australians' and enable reliable comparisons with the non-Indigenous population (ABS 2004, p.1). A summary of the findings can be found in ABS 2004 and more details on the survey methodology and available data in ABS 2005 and its associated addendum. Hunter (2006) and a special issue of the *Australian Journal of Labour Economics* (Biddle & Hunter 2006) provide discussions of methodological issues and compilations of research based on the data.

The scope of the survey was Indigenous people aged 15 years and over living in private dwellings in remote and non-remote areas in all Australian states and territories. This included dwellings in discrete Indigenous communities and out-stations. To ensure reliable estimates for Torres Strait Islanders, this population was oversampled. The fieldwork was conducted between August 2002 and April 2003, with the surveys completed through face-to-face interviews. To accommodate local differences in language and culture, some changes to the wording of the survey instrument were made and interviewers were accompanied where possible by local Indigenous facilitators who assisted in explaining the purposes of the survey and interpreting questions if required (ABS 2005, 2004; Biddle & Hunter 2006).

A sample of 9359 respondents who either self-identified or were identified by a parent or guardian as being Indigenous was achieved from 5887 participating households. This represented a response rate of about 80% among those households the ABS identified as having an Indigenous resident. The ABS estimates that the sample represents around 1 in 30 of the Indigenous population aged 15 and over in Australia (ABS 2005, 2004). Biddle and Hunter (2006) review methodological issues relating to the survey and note several limitations that may be of relevance to this study. Perhaps of most importance is the exclusion of those in non-private dwellings, which includes prisons, hostels and hospitals. This a potential source of bias given the high representation of Indigenous Australians in the prison system, and the fact that such exclusions are unlikely to be random with respect to many variables, including education, socio-economic status, and perhaps those relating to culture. It can be estimated from previous ABS surveys that around 4% of the Indigenous population live in non-private dwellings (Biddle & Hunter 2006, p.35). Second, data was not released to indicate whether or not the interview was completed with the assistance of an Indigenous facilitator and, thus, it is not possible to assess whether the presence of such facilitators influenced the responses in Indigenous communities.

Measuring culture with the NATSISS

All respondents to the NATSISS are of Indigenous descent. One of the dimensions in which culture is defined—the connections between individuals that define the group—is therefore redundant. This fact also precludes attempting to define Indigenous culture by investigating differences in the values

of Indigenous and non-Indigenous people. Instead, the approach taken is to deem all respondents in the sample to be 'of Indigenous culture', and to attempt to measure the strength of their 'attachment' to this culture. Consistent with the approach of defining culture as intergenerationally transmitted values and preferences, attachment is taken to mean the importance placed upon values and the strength of preferences towards activities and goods, which can be considered as having been passed through generations and have a symbolic meaning to Indigenous people.

From the variables available in the Confidentialised Unit Record File, those selected as potential indicators of the strength of attachment to Indigenous culture are listed in table 1. Unfortunately the data collected, although self-reported, is of a factual or objective nature. No attitudinal variables or questions relating to values or preferences are available. Thus, the 'importance placed' and 'strength of preference' cannot be directly measured but must be inferred from reported behaviour.

While some other variables relating to culture are available, it was judged that these would add little cultural information to that already embodied in the variables listed in table 1. These additional variables include:

- ✧ whether they undertook voluntary work in past months and, if so, what type of organisation the voluntary work was done for (options include arts/culture)
- ✧ whether their employment allows for cultural responsibilities
- ✧ the number of dwellings lived in over the last 12 months and the main reason for last move (options include to live on/be close to homelands, be close to family/friends and 'sorry business').

The information on work allowing for cultural responsibilities has limited usefulness for the purposes here; firstly, because responses are conditional on being employed, and secondly, because answers cannot be taken to imply, definitely, whether the individual actually has or seeks cultural responsibilities. The number of dwellings lived in is flagged as a potential indicator as mobility between households and the fluidity of the composition of Indigenous households has been noted as a trait of Indigenous people, particularly within the housing research (Long, Memmott & Seeling 2007). However, inclusion of this as a 'cultural' variable risks associating other negative factors that lead to mobility with Indigenous culture, such as homelessness, poverty and relationship breakdowns.

Peterson (2006) provides an assessment of the 'culture' questions in the 2002 NATSISS. He notes that they represent a significant improvement on the questions contained in the 1994 NATSISS, but also notes some limitations. One of these is that 'homelands' is itself an ambiguous term. Peterson expresses reservations on the use of the set of questions on cultural responsibilities, as the definition used '… includes both voluntary and involuntary responsibilities. Telling traditional stories or attending festivals, would usually be rather more optional, than attending a funeral for a close relative'. (2006, p.276). However, in assessing the evidence on cultural participation, Peterson draws on a similar set of variables, as has been included in table 1.

For those willing to be asked about the topic, data is also available on whether the respondent was removed from their natural family and whether other family members were removed. While this may not provide a direct measure of culture, it is highly plausible that removal from natural family creates an exogenous source of variation in cultural attachment and, thus, the variable could serve as a valuable instrument to overcome endogeneity problems in modelling outcomes.

Table 1 Potential indicators of attachment to Indigenous culture

Indicator	Percent of total sample
Main language spoken at home:	
– Aboriginal language	15.1
– Torres Strait Islander or other language	4.0
– English	80.9
Whether speaks an Indigenous language:	
– speaks an Indigenous language	28.5
– speaks only some Indigenous words	22.3
– does not speak an Indigenous language	49.1
Identifies with clan, tribal/language group	58.6
Recognises homelands:	73.0
– and lives on homelands	26.0
– and allowed to visit homelands	45.7
Attended cultural event in last 12 months	72.9
Type of cultural event attended:	
– funeral	54.3
– ceremony	25.8
– sports carnival	35.2
– festival/carnival involving arts, craft, music or dance	35.8
– involvement with Indigenous organisation	27.1
Participated in cultural activity in last 12 months:	27.3
– participated for payment	8.5
– participated without payment	18.8
Type of cultural activities received payment for:	
– arts or crafts	6.4
– music, dance or theatre	2.2
– writing or telling stories	2.6
Type of activity participated in without payment:	
– arts or crafts	10.8
– music, dance or theatre	5.1
– writing or telling stories	9.8
Involved in social activities in last 3 months	88.2
Type of social activities involved in:	
– recreational or cultural group activities	28.5
– community or special interest group activities	21.4
– attendance at ATSIC or Native Title meetings	4.3
– funerals, ceremonies or festivals	17.4
– fishing or hunting in a group	17.7

Leaving cultural responsibilities aside, the set of variables included in the 2002 NATSISS seem to point toward two broad dimensions of cultural attachment: identity and participation. Identity encompasses spoken languages—recognition of clan, tribal group or language group and recognition of homelands. Participation relates to attendance at, or participation in, cultural and related social activities. To explore these dimensions further within the data, a set of dummy variables was created covering the cultural indicators listed in table 1 and a factor analysis was performed to identify common associations among the variables that summarise cultural

dimensions.[1] The results suggest one dominant factor, or linear combination of the variables, is capable of explaining a large proportion of the variance in the data (Eigenvalue of 4.95). This factor is most strongly correlated with involvement in the social activities of 'funerals, ceremonies or festivals' and 'fishing or hunting in a group'; speaking an Indigenous language (at home or otherwise); and attending a cultural event of 'ceremony'.

The factor pattern following rotation reveals factors including those relating to language and participation in ceremonies; identity with a clan, tribal or language group and attendance at funerals; participation in ATSIC or community groups; and participation in writing or telling stories, arts, crafts, music, dance, theatre or music (Eigenvalues ranging from 1.03 to 3.38). In trying to generate a single, summary measure of cultural attachment, only the dominant factor prior to rotation is used here, although the effects of different dimensions of culture on VET outcomes is a potential avenue for further investigation. Using the correlations for each variable (reported in appendix 1), a 'cultural attachment' score can be calculated for each individual. This is standardised such that the resulting cultural attachment variable has a mean of zero and standard deviation of one for the full sample. This continuous measure will be referred to as an 'index' of cultural attachment.

As a test of the validity of this instrument as a measure of cultural attachment, two hypotheses are investigated. The first is that Indigenous people living in more remote areas are likely to have a stronger degree of cultural attachment. The second is that, due to the ongoing process of cultural destruction, Indigenous youth will have lower levels of cultural attachment than older age groups. The figures reported in table 2 support the hypothesis with regard to remoteness. The mean for the cultural attachment variable is far and away the highest for Indigenous people living in remote and very remote Australia. There are only small differences in the means for those living in inner or outer regional Australia or major cities. Those in outer regional Australia do have higher average cultural attachment than those in inner regional Australia, but the mean for major cities falls between the two. In fact, the difference in means between those in outer regional Australia and those in major cities is not statistically significant.

Table 2 Cultural attachment by remoteness

ASGC remoteness structure	N	Mean
Major cities of Australia	1482	-0.063
Inner regional Australia	1251	-0.080
Outer regional Australia	2509	-0.052
Remote and very remote Australia	4117	0.171

Notes: Differences in the means are highly significant between any two remoteness levels, with the exception of major cities and outer regional Australia.
ASGC = Australian Standard Geographical Classification.

The differences in means between age groups are in fact very minor but again offer broad support for the use of the factor score as a measure of cultural attachment. Average cultural attachment generally trends upwards with age, being lowest for people aged 15 to 19 years and highest for those aged 60 to 64 years. Again, however, the relationship is not a clear linear one. Cultural attachment drops off for those aged 65 and over, but this is likely to reflect old age imposing limits on people's capacity to attend and participate in cultural activities.

A second measure of cultural attachment is also developed based on a hierarchical allocation of individuals to one of four mutually exclusive categories: strong, moderate, weak and minimal cultural attachment. The definitions of each are set out in the table 3, where stronger levels of cultural attachment take precedence over lower levels.

[1] More specifically, the SAS 9.0 'factor procedure' was used with the principal components method and varimax rotation option.

Table 3 Hierarchical ordering of individuals' cultural attachment

Category	Qualifying conditions
Strong	Speaks an Indigenous language at home
	Speaks an Indigenous language and either recognises homelands or identifies with a clan, tribal or language group
Moderate	Speaks an Indigenous language but does not recognise homelands or identify with a clan, tribal or language group
	Speaks only some Indigenous words and either recognises homelands or identifies with a clan, tribal or language group
Weak	Speaks only some Indigenous words, recognises homelands or identifies with a clan, tribal or language group and has participated in at least one cultural activity in the past 12 months
	Speaks no Indigenous words, does not recognise homelands nor identify with a with a clan, tribal or language group but participated in three or more cultural activities in the past 12 months
Minimal	Speaks no Indigenous words, does not recognise homelands nor identify with a with a clan, tribal or language group and participated in fewer than three cultural activities in the past 12 months

The cultural activities included in the hierarchical definition are: attending ceremonies, festivals or carnivals involving arts, craft, music or dance; involvement with an Indigenous organisation; participation in cultural activities (arts, craft, music, dance, or story writing/telling) whether for payment or not; attendance at ATSIC or Native Title meetings; and fishing or hunting in a group. A number of items contained in the derivation of the cultural attachment index are deliberately excluded. These include attendance at funerals, given Peterson's (2006) reservation that such attendance might reflect obligations rather than a voluntary cultural engagement. Involvement in the social activities of 'funerals, ceremonies or festivals' is unfortunately grouped together as a single data item in NATSISS, and is likewise excluded. Attendance at sports carnivals and involvement in recreational social activities and community or special interest group meetings are also excluded given that many such activities may not be directly linked with Indigenous culture.

The motivation for this second hierarchical measure is firstly to use as a sensitivity test to the principal measure of cultural attachment—the cultural attachment index. Second, the value of the index is strongly influenced by individuals' activities. This potentially creates problems of endogeneity in which engagement in the labour force and in education and training may be argued to also increase participation in cultural-related activities and, hence, 'cause' an increase in cultural attachment rather than cultural attachment affecting labour market activities. The hierarchical measure gives much greater weighting to fixed cultural traits of speaking an Indigenous language at home, fluency in Indigenous language, recognition of homelands and identification with a clan, tribal or language group.

This ordering is admittedly highly subjective. It assumes that speaking an Indigenous language at home is the strongest indicator of cultural attachment, followed by speaking an Indigenous language (but not as the language spoken at home), with equal weighting given to recognition of homelands and identification with a clan, tribal or language group. However, the precedence given to language is consistent with the results of the factor analysis. Participation in cultural activities is only used in differentiating between the lowest two categories of minimal and weak cultural attachment.

Overview of culture and educational attainment

This chapter provides a descriptive overview of Indigenous Australian's educational attainment and recent VET experiences based on the data contained in the 2002 NATSISS, and seeks to identify any systematic differences according to individuals' degrees of attachment to their traditional culture. Initially, a brief overview of the bivariate relationships between the main education and training variables, remoteness and labour force status is provided. It is well established that Indigenous Australians achieve markedly lower levels of educational attainment than non-Indigenous Australians, but actually have high rates of participation in VET (see, for example, Steering Committee for the Review of Government Service Provision 2007, chapter 3; Miller 2005). Table 4 shows educational attainment for Indigenous people aged 21 and above. The sample is restricted to people aged 21 and over because a high proportion of people below this age are still in school or further education. In total only around one-third of the Indigenous population aged 21 and over have completed Year 12 and only 4% possess a university degree. It is clear that educational attainment is lower in more remote areas. Almost half of the Indigenous population living in major cities have completed high school, declining to around a quarter for those in remote and very remote Australia. Rates of completion of certificates and degrees also decline with remoteness, while many more in remote areas did not attend school or progress past Year 9.

Table 4 Educational attainment, Indigenous people aged 21 and over (%)

	Major cities	Inner regional	Outer regional	Remote & very remote	Total
Postgrad. degree/Grad. dip./Grad. cert.	4.2	3.2	3.2	2.0	3.2
Bachelor degree	14.5	13.6	8.9	5.8	10.6
Advanced dip./Diploma	11.7	8.4	11.0	6.9	9.6
Certificate III/IV	11.5	9.8	8.6	9.2	9.9
Certificate I/II	6.3	6.3	6.4	7.0	6.5
Year 12	20.1	20.3	22.3	19.5	20.5
Year 11	10.7	13.2	13.4	11.0	11.9
Year 10	13.1	20.5	22.5	29.3	21.2
Year 9	0.5	0.3	1.3	7.5	2.6
Year 8 or below	4.2	3.2	3.2	2.0	3.2
Never attended school	14.5	13.6	8.9	5.8	10.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Observations	1185	1013	2119	3395	7712

Note: 'Certificates not further defined' have not been included as post-school qualifications.

The NATSISS provides some evidence on the reasons for non-completion in the form of a question on the main reason for leaving school. For those of whom the question is asked, by far the most common response is 'did not like school', irrespective of remoteness. This was followed by getting or wanting to get a job or apprenticeship, and for personal or family reasons.

The NATSISS also collected data on participation in vocational training in the 12 months leading up to the survey. Of all Indigenous people of working age, 27.4% attended a VET course in the past 12 months. Table 5 shows that participation in VET is strongly dependent upon employment status, with those in work being the most likely to have participated, and those not in the labour force the least likely. Rates of participation in VET are similar in the major cities and the inner- and outer-regional areas, but markedly lower in remote and very remote areas. The most common forms of training undertaken were recorded as: occupational health and safety training; computer or office training; 'other' training; trade or labour training and management/supervision training.

Table 5 Participation in VET in past 12 months by labour force status and remoteness, people aged 15–64

	Major cities	Inner regional	Outer regional	Remote & very remote	All regions
Employed	47.6	51.0	51.6	31.2	44.0
Unemployed	27.2	21.3	25.8	19.7	25.4
Not in the labour force	6.2	3.8	10.4	3.6	6.1
Total	**31.0**	**28.4**	**30.4**	**20.0**	**27.4**

Of those who did attend a training course, the vast majority (86%) reported that they did use the training they received (table 6). This was highest for employed people (93%) and, in turn, almost all of those in employment who reported using their training used it for work. Around 8% of those in work who attended a course reported using that training to find a job. However, almost as many people who used their training to find a job were either unemployed or no longer in the labour force at the time of the interview. This suggests that a high proportion the jobs arising from the training were short-term or seasonal jobs.

Table 6 Use of training by labour force status, people aged 15–64 who had attended a VET course in the last 12 months

	Employed	Unemployed	Not in the labour force	All
Used training:	92.6	70.0	42.7	85.6
– for work[(a)]	*91.2*	*31.9*	*26.7*	*78.3*
– to get a job[(a)]	*8.1*	*33.5*	*14.2*	*11.9*
– other[(a)]	*1.2*	*6.4*	*10.9*	*2.6*
Did not use training	7.4	30.0	57.3	14.4
Total	**100.0**	**100.0**	**100.0**	**100.0**
Observations	1869	234	248	2351

Note: (a) People could nominate multiple uses for their training and, hence, the sum of the percentages in these three sub-categories exceed the percentage who used training.

Variation by cultural attachment

The significant variation in education and training experiences by key variables such as remoteness and employment status highlight the need for multivariate analyses to ascertain the independent effects of cultural attachment upon education and training outcomes. However, to first provide insights into the bivariate relationships, the cultural attachment index developed through the factor analysis (see previous chapter) is used to allocate individuals into four groups representing the quartiles of the distribution, which are also referred to as strong, moderate, weak and minimal cultural attachment. Table 7 demonstrates that the relationship between cultural attachment and educational attainment is not a simple one. Those Indigenous people with strong cultural attachment seem more likely to attain tertiary educational qualifications, but are also more likely to have never attended school or to have dropped out before Year 9. The proportion who completed Year 12 is in fact

highest for those with intermediate levels of cultural attachment, at 41.8% of those with moderate attachment and 39.3% of those with weak attachment. This compares with 36.3% of Indigenous people with strong cultural attachment. Those with the lowest level of cultural attachment are the least likely to have completed Year 12 (32.1%). Those with intermediate levels of cultural attachment are also more likely to have attained a certificate level qualification.

Table 7 Highest educational attainment by cultural attachment, Indigenous people aged 21 and over (%)

	Cultural attachment index				
	Minimal (bottom quartile)	Weak (2nd bottom quartile)	Moderate (2nd highest quartile)	Strong (top quartile)	All
Postgrad. degree/Grad. dip/Grad. cert.	0.8	1.0	1.1	2.2	1.3
Bachelor degree	1.8	3.1	2.2	4.1	2.8
Advanced dip./Diploma	1.8	2.8	4.2	3.9	3.2
Certificate III/IV	10.5	12.3	11.9	8.0	10.6
Certificate I/II	8.4	11.4	10.3	8.4	9.6
Year 12	8.7	8.8	12.2	9.7	9.9
Year 11	7.1	4.9	7.5	6.4	6.5
Year 10	22.9	21.5	20.5	17.1	20.5
Year 9	15.9	12.6	9.3	9.8	11.9
Year 8 or below	21.1	20.5	19.0	24.0	21.2
Never attended school	0.9	1.1	1.8	6.4	2.6
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Observations	1639	1624	2068	2381	7712

Note: 'Certificates not further defined' have not been included as post-school qualifications.

Restricting the sample to those with post-school educational qualifications, there is a clear difference in the fields of study to which Indigenous people of different levels of cultural attachment are attracted, and this provides further validation for the measure of cultural attachment (table 8). Those with strong cultural attachment are more likely to have gained their qualification in the field of 'society and culture' than those with weaker attachment. They are also much more likely to have gained teaching qualifications. In contrast, Indigenous people with weak or minimal cultural attachment appear much more likely to have entered engineering and related fields and, to a lesser extent, information technology.

Table 8 Field of highest educational qualification, Indigenous people with a post-school education (%)

	Cultural attachment index				
	Minimal (bottom quartile)	Weak (2nd bottom quartile)	Moderate (2nd highest quartile)	Strong (top quartile)	All
Natural and physical sciences	0.1	1.0	0.2	0.1	0.4
Information technology	5.4	1.2	1.8	0.5	2.1
Engineering & related technologies	23.4	25.0	12.6	12.4	18.0
Architecture & building	10.4	11.2	11.7	7.7	10.2
Agriculture, environment & related	7.6	5.8	4.6	4.2	5.4
Health	16.0	9.2	10.1	13.4	11.9
Education	2.4	9.0	8.8	20.4	10.5
Management & commerce	15.4	13.4	22.7	12.7	16.3
Society & culture	10.5	7.6	15.5	22.6	14.2
Creative arts	1.2	2.8	3.2	3.5	2.8
Food, hospitality & personal services	5.8	11.3	6.0	2.0	6.3
Mixed field/not determined	1.8	2.4	2.6	0.5	1.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Observations	267	306	457	498	1528

Note: 'Certificates not further defined' have not been included as post-school qualifications.

As shown above, participation in vocational education and training courses is highly dependent upon an individual's labour force status. Among working aged people, it is those with strong cultural attachment who have the highest employment rates and the lowest incidence of unemployment. In fact the unemployment rate among those in the top quartile of the cultural attachment index, at around 12%, is less than half the rate observed for any other quartile. Table 9 shows the proportion of working aged people who participated in a VET course in the past 12 months. It seems that the levels of participation in VET courses by labour force status follow a similar pattern irrespective of the level of cultural attachment.

Table 9 Participation in a VET course in the past 12 months (%), by labour force status and cultural attachment, people aged 15–64

	Cultural attachment index				
	Minimal (bottom quartile)	Weak (2nd bottom quartile)	Moderate (2nd highest quartile)	Strong (top quartile)	All
Employed	42.8	44.3	48.9	40.7	44.0
Unemployed	24.2	21.5	24.7	31.0	24.4
Not in the labour force	6.7	4.6	7.7	5.3	6.1
All aged 15–64	**27.6**	**24.0**	**29.9**	**27.8**	**27.4**

Restricting the sample to Indigenous people who were in employment and who participated in a VET course, with respect to the type of training received, the patterns are broadly similar according to the degree of cultural attachment. Health and safety, computer or office training and 'other' are the most common types of training received for all quartiles of the cultural attachment index. For employed people, this also holds with respect to whether training was used and how (table 10). In each quartile of the cultural attachment index, over 90% of employed people reported that they had used that training, and this was primarily for the purposes of their work.

Some differences are notable for Indigenous people who are not working, although we caution that sample sizes are small when investigating quartiles within the labour force status of unemployment and not in the labour force. Indigenous people who are unemployed are slightly more likely to have participated in a training course in the past 12 months if they have strong cultural attachment

(table 9). However, among those who did participate, those with strong cultural attachment are less likely to report having used the training, including for the purpose of getting a job. This suggests, prima facie, that unemployed people with strong cultural attachment do not face barriers to access training, but rather in the opportunity to apply that training. This may be due to limited employment opportunities, particularly in remote communities, but may also reflect problems of appropriateness of the training courses they do access. On the other hand, those training participants outside of the labour force with the stronger cultural attachment appear markedly more likely to report having used that training, particularly for reasons other than work or getting a job. Unfortunately, the data does not allow further exploration of what those 'other' purposes are.

Table 10 Use of training by cultural attachment and labour force status, people aged 15–64 who had attended a VET course in the last 12 months

	Cultural attachment index				
	Minimal (bottom quartile)	Weak (2nd bottom quartile)	Moderate (2nd highest quartile)	Strong (top quartile)	All
Employed					
Used training:	92.2	93.9	90.5	94.0	92.6
– for work[(a)]	*90.9*	*92.5*	*89.5*	*92.3*	*91.2*
– to get a job[(a)]	*9.0*	*8.5*	*6.9*	*8.2*	*8.1*
– other[(a)]	*0.6*	*0.9*	*0.6*	*2.5*	*1.2*
Did not use training	7.8	6.1	9.5	6.0	7.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(Observations)	353	349	561	606	1869
Unemployed					
Used training:	77.6	63.0	75.7	58.8	70.0
– for work[(a)]	*39.7*	*26.9*	*30.8*	*28.3*	*31.9*
– to get a job[(a)]	*38.0*	*29.6*	*36.0*	*27.6*	*33.5*
– other[(a)]	*0.8*	*10.0*	*8.9*	*6.1*	*6.4*
Did not use training	22.4	37.0	24.3	41.2	30.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(Observations)	58	50	81	45	234
Not in the labour force					
Used training:	35.7	33.5	43.8	58.9	42.7
– for work[(a)]	*24.5*	*21.4*	*31.9*	*26.6*	*26.7*
– to get a job[(a)]	*22.3*	*8.3*	*9.2*	*17.4*	*14.2*
– other[(a)]	*7.7*	*8.9*	*9.7*	*18.5*	*10.9*
Did not use training	64.3	66.5	56.2	41.1	57.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
(Observations)	50	50	82	66	248

Note: (a) People could nominate multiple uses for their training and, hence, the sum of the percentages in these three sub-categories exceed the percentage who used training.

Educational attainment

The preceding descriptive analysis suggests a considerable degree of variation in education and training outcomes according to individuals' levels of cultural attachment, and by other key variables such as remoteness and labour force status. In order to control for the possible confounding effects of these and other variables, such as age and gender, it is necessary to estimate multivariate models of VET outcomes to isolate their association with cultural attachment. This chapter presents the results from models of educational attainment, with the results of models of participation in a VET course presented in the next chapter. The term 'association' is used deliberately to avoid implying causation. As the literature review suggests, cultural interpretations of such relationships need to be carefully constructed and justified.

A further reason to stress that any identified relationships should be treated as associative rather than causal is the mismatch between the points in time at which the dependent and independent variables are determined. All information is collected from the 2002 NATSISS and, thus, the variables are all observed at the same point in time. However, the individual's geographical location at the time of the survey may have changed from their location when, for example, the decision whether or not to complete school was made. Educational qualification and field of qualification are essentially historical, while key predictor variables such as remoteness and labour force status are contemporaneous. The variables relating to participation in a vocational training course typically relate to the 12 months leading up to the survey.

Educational attainment

For most individuals, the highest level of educational attainment will have been determined some years ago, making it problematic to use variables collected in the 2002 NATSISS as explanatory variables in a model of educational attainment. The exceptions are age and gender, which are predetermined. A variable capturing whether this individual was from the 'Stolen Generation' is also included, because having been removed from their natural family is likely to have an impact upon both cultural attachment and on educational attainment. As these policies of removal applied primarily to children, it can be assumed that in most of these cases the event will have occurred prior to an individual's highest level of education being attained.

Educational attainment is constructed as a continuous variable representing the number of post-primary years of education completed. The variable takes on a value of 0 if the respondent indicated they had never attended school; and a value of 1 if their highest year of school completed was Year 8 or below, through to 5 for those who completed Year 12. Additional years of education are attributed for post-school qualifications: half a year for or certificate I/II, one year for certificate III/IV; two years for a diploma, three years for an undergraduate degree and five years for postgraduate qualifications. This is only a rough approximation of educational attainment but the information required to precisely identify the number of years of education completed is not available in the data. The results are quite insensitive to alternative specifications, including estimation by an ordered probit model or linear regression when educational attainment is measured as an ordered index of the highest level of schooling or qualification attained. The linear specification used here has the advantage of being straightforward to interpret, as long as one disregards the truncation of the dependent variable.

Models are estimated for those aged 21 and over, and then separately for the four remoteness categories: major cities, inner regional, outer regional and remote/very remote Australia. Each model is significant overall but can account for only a small proportion of the variation in educational attainment in the sample (12 to 19%). This is not unexpected given the few independent variables available and the lack of the key predictors known to influence educational outcomes, namely parental education and socio-economic status. The age variables behave as expected, with older cohorts displaying significantly lower levels of educational attainment.

The regression results for all people aged 21 and over (see model 5, table 11) suggest a negative association between the index of cultural attachment and the level of education reached. However, this masks a more complicated story. This association arises because cultural attachment increases with remoteness, while educational attainment falls with remoteness. When dummy variables are included, which represent the individual's geographical region (model 6), cultural attachment is in fact found to be positively associated with the level of educational attained. The result is highly significant in statistical terms.

This specification still constrains the effect of cultural attachment to be the same in each type of region, when in fact it seems plausible that cultural relationships vary according to their contextual settings, including remoteness. To account for this, models are estimated separately by geographical classification (models 1–4, table 11). It becomes clear that in each of the three non-remote areas there is a large, positive and statistically significant association between cultural attachment and educational attainment. In major cities, for example, a one unit increase in the cultural attachment index, which is equivalent to a one standard deviation increase, is associated with almost four additional years of completed education. In contrast, there is a negative relationship for people in remote and very remote areas. This suggests two possibilities for Indigenous people living in non-remote areas: either having strong cultural attachment increases retention and achievement in education, or higher educational attainment helps to facilitate attachment to traditional culture. These explanations are not mutually exclusive and indeed they may reinforce one another.

The situation is reversed, however, for people living in remote and very remote Australia. Here, stronger cultural attachment is associated with lower educational attainment, and this effect is also highly significant. This may be attributable to variation in access to education within the remoteness classification, since it encompasses both remote and very remote communities. This explanation aside, the result suggests that, for Indigenous people living in remote and very remote Australia: pursuing higher educational qualifications leads to a loss of cultural attachment; or having stronger attachment to traditional culture impedes achievement in education; or some combination of the two. However, it must be kept in mind that the region in which the person lived in at the time of the NATSISS may not have been the same region as during their years of schooling and any further education.

The story for people in remote and very remote Australia is in fact even more complex still. The models reported in table 11 were also estimated with cultural attachment modelled as a series of dummy variables (minimal, weak, moderate and strong) representing the quartiles of the cultural attachment index (as in tables 7–10). This is done to test for non-linearity in the relationship between cultural attachment and educational attainment. In each of the three non-remote regions, the results show a monotonic relationship in which educational attainment increases continuously with cultural attachment. In remote and very remote Australia, however, those with strong cultural attachment are found to display the lowest level of educational attainment, but those with moderate attachment in fact have higher educational attainment than those with strong, weak or minimal cultural attachment.

The questions in NATSISS relating to the Stolen Generation are answered only by those who indicate that they are willing to be asked. Around 8% of the sample indicated they had been removed from their natural families and about 5% refused to answer questions on whether they had personally been removed. The inclusion of a variable for whether the individual had been removed from their natural family therefore led to the exclusion of a small proportion of the sample for

model estimation. The results indicate that those of the Stolen Generation achieved lower levels of educational attainment. This outcome suggests the policy of forcibly removing Indigenous children from their families failed in its goal of 'civilising' and 'uplifting' those who were removed. For our purposes, the important point is that its inclusion has a very minor effect on the estimates with respect to the impact of cultural attachment on educational attainment. The effect is to actually accentuate the positive association between cultural attachment and years of post-primary education completed.[2]

A weakness of the cultural attachment index and the dummy variables derived from them is that the metrics and cut-off points based on quartiles have no clear practical interpretation. On the other hand, the hierarchical measure differentiates on the basis of language, recognition of homelands and clan, tribal or language groups. Repeating the analysis using the hierarchical measure of culture as a continuous variable (which varies from 1 to 4) returns very similar results (see table 15 in appendix 2). Representing the variable using a series of dummies also provides the same finding for those in remote and very remote Australia: it is those with very strong and minimal cultural attachment that have the lowest educational attainment, while those with intermediate levels of cultural attachment have higher educational attainment. For other regions the relationship between cultural attachment and educational attainment is not so consistently linear, but the general pattern of higher levels of cultural attachment being associated with higher levels of educational attainment is still evident.

A further set of binary logit models were run to estimate the probability of an individual completing high school and of gaining specific levels of post-school qualifications; namely, certificate level I or II, certificate level III or IV, a diploma or a university level qualification. It was hoped this would provide further insight into the relationship between cultural attachment and participation in formal education and training in the different regions. The same explanatory variables were used as in table 11. It is clear that people in remote and very remote areas are less likely to complete school or to gain post-school qualifications. However, in each region there is a positive and significant correlation between cultural attachment and the likelihood that individuals completed high school. The effect is smaller and significant only at the 10% level in remote and very remote Australia, but still of some magnitude. Issues relating to school quality and access are likely to play a part in the results for remote and very remote Australia, particularly for older survey respondents.

With the exception of the major cities, where the relationship was positive but insignificant, greater cultural attachment is associated with a greater likelihood of gaining a certificate I or II. For certificate level III and IV, there is no significant relationship in the major cities or inner regional Australia, a positive and large relationship in outer regional Australia, and a significant negative relationship with cultural attachment in remote Australia. People with higher levels of cultural attachment are more likely to have completed a diploma irrespective of the region they now live in, although the effect is much less pronounced in remote and very remote Australia. There is similarly a very strong correlation between cultural attachment and the likelihood of having gained a university degree in each of the non-remote areas, but no significant effect in remote and very remote Australia. The small number of tertiary qualified Indigenous Australians makes the validity of these latter results questionable. However, the models which pool people from all levels of remoteness confirm a very large increase in the likelihood that an Indigenous person has gained a university degree if they have stronger cultural attachment.

Hence, it seems the negative relationship between cultural attachment and educational attainment in remote and very remote Australia relates primarily to certificate III and IV level qualifications. Table 7 shows that certificate III and IV level qualifications are the most common form of post-school qualification. They are also strongly linked to employment—directly so in the case of

[2] These findings hold when a wider definition is used in which 'Stolen Generation' is taken to include individuals personally removed from their families plus those whose parents had been removed. This later definition, however, leads to more missing observations ('don't know' and 'refused to answer') and hence the variable based on whether the individual themselves had been removed has been preferred.

apprenticeships. Lower employment opportunities in remote and very remote areas are likely to influence the incentives to gain such qualifications.

Field of qualification

To investigate the relationship between cultural attachment and the field of study chosen by Indigenous people, the sample was restricted to all people with post-school qualifications. Twelve dummy variables were then created for each of the fields reported in table 8, and binary logistic regression models estimated. The models therefore estimate the likelihood that the individual has gained an educational qualification in that field, as opposed to some other field. Age, gender, the level of the qualification and the continuous index of cultural attachment were included as explanatory variables. Rather than report the results for all 12 models, only findings relating to cultural attachment are noted and few of these were statistically significant. Two fields do stand out as disciplines in which people with strong cultural attachment are more likely to be drawn. In order of the magnitude of the effect, these are education, and society and culture. Food, hospitality and personal services, and engineering and related technologies stand out as fields which Indigenous people with stronger cultural attachment are less likely to pursue.

Table 11 Educational attainment, regression results, people aged 21 and over, NATSISS 2002

	By remoteness								All people aged 21 and over			
	Major cities (1)		Inner Regional (2)		Outer Regional (3)		Remote/very remote (4)		(5)		(6)	
	β	*Pr* > |*t*|	*β*	*Pr* > |*t*|	*β*	*Pr* > |*t*|	*β*	*Pr* > |*t*|	*β*	*Pr* > |*t*|	*β*	*Pr* > |*t*|
Intercept	4.13	0.000	3.96	0.000	3.84	0.000	3.28	0.000	3.52	0.000	4.22	0.000
Male	0.05	0.662	-0.12	0.295	-0.05	0.437	-0.15	0.010	-0.12	0.002	-0.10	0.010
Aged 22–24	—		—		—		—		—		—	
Aged 25–34	0.30	0.111	-0.23	0.244	-0.21	0.084	-0.01	0.924	0.00	0.986	-0.01	0.869
Aged 35–44	-0.07	0.730	-0.52	0.009	-0.54	0.000	-0.21	0.031	-0.25	0.000	-0.27	0.000
Aged 45–54	-0.81	0.000	-0.65	0.002	-1.22	0.000	-0.95	0.000	-0.92	0.000	-0.93	0.000
Aged 55–59	-1.49	0.000	-1.17	0.000	-1.59	0.000	-1.60	0.000	-1.43	0.000	-1.45	0.000
Aged 60–64	-1.32	0.000	-1.89	0.000	-1.92	0.000	-2.09	0.000	-1.83	0.000	-1.84	0.000
Aged 65 and over	-1.87	25.490	-2.21	0.000	-2.36	0.000	-2.53	0.000	-2.34	0.000	-2.30	0.000
Removed from family	-0.39	0.017	-0.41	0.027	-0.37	0.002	0.16	0.159	-0.07	0.337	-0.17	0.013
Cultural attachment index	3.94	0.000	2.52	0.000	2.14	0.000	-0.43	0.002	-0.18	0.084	0.62	0.000
Remoteness:												
– main cities											—	
– inner regional											-0.48	0.000
– outer regional											-0.63	0.000
– remote & v. remote											-1.08	0.000
Observations	1169		992		2091		3196		7448		7448	
F-value	25.49	0.000	14.95	0.000	53.10	0.000	76.76	0.000	132.12	0.000	130.32	0.000
R-squared	0.17		0.12		0.19		0.18		0.14		0.17	
Adjusted R-squared	0.16		0.11		0.18		0.18		0.14		0.17	

Participation in a VET course

Likelihood of participation

In estimating multivariate models of participating in a vocational training course, it is possible to widen the set of explanatory variables to include those relating to the individual's current circumstances. The data is still historical in nature, as it relates to whether the individual participated in such a course in the past 12 months. However, it is reasonable to relate such recent activity to current or recent circumstances recorded in the NATSISS. Given the binary nature of the independent variable, logit models are again estimated. The sample is restricted to people aged 15 to 64 and the set of explanatory variables are expanded to include marital status, level of post-school qualification, labour force status (including part-time and full-time status and whether employed under a Community Development Employment Project [CDEP] for employed people), whether the individual has English language difficulties, and the presence of a long-term disability.

Starting first with the models for all Indigenous people aged 15 to 64 (models 5 and 6 in table 12), it can be seen that level of qualification and labour force status have the most pronounced impacts. Persons employed in full-time jobs (the default category) have the greatest likelihood of having participated in a VET course, followed by part-time workers—the unemployed and those not participating in the labour force have the lowest likelihood. Indigenous people with post-school qualifications are also more likely to have participated in a course and, generally, this probability increases with the level of qualification. The coefficients on the regional dummies included in model 6 clearly indicate that Indigenous people living in remote and very remote areas are markedly less likely to have participated in a course (as is also evident in table 5).

The dummy variable capturing the effect of the individual's job being a CDEP job can have a value of one only when the person is employed, and so must be interpreted as an additional effect over and above the impact of full- or part-time employment. The CDEP scheme is most prevalent in the remote and very remote areas. In the NATSISS sample, 57% of people employed in remote and very remote Australia worked in CDEP jobs. This compares with 17% in outer regional areas, 11% in inner regional Australia and 6% in the major cities. Moreover, the vast majority of CDEP jobs (81% in this sample) are part-time. The coefficient indicates that a person working in a CDEP job is markedly less likely to have participated in a VET course in the past 12 months, and this effect is most apparent (and relevant) in the model for remote and very remote Australia. As most CDEP jobs are part-time, the full effect for most participants can be assessed by summing the coefficients on the 'employed part-time' and 'CDEP' variables. This suggests the likelihood of the typical person in a CDEP job participating in training is similar to that for an unemployed person (or about one-half as likely as a person employed full-time). There is weak evidence that CDEP jobs in the major cities are associated with higher levels of participation in a VET course than are other part-time jobs.

The estimated relationship between cultural attachment and recent participation in a VET course is similar to that observed for educational attainment, even with the additional control variables now available. For the overall sample (model 5), the effect of cultural attachment is insignificant. When controls for remoteness are added (model 6), the coefficient on cultural attachment becomes

positive and highly significant. This specification still constrains the estimated effect of cultural attachment to be the same in all regions. When the models are run separately by region (models 1 to 4), we again see that cultural attachment is positively and significantly associated with participation for people in the major cities, inner regional and outer regional areas. A negative association between cultural attachment and participation in VET is again observed for Indigenous people in remote and very remote Australia. However, the result is only marginally significant. Using the dummy variables representing the quartiles of the cultural attachment index, again it seems that in remote and very remote Australia there is an 'inverted U' shaped relationship between cultural attachment and participation in VET: those with strong and minimal cultural attachment are significantly less likely to have participated in VET than those with moderate cultural attachment. Table 16 of appendix 2, which reports the corresponding results to those contained in table 12 but uses the hierarchical measure of cultural attachment, shows that the findings are mostly insensitive to the choice of measure. Representing the hierarchical measure by four dummy variables to allow non-linearity in the relationship suggests the 'inverted U' shaped relationship extends more generally than just in remote and very remote Australia.

Type of VET course undertaken

For those who reported having participated in a vocational training course in the past 12 months, NATSISS classified the type of that training into 11 different categories. These types were not mutually exclusive, such that people who had participated in a course could nominate multiple types. Hence, for each of the 11 types of course, similar sets of models as those reported in table 12 were estimated. The models estimate the likelihood of the individual having undertaken that type of training, given that they had participated in a course. Again it is impractical to report the full set of results, and table 13 provides a summary of some key findings. With respect to culture, some significant findings are that those participants with stronger cultural attachment were much more likely to have participated in literacy and numeracy training and in music, art or craft training than those with weaker cultural attachment. They also tended towards management and supervisory training and computer or office training. In contrast, participants with strong cultural attachment appear less likely to have undertaken trade or labour training; transport, planting and machinery training; sales and personal services training; or health and safety training.

A surprising finding was the lack of any significant relationship between having an English language difficulty and participation in literacy training. This variable is based on whether the individual has difficulties in communicating with service providers. It may be argued that it would be preferable for those with English language difficulties to be more likely to have participated in literacy training, although it is easily conceivable that such people may have low incentives to partake in training. Further, Indigenous people with university education are more likely to have received this training. Again this would suggest some mismatch between who receives literacy training and the target group that would be expected to most need or most benefit from it.

The association between cultural attachment and music, art or craft training is to be expected and is likely to be in part a result of reverse causation, remembering that participation in arts, craft, music, dance and story telling contribute positively to the cultural attachment factor score. The other associations are of interest. Higher educated females are more likely to have undertaken this type of training, while VET participants working full-time were less likely than those in other labour market states to do so.

Some clues to the causes underlying the negative association between cultural attachment and participation in a VET course in remote areas can be gleaned. Two of the types of training which are significantly more common in remote areas—namely trade or labouring training and transport, plant and machinery operation training—have a negative association with cultural attachment. Second, several of the types of training that seem to be complementary with engagement in traditional culture in non-remote areas—computer or office training, literacy and numeracy

training—do not display that same complementary relationship in remote and very remote Australia, or at least a much weaker association.

VET participants working under a CDEP program are more likely to have undertaken training in trade or labouring; transport, plant and machinery operation; and music, art or craft. The CDEP scheme seems less likely to provide VET participants with management or supervisory training, sales and personal service training, numeracy training, 'other' training, and computer or office training than non-CDEP jobs. As would be expected, the relationships between type of training undertaken and CDEP employment are most pronounced in the more remote areas, but in the case of music, art or craft training, the effect is largest in the major cities.

Use of VET

The final set of multivariate estimates look at the probability that training was used, given that the individual did participate in a VET course in the past 12 months. Due to the small samples for unemployed people and those outside of the labour force who had participated in a VET course, the sample is restricted only to employed people. Further, the vast bulk of participants (around 94%) report using their training, leaving very few observations on those who reported not using their training and resulting in the validity of the models being questionable when estimated for separate regions. Only a few significant results could be claimed with any confidence. These are that: part-time workers and those with English language difficulties who participated in a VET course in the past 12 months are significantly less likely to report having used that training; people with certificates or diplomas are more likely to have done so; and VET participants employed under a CDEP scheme are roughly half as likely to have used their training as participants employed in non-CDEP jobs. The index of cultural attachment is also significant and positive, suggesting those with stronger cultural attachment are more likely to have used the training they participated in than those with lower cultural attachment. This relationship holds when controls for remoteness are included.

In both magnitude and statistical significance, having English language difficulties is the most pronounced, with the results implying that such individuals are around 70% less likely to use their training. This may be due to the type of training these individuals undertake, but may also reflect a failure in training delivery to respond to the needs of Indigenous participants for whom English is not their main language.

Table 12 Participation in VET in last 12 months, logistic regression results, people aged 15–64, NATSISS 2002

	By remoteness								All people aged 15–64			
	Major cities (1)		Inner regional (2)		Outer regional (3)		Remote/very remote (4)		(5)		(6)	
	Coef.	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|
Intercept	0.38	0.085	0.62	0.018	0.06	0.732	-0.10	0.509	0.06	0.508	0.22	0.046
Male	-0.07	0.607	-0.25	0.133	-0.04	0.697	0.14	0.122	-0.02	0.737	-0.03	0.664
Aged 15–19	0.30	0.212	-0.15	0.583	0.63	0.001	0.09	0.589	0.19	0.058	0.19	0.059
Aged 20–24	0.50	0.035	0.09	0.748	0.08	0.648	0.12	0.403	0.11	0.226	0.13	0.184
Aged 25–34	0.16	0.386	0.06	0.781	0.15	0.296	-0.12	0.328	0.00	0.976	0.00	0.970
Aged 35–44	—		—		—		—		—		—	
Aged 45–54	-0.77	0.001	-0.40	0.124	-0.30	0.096	-0.30	0.044	-0.40	0.000	-0.40	0.000
Aged 55–59	-0.80	0.055	-0.21	0.625	-1.17	0.000	-0.22	0.360	-0.53	0.001	-0.54	0.001
Aged 60–64	-1.62	0.022	-1.03	0.147	-1.09	0.013	-0.31	0.428	-0.83	0.001	-0.85	0.001
Married	0.15	0.335	-0.29	0.096	0.12	0.305	0.10	0.308	0.00	0.945	0.02	0.768
Has disability	0.08	0.595	0.14	0.408	-0.12	0.313	0.05	0.604	0.02	0.766	0.01	0.910
Has English difficulty	-0.51	0.134	-0.39	0.199	0.08	0.636	0.02	0.849	-0.09	0.285	-0.05	0.548
Post-school quals:	0.42	0.124	1.21	0.006	1.45	0.000	1.35	0.000	1.22	0.000	1.14	0.000
– university												
– diploma	1.30	0.000	0.76	0.062	1.51	0.000	1.16	0.000	1.36	0.000	1.31	0.000
– cert. III or IV	0.32	0.139	0.51	0.036	0.75	0.000	0.43	0.009	0.62	0.000	0.58	0.000
– cert. I or II	0.04	0.839	0.28	0.158	0.28	0.038	0.44	0.000	0.38	0.000	0.35	0.000
Labour force status:												
– employed full-time	—		—		—		—		—		—	
– employed part-time	-0.63	0.001	-0.26	0.210	-0.43	0.004	-0.65	0.000	-0.52	0.000	-0.54	0.000
– unemployed	-1.80	0.000	-1.33	0.000	-1.30	0.000	-1.55	0.000	-1.42	0.000	-1.46	0.000
– not in labour force	-2.73	0.000	-2.81	0.000	-2.32	0.000	-3.08	0.000	-2.69	0.000	-2.70	0.000
– CDEP job	0.72	0.060	-0.48	0.145	-0.27	0.166	-0.77	0.000	-0.73	0.000	-0.60	0.000
Cultural attachment index	2.06	0.000	3.23	0.000	2.64	0.000	-0.39	0.089	0.11	0.491	0.62	0.000
Remoteness:												
– main cities											—	
– inner regional											0.00	0.965
– outer regional											0.07	0.399
– remote & v. remote											-0.47	0.000
Mean of dependent variable	0.34		0.30		0.30		0.22		0.27		0.27	
Observations	1409		1150		2332		3781		8672		8672	
Likelihood ratio χ^2	453	0.000	324	0.000	582	0.000	817	0.000	2012	0.000	2071	0.000
Percent concordant	82.5		81.3		79.9		80.1		79.5		80.1	

Table 13 Findings of logit models of type of training, people who participated in a vocational course in the past 12 months

Type of training	Relationship with the index of cultural attachment	Other significant relationships
Trade or labouring training	Negative association, especially in outer regional and remote/very remote areas	Positive: male, young, remote/very remote areas, CDEP job
		Negative: university qualifications
Transport, plant and machinery operation training	Negative, significantly so in inner regional and remote/very remote areas	Positive: male, middle-aged, non-metropolitan areas, disabled, CDEP job
		Negative: diploma/university qualifications
Management/supervision training	Generally positive, only significantly so in outer regional areas and models with pooled data	Positive: aged 35–44, employed full-time, university qualifications and, to lesser extent, diploma
		Negative: CDEP job
Technical training	No clear relationship	Positive: male, major cities, higher level educational qualifications (cert. III & IV and higher)
Computer or office training	Generally positive, very strongly and significantly so in the major cities	Positive: female, major cities
		Negative: having difficulty in English, CDEP job (weakly significant)
Sales and personal service training	Generally negative, significantly so in inner regional areas	Positive: female, young, major cities, certificate level or diploma qualifications
		Negative: CDEP job (strong association)
Literacy training	Very strong and significant positive relationship, except in remote/very remote areas where relationship is positive but not significant	Positive: female, remote/very remote, university qualifications
Numeracy training	Strong positive association in pooled data, also positive in models for individual regions but model fit is questionable	Positive: female, outer regional and remote/very remote areas
		Negative: CDEP job
Music, art or craft training	Very strong and positive relationship in pooled data, effect seems strongest in major cities and outer regional areas but model fit is questionable for these areas	Positive: female, young, certificate III/IV and university level qualifications, major cities, CDEP job (especially in major cities)
		Negative: employed full-time
Health and safety training	Negative in remote and very remote areas	Positive: male
		Negative: remote/very remote, not participating in the labour force
Other training	Positive, largest effects in major cities and inner regional areas	Positive: female, university qualifications, not participating in the labour force
		Negative: CDEP job

Conclusion and discussion

Underlying this analysis is the conceptualisation of Indigenous culture as being a set of beliefs, values and preferences that have been transmitted through generations. The strength of an individual's cultural attachment has been measured by the use of distinctive languages, and the identification with and participation in traditional homelands and customs such as festivals, ceremonies and artistic expression. Cultural attachment is believed to impact upon education and training outcomes through the different values and preferences possessed by those Indigenous people with strong attachment to their traditional culture when compared with those with weaker cultural attachment.

The main vocational education and training outcomes investigated relate to the highest level of education attained and participation in a VET course in the 12 months leading up to the survey. The descriptive statistics show vocational outcomes and cultural attachment vary by the remoteness of the individuals' residence and, hence, remoteness is one of the key variables that must be controlled for in such an analysis. The multivariate analysis undertaken here both controls for remoteness and, importantly, accommodates the possibility that the relationship between cultural attachment and outcomes might differ from region to region.

Understanding the relationship between cultural attachment and VET outcomes is important from a number of perspectives. It is commonly accepted that education and training is a key to addressing Indigenous labour market disadvantage and socio-economic disadvantage more generally. This is more difficult to achieve if the delivery of VET is inappropriate for Indigenous people's cultural preferences or if, as some see it, elements of Indigenous culture act as a barrier to VET and labour market participation and achievement. Further, VET can play a direct role in the preservation and maintenance of Indigenous cultures, which is valued by Indigenous and many non-Indigenous Australians. The findings, in relation to the research questions listed in the introduction, cast some light on these issues.

Main findings related to the research questions

What role does 'culture' play in shaping Indigenous Australians' pattern of participation in VET?

Culture has a pervasive effect upon VET participation and outcomes. The results strongly suggest that Indigenous people with a stronger attachment to their traditional culture achieve higher levels of educational attainment and are more likely to have participated in a vocational training course in the year prior to the survey than those with weaker attachment. The positive association between educational attainment and participation in a VET course only becomes apparent when one allows for different interactions between culture and VET outcomes by remoteness, and the relationship is less clear in remote and very remote Australia. However, in all four geographical classifications, stronger cultural attachment was found to be associated with a higher likelihood that an individual had completed high school.

Cultural attachment influences the field of study and type of training undertaken, consistent with the interpretation of culture as differences in preferences. Those with strong cultural attachment are more likely gain post-school qualifications in education, society and culture, and creative arts.

Importantly, they are more likely to undertake training in numeracy and literacy, and in music, art or crafts. In general, Indigenous people with stronger cultural attachment are more likely to have used training that they receive.

What role does the CDEP scheme play in facilitating VET participation?

Compared with other forms of employment, CDEP placements are associated with a low incidence of participation in training and those who do receive training are less likely to have found that training useful. CDEP workers are more likely to have undertaken training in trade or labouring; transport, plant and machinery operation; or music, art or craft. The training rate for people in CDEP jobs is similar to that for unemployed people. However, in remote and very remote Australia, in which the bulk of CDEP jobs exist, unemployment or non-participation is often the likely alternative. Interestingly, the relationship between participation in training courses in music, art or craft was found to be strongest in the major cities, suggesting Indigenous people living in metropolitan areas utilise the CDEP scheme to engage in cultural activities.

To what extent does the VET system support individuals who have a strong attachment to Indigenous culture?

In addressing this and the next research question, it is useful to distinguish between the cultural appropriateness of VET and access to VET. Overall it must be said that the empirical analysis offers some positive results with respect to the appropriateness of the delivery of VET in Australia since, with the exception of remote and very remote Australia, people with stronger cultural attachment achieve higher levels of education, are more likely to participate in a VET training course and more likely to use that training. Precisely the opposite would be expected if education and training were delivered in a way that was inappropriate for people of Indigenous cultures. In this sense, the current study did not identify evidence of cultural inappropriateness, which of course is not to say that none exists or that more should not be done with regard to cultural sensitivity. It is still the case that Indigenous Australians have far lower levels of school retention and post-school educational attainment than non-Indigenous Australians, and some of the problems Indigenous children face in the school system were discussed in the chapter on Indigenous culture.

Further, the evidence relating the fields of study and types of training courses undertaken by Indigenous people suggests that they do utilise the VET system to engage in cultural pursuits.

To what extent do Indigenous Australians face a trade-off between pursuing mainstream labour market outcomes through VET and Indigenous cultural attachment?

Note that the overall association between cultural attachment and educational attainment is negative unless controls for remoteness are included (see models 5 and 6, table 11). The inclusion of the regional dummies results in a positive relationship, signifying that cultural attachment partly acts as a proxy for remoteness. Indigenous people in more remote areas have stronger cultural attachment, but educational attainment falls significantly with remoteness. This still means that people with strong cultural attachment disproportionately face access problems, and may need to leave their lands in order to pursue further education. Given that attachment to the land is a key component of Indigenous culture, in this sense Indigenous Australians can be seen to face a trade-off between educational outcomes and attachment to their culture. All the same, this doesn't mean there is something inherent in Indigenous culture itself that acts as a barrier to educational achievement or training participation for any given level of access. The results suggest that stronger attachment to Indigenous culture promotes both educational achievement and participation in training for any given level of access.

In remote and very remote Australia it does appear that maintenance of traditional culture is inconsistent with post-school educational attainment and participation in a vocational course. This is a finding that warrants further research, but the most likely explanation is that the cultural attachment variable is again acting as a proxy for remoteness within this regional classification. That

is, those living in the very remote areas as opposed to remote areas have higher cultural attachment and lower participation in education and training. This could be due to both lower access in the very remote areas, as well as more limited employment opportunities suppressing incentives to participate in formal VET. Indeed, much of the effect seems to relate to the trade training which is often provided in conjunction with employment. It is mainly certificate level III and IV qualifications which people with higher cultural attachment are less likely to have gained, and they are less likely to have recently participated in trade-related training if they have participated in a vocational course.

Discussion

Two explanations are raised for why Indigenous people with stronger cultural attachment achieve higher levels of educational attainment in non-remote Australia. One is that cultural attachment itself has an enabling effect, whereby those with greater attachment are more successful in educational endeavours. The second is that gaining further education promotes or helps to maintain cultural attachment. It is difficult to distinguish empirically between these explanations, but the results relating to field of study provide an important clue. If cultural attachment enables educational attainment, then the effect should be similar across fields of study. However, it is clear that individuals with stronger cultural attachment are drawn to education, society and culture, creative arts and, to a lesser extent, architecture and building. For the first three of these, it is quite conceivable that these fields are chosen by Indigenous people with stronger cultural attachment because they are conducive with continued engagement with their traditional culture, or even with the specific intent of further embracing elements of their traditional culture. This supports the hypothesis that the positive link between educational attainment and cultural attachment in non-remote areas arises because greater educational attainment can promote cultural attachment—at least in the sense that Indigenous people with stronger cultural attachment select fields which are consistent with the values they place on their culture.

For the positive association between participation in a vocational course and cultural attachment, cause and effect could similarly be argued to run in either direction. Again the findings relating to the type of course undertaken suggest that the relationship is in part due to Indigenous people accessing VET for the purposes of cultural pursuits; namely, through training in music, art or craft. However, the association between cultural attachment and numeracy and literacy training is more consistent with an enabling effect in which cultural attachment promotes activities to improve labour market outcomes. It seems doubtful that participation in such VET courses (as opposed to other types of courses) over the past 12 months would have caused an increase in measured cultural attachment. The fact that stronger cultural attachment is associated with a greater likelihood of completing school, irrespective of the geographical context, is also indicative of an enabling effect of culture.

From a policy perspective, the main implication is a need to address issues of access for Indigenous people in remote and very remote Australia and in developing post-school VET opportunities which meet local needs and aspirations in those areas. The CDEP program appears to be ineffective in promoting participation in VET except in the major cities. Among the different types of training, CDEP jobs are most likely to generate training in areas directly related to mainstream employment, such as trade training and machinery operation, and seems to promote cultural-related training, such as in arts, craft and music, primarily in major cities. This is ironic given that the scheme was originally designed specifically for remote areas with limited mainstream employment opportunities. There would appear to be a case for a reorientation of the scheme, or alternative schemes, to promote training related to cultural pursuits, or perhaps the recognition and support within the VET system of traditional modes of learning and the transmission of traditional knowledge.

Most importantly, the findings clearly refute the notion that attachment to traditional culture acts as a barrier to achievement and participation in education and training. Rather, fostering attachment to

traditional culture would appear to have positive effects on labour market outcomes. This is consistent with previous arguments that a greater sense of personal identity and self-esteem among Indigenous people can improve school outcomes, the World Bank's approach of emphasising local values and cultural interactions in delivering poverty reduction programs, and findings in associated work that the positive effects of cultural attachment extend to socio-economic outcomes more generally (Dockery 2009). To the best of my knowledge, this is the first contribution to empirically relate Indigenous culture to vocational education and training outcomes in Australia, despite the obvious importance of such evidence to the dialogue surrounding Indigenous affairs in this country.

Given the exploratory nature of this work and the questions raised, further research is imperative. Differentiating between different dimensions of cultural attachment is one potential avenue of investigation that may cast more light on the causal mechanisms through which the effects of culture operate, or the sources of differences in values and preferences. It may also be that measures of 'cultural attachment' should be constructed differentially for males and females, and a gendered analysis would provide additional insights. Access to data covering both Indigenous and non-Indigenous people would further allow the differences which could be considered 'cultural' to be identified and modelled. Typically, however, Indigenous samples are too small in population-based surveys because Indigenous people represent such a small percentage of the population. There is a critical need for datasets with oversampling of Indigenous people, as has been done in some health surveys by the Australian Bureau of Statistics.

References

Alesina, A & Giuliano, P 2007, 'The power of the family', discussion paper 2750, Institute for the Study of Labor (IZA), Bonn, Germany.

Australian Bureau of Statistics (ABS) 2005, 'Appendix 5: Data Items and Records Structure', *National Aboriginal and Torres Strait Islander Social Survey: Expanded Confidentialised Unit Record File*, technical paper, ABS cat.no.4720.0.

——2004, *National Aboriginal and Torres Strait Islander Social Survey: 2002*, ABS cat.no.4714.0.

Berry, M, MacKenzie, D, Briskman, L & Ngwenya, T 2001, 'Indigenous homelessness: A discussion on Indigenous homelessness in Victoria', prepared for the Aboriginal Housing Board of Victoria.

Biddle, N & Hunter, B 2006, 'Some methodological issues for the 2002 NATSISS', *Australian Journal of Labour Economics*, vol.9, no.1, pp.33–50.

Carroll, CD, Rhee, B & Rhee, C 1994, 'Are there cultural effects on saving? Some cross-sectional evidence', *The Quarterly Journal of Economics*, vol.109, no.3, pp.685–99.

Casson, M 1993, 'Cultural determinants of economic performance', *Journal of Comparative Economics*, vol.17, pp.418–42.

Chandler, MJ, Lalonde, CE, Sokol, BW & Hallett, D 2003, 'Personal persistence, identity development and suicide', *Monographs of the Society for Research in Child Development*, vol.68, no.2.

Chiswick, BR 1983, 'The earnings and human capital of American Jews', *Journal of Human Resources*, vol.18, pp.313–36.

Christie, MJ 1985, *Aboriginal perspectives on experience and learning: The role of language in Aboriginal education*, Deakin University Press, Melbourne.

Craven, RG (n.d.), 'Can evaluating Indigenous students' aspirations make a difference? Results of an evaluation study', unpublished mimeo, Self-Concept Enhancement and Learning Facilitation Research Centre, University of Western Sydney.

Dawes, G 1998, *Break on through: Indigenous youth subcultures and education*, Centre for Social Research, James Cook University, Townsville.

Dockery, AM 2009, 'Culture and wellbeing: The case of Indigenous Australians', discussion paper 09/1, Centre for Labour Market Research, Perth.

Dockery, AM & Milson, N 2007, *A review of Indigenous employment programs*, National Centre for Vocational Education Research, Adelaide.

Fernández, R 2005, 'Culture: An empirical investigation of beliefs, work and fertility', working paper no.W11268, National Bureau of Economic Research, Massachusetts.

Franke, RH, Hofstede, G & Bond, MH 1991, 'Cultural roots of economic performance: A research note', *Strategic Management*, vol.12 (special issue), pp.165–73.

Gelade, S & Stehlik, T 2004, *Exploring locality: The impact of context on Indigenous vocational education and training aspirations and outcomes*, National Centre for Vocational Education Research, Adelaide.

Gray, HP 1996, 'Culture and economic performance: Policy as an intervening variable', *Journal of Comparative Economics*, vol.23, no.3, pp.278–91.

Greer, S & Patel, C 2000, 'The issues of Australian Indigenous word-views and accounting', *Accounting, Auditing and Accountability Journal*, vol.13, no.3, pp.307–29.

Groome, H & Hamilton, A 1995, *Meeting the needs of Aboriginal adolescents*, commissioned report no.35, Australian Government Publishing Service, Canberra.

Gruber, J 2005, 'Religious market structure, religious participation, and outcomes: Is religion good for you?', working paper no.W11377, National Bureau of Economic Research, Massachusetts.

Guiso, L, Sapienza, P & Zingales, L 2006, 'Does culture affect economic outcomes?', working paper no.11999, National Bureau of Economic Research, Massachusetts.

——2004, 'Cultural biases in economic exchange', working paper no.11005, National Bureau of Economic Research, Massachusetts.

Heineck, G 2004, 'Does religion influence the labor supply of married women in Germany?', *Journal of Socio-Economics*, vol.33, no.3, pp.307–28.

Hofstede, G 2001, *Cultures consequences: Comparing values, behaviours, institutions and organizations across nations*, 2nd edition, Sage, Thousand Oaks, CA.

Hofstede, G & Bond, MH 1988, 'The Confucius connection: From cultural roots to economic growth', *Organisational Dynamics*, vol.16, pp.4–21.
Hofstede, G & McCrae, R 2007, 'Personality and culture revisited: Linking traits and dimensions of culture', *Cross-Cultural Research*, vol.38, no.1, pp.52–88.
Hunter, B (ed.) 2006, *Assessing the evidence on Indigenous socioeconomic outcomes: A focus on the 2002 NATSISS*, ANU E Press, Australian National University, Canberra.
Ingelhart, R 1997, *Modernization and postmodernization: Cultural, economic, and political change in 43 societies*, Princeton University Press, New Jersey.
Li, J, D'Angiulli, A & Kendall, GE 2007, 'The Early Development Index and children from culturally and linguistically diverse backgrounds', *Early Years*, vol.27, no.3, pp.221–35.
Long, S, Memmott, P & Seelig, T 2007, *An audit and review of Australian Indigenous housing research*, final report no.102, Australian Housing and Urban Research Institute, Melbourne.
Mellor, S & Corrigan, M 2004, *The case for change: A review of contemporary research in Indigenous education outcomes*, Australian Council for Educational Research, ACER Press, Victoria.
Miller, C 2005, *Aspects of training that meet Indigenous Australians' aspirations: A systematic review of research*, National Centre for Vocational Education Research, Adelaide.
Peterson, N 2006, 'Culture', in *Assessing the evidence on Indigenous socioeconomic outcomes: A focus on the 2002 NATSISS*, ed. BH Hunter, Australian National University, chapter 20, pp.269–77, ANU E Press, Canberra.
Reimers, CW 1985, 'Cultural differences in labor force participation among married women', *American Economic Review*, vol.75, no.2, pp.251–55.
Steering Committee for the Review of Government Service Provision 2007, *Overcoming Indigenous disadvantage: Key indicators 2007*, Productivity Commission, Canberra.
Tabellini, G 2006, 'Culture and institutions: Economic development in the regions of Europe', Levine's working paper archive, UCLA Department of Economics, California.
Thompson, SJ, Gifford, SM & Thorpe, L 2000, 'The social and cultural context of risk and prevention: Food and physical activity in an urban Aboriginal community', *Health Education and Behavior*, vol.27, no.6, pp.725–43.
Throsby, D 2001, *Economics and culture,* Cambridge University Press, Cambridge, United Kingdom.
Triandis, HC 2000, 'Cultural syndromes and subjective well-being', in *Culture and subjective well-being*, eds E Diener and EM Suh, MIT Press, Cambridge, pp.13–36.
Trudgen, RI 2000, *Why warriors lie down and die*, Aboriginal Resource and Development Services Inc., Darwin.

Appendix 1: Factor scores (loadings) for calculating index of cultural attachment

Table 14 Loadings for the 'cultural attachment' factor

Variable	Loading
Involved in social activities in last 3 months – funerals, ceremonies or festivals	+0.76816
Involved in social activities in last 3 months – fishing or hunting in a group	+0.75434
Speaks an Indigenous language	+0.67960
Attended cultural event in last 12 months – ceremony	+0.66737
Main language spoken at home is Indigenous	+0.66557
Involved in social activities in last 3 months – recreational or cultural group activities	+0.62519
Attended cultural event in last 12 months – sports carnival	+0.56721
Attended cultural event in last 12 months – funeral	+0.56122
Identifies with clan, tribal/language group	+0.55641
Attended cultural event in last 12 months – involvement with Indigenous organisation	+0.30582
Attended cultural event in last 12 months – festival/carnival involving arts, craft, music or dance	+0.44941
Participated in cultural activity in last 12 months – writing or telling stories without pay	+0.22985
Participated in cultural activity in last 12 months – writing or telling stories for payment	+0.20586
Participated in cultural activity in last 12 months – music, dance or theatre for payment	+0.20822
Participated in cultural activity in last 12 months – arts or crafts for payment	+0.29557
Participated in cultural activity in last 12 months – arts or crafts without payment	+0.11582
Recognises homelands and lives on homelands	+0.31174
Recognises homelands and allowed to visit homelands	+0.16574
Participated in cultural activity in last 12 months – music, dance or theatre without payment	+0.24566
Speaks only some Indigenous words	-0.01108
Involved in social activities in last 3 months – community or special interest group activities	+0.44073
Involved in social activities in last 3 months – attendance at ATSIC or Native Title meetings	+0.44317
Recognises homelands only (does not live on or visit)	-0.04393

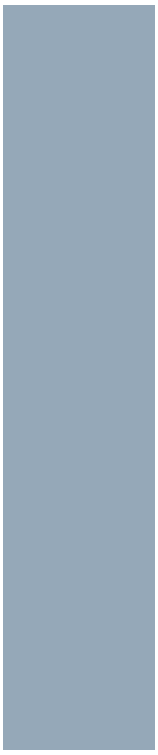
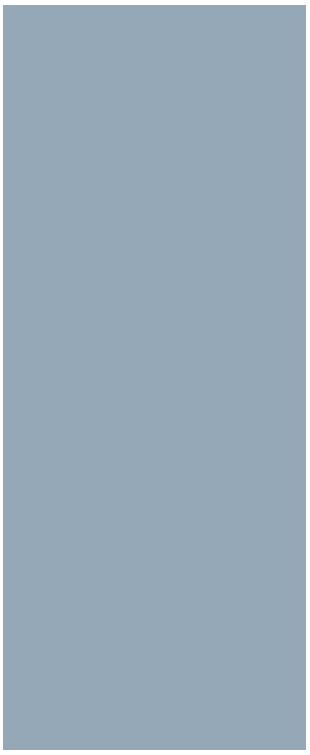
Appendix 2: Selected multivariate results using the hierarchical measure of cultural attachment

Table 15 Educational attainment, regression results, people aged 21 and over, NATSISS 2002

	By remoteness								All people aged 21 and over			
	Major cities (1)		Inner regional (2)		Outer regional (3)		Remote/very remote (4)		(5)		(6)	
	β	*Pr* > |*t*|	*β*	*Pr* > |*t*|	*β*	*Pr* > |*t*|	*β*	*Pr* > |*t*|	*β*	*Pr* > |*t*|	*β*	*Pr* > |*t*|
Intercept	3.46	0.000	3.44	0.000	3.44	0.000	3.67	0.000	3.69	0.000	4.16	0.000
Male	0.02	0.878	-0.15	0.182	-0.08	0.266	-0.14	0.012	-0.12	0.003	-0.10	0.011
Aged 22–24	—		—		—		—		—		—	
Aged 25–34	0.34	0.084	-0.19	0.325	-0.18	0.133	0.01	0.938	0.01	0.917	-0.01	0.901
Aged 35–44	0.04	0.848	-0.45	0.026	-0.51	0.000	-0.20	0.045	-0.24	0.001	-0.26	0.000
Aged 45–54	-0.81	0.000	-0.57	0.007	-1.21	0.000	-0.94	0.000	-0.91	0.000	-0.93	0.000
Aged 55–59	-1.47	0.000	-1.06	0.000	-1.55	0.000	-1.57	0.000	-1.42	0.000	-1.44	0.000
Aged 60–64	-1.26	0.001	-1.84	0.000	-1.89	0.000	-2.06	0.000	-1.83	0.000	-1.84	0.000
Aged 65 and over	-1.86	0.000	-2.18	0.000	-2.37	0.000	-2.50	0.000	-2.33	0.000	-2.31	0.000
Removed from family	-0.31	0.065	-0.40	0.034	-0.37	0.002	0.18	0.109	-0.05	0.447	-0.16	0.023
Cultural attachment (Hierarchy)	0.22	0.000	0.17	0.004	0.14	0.000	-0.16	0.000	-0.08	0.000	0.01	0.618
Remoteness:												
– main cities											—	
– inner regional											-0.50	0.000
– outer regional											-0.63	0.000
– remote & v. remote											-0.98	0.000
Observations	1169		992		2091		3196		7448		7448	
F-value	16.94	0.000	12.05	0.000	47.56	0.000	81.05	0.000	134.65	0.000	127.52	0.000
R-squared	0.12		0.10		0.17		0.19		0.14		0.17	
Adjusted R-squared	0.11		0.09		0.17		0.18		0.14		0.17	

Table 16 Participation in VET in last 12 months, logistic regression results, people aged 15–64, NATSISS 2002

	By remoteness								All people aged 15–64			
	Major cities (1)		Inner regional (2)		Outer regional (3)		Remote/very remote (4)		(5)		(6)	
	Coef.	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|	*Coef.*	*Pr* > |χ^2|
Intercept	0.00	0.988	-0.17	0.555	-0.50	0.013	0.05	0.791	0.00	0.978	0.01	0.943
Male	-0.10	0.505	-0.30	0.075	-0.08	0.500	0.14	0.125	-0.02	0.740	-0.03	0.638
Aged 15–19	0.26	0.281	-0.22	0.414	0.62	0.001	0.09	0.588	0.19	0.053	0.19	0.059
Aged 20–24	0.46	0.053	-0.01	0.966	0.06	0.747	0.11	0.433	0.12	0.214	0.13	0.182
Aged 25–34	0.11	0.544	0.02	0.942	0.15	0.282	-0.12	0.332	0.00	0.983	-0.01	0.931
Aged 35–44	—		—		—		—		—		—	
Aged 45–54	-0.79	0.001	-0.38	0.150	-0.31	0.087	-0.30	0.043	-0.40	0.000	-0.40	0.000
Aged 55–59	-0.79	0.055	-0.16	0.700	-1.14	0.000	-0.22	0.368	-0.53	0.001	-0.54	0.001
Aged 60–64	-1.60	0.021	-1.10	0.119	-1.05	0.017	-0.30	0.441	-0.83	0.001	-0.85	0.001
Married	0.12	0.431	-0.32	0.057	0.10	0.373	0.09	0.340	-0.01	0.929	0.02	0.745
Has disability	0.09	0.573	0.11	0.497	-0.12	0.298	0.05	0.614	0.02	0.772	0.00	0.938
Has English difficulty	-0.52	0.122	-0.37	0.214	0.09	0.568	0.02	0.857	-0.10	0.261	-0.05	0.542
Post-school quals:	0.58	0.031	1.37	0.001	1.60	0.000	1.33	0.000	1.22	0.000	1.17	0.000
– university												
– diploma	1.37	0.000	0.77	0.061	1.53	0.000	1.15	0.000	1.36	0.000	1.31	0.000
– cert. III or IV	0.35	0.099	0.49	0.046	0.79	0.000	0.44	0.008	0.62	0.000	0.57	0.000
– cert. I or II	0.08	0.673	0.29	0.143	0.32	0.017	0.43	0.000	0.38	0.000	0.35	0.000
Labour force status:												
– employed full-time	—		—		—		—		—		—	
– employed part-time	-0.63	0.001	-0.27	0.200	-0.45	0.003	-0.65	0.000	-0.51	0.000	-0.54	0.000
– unemployed	-1.85	0.000	-1.34	0.000	-1.31	0.000	-1.55	0.000	-1.42	0.000	-1.48	0.000
– not in labour force	-2.77	0.000	-2.84	0.000	-2.33	0.000	-3.08	0.000	-2.69	0.000	-2.71	0.000
– CDEP job	0.77	0.044	-0.32	0.320	-0.21	0.271	-0.78	0.000	-0.74	0.000	-0.58	0.000
Cultural attachment (Hierarchy)	0.16	0.019	0.36	0.000	0.21	0.000	-0.06	0.109	0.03	0.227	0.09	0.001
Remoteness:												
– main cities											—	—
– inner regional											0.02	0.880
– outer regional											0.06	0.457
– remote & v. remote											-0.45	0.000
Mean of dependent variable	0.34		0.30		0.30		0.22		0.27		0.27	
Observations	1409		1150		2332		3781		8672		8672	
Likelihood ratio χ^2	443	0.000	317	0.000	562	0.000	817	0.000	2013	0.000	2070	0.000
Percent concordant	82.1		80.8		79.5		80.1		79.5		80.0	

National Centre for Vocational Education Research Ltd
Level 11, 33 King William Street, Adelaide, South Australia
PO Box 8288, Station Arcade, SA 5000 Australia
Telephone +61 8 8230 8400 Facsimile +61 8 8212 3436
Website www.ncver.edu.au Email ncver@ncver.edu.au