Capturing Cultural Requirements in the Design of a Website for an Aboriginal Community

Reece George, *B.Comp*

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Statement of Originality

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

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Reece D George

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George, R, Nesbitt, K, Donovan, M & Gillard, P 2010, 'Identifying cultural design requirements for an Australian Indigenous website', in C Lutteroth & P Calder (eds.), *Proceedings of the Eleventh Australasian Conference on User Interface*, Australian Computer Society, Darlinghurst, Australia, vol. 106, pp. 89-97.

George, R, Nesbitt, K, Donovan, M & Maynard, J 2011, 'Focusing on Cultural Design Features for an Indigenous Website', *Proceedings of the Australasian Conference on Information Systems ACIS 2011,* paper 17, <http://aisel.aisnet.org/acis2011/17>.

George, R, Nesbitt, K, Donovan, M & Maynard, J. (2012), 'Evaluating Indigenous Design Features Using Cultural Dimensions', in H Shen & RT Smith (eds.), *Proceedings of the Thirteenth Australasian User Interface Conference* (AUIC 2012), Melbourne, Australia. Australian Computer Society, CRPIT, vol. 126, pp. 49-58.

Abstract

This three year case study examines the key design features and methodology required to develop a website that best reflects the culture of an Indigenous Australian community. The study also considers general issues related to the representation and capture of Indigenous knowledge.

The Wollotuka project is grounded in previous contextual design work. The aim was to investigate two main questions: what key design features should be incorporated into a website to meet the requirements of an Aboriginal community and what culturally acceptable process can be used to capture these requirements?

The Wollotuka project adopted an iterative prototyping approach that built on previous knowledge concerning Indigenous design elements. The user-centred design process engaged closely with 12 members of the local Aboriginal & Islander community throughout the process. The ethnographic process included a focus group discussion and one-on-one interviews.

The final design incorporated a virtual tour of the building and the grounds. Within the tour are situated other key features such as storytelling, video, Aboriginal art, humour, music and dance, messages from community members, a facility for feedback and some simple interactive games.

Many existing guidelines for Aboriginal cultural design were affirmed in the study, including the use of simple language, local imagery and the provision of an interaction style appropriate to the Indigenous group. A number of helpful guidelines related to Aboriginal culture and design features were identified in the project.

The project also identified important guidelines regarding a culturally acceptable design process for an Indigenous community. Overall, the community-based design process used in the Wollotuka project met with approval from all members of the group. Interviews with the project participants highlighted the importance of this close community involvement in the design process. It can be concluded that the respect for traditions is paramount and that practices can vary significantly between varying Indigenous groups.

The design features identified as most appropriate to capture the cultural identity of the group were also evaluated, by considering them in terms of Hofstede's cultural model. Hofstede's cultural dimensions have been frequently used to study the way culture impacts on web design. Some correlations have been measured between Hofstede's cultural dimensions, including the structural and aesthetic design features used in websites from different cultures. To perform this final analysis, a survey of the community group was completed, to position them in terms of Hofstede's dimensions. A comparison was then made on the key design features identified from the Wollotuka project and the outcomes that might be expected, given the low position of the group on each of Hofstede's five cultural dimensions. The results of this analysis were mixed. There were some good correlations and some disagreements between the Wollotuka project findings and the results from previous studies.

Chapter 1 - Introduction

1.1 Culture and Design

> Incorporation of culture in design thinking and design processes is critical to achieve the high quality of human-artefact interaction that enables our experience with the artefact to be effective and convivial (Sato & Chen 2008, p. 1).

For all peoples, culture is fundamental to design, being evident not only in the artefacts produced by a culture, but also in the way people interact with those artefacts and the process by which those artefacts are produced. Thus, in consideration of the artefact, interaction and process are important concerns when designing a website for an Aboriginal community. This was especially important in the Wollotuka project where a key design goal was to embody appropriate cultural characteristics into the website.

Other studies have highlighted the connection between culture and website design:

> The design of websites is infused with cultural meaning and with cultural nuances and identity issues, as instructional designers and developers bring their own viewpoints and perspectives into the design process (McLoughlin & Oliver 2000, p. 59).

Culture, in terms of behaviour, community values, aesthetics and standard practices, is a complex phenomenon that can emerge at multiple social scales from small groups to entire nations. These scales can be thought of as multiple complex layers (Hofstede 2005) or as a mass of underlying social rules that, like an iceberg, lie mostly hidden below the surface (French & Bell 1979). This makes it challenging to understand a group's culture, its layers, the hidden rules that underlie them and then the way they might influence design.

In order to better understand these issues of culture and design this project has investigated how to incorporate the cultural identity of an Australian Aboriginal community into a website. This work reports on the outcomes of the Wollotuka project. It investigates both the key design features for representing the culture of this group in a website and the appropriateness of the design process for this culture. The outcomes in terms of the final design features and process discussions are of particular significance to designers of Indigenous websites.

However, the outcomes are also relevant for all designers who wish to consider the imparting of 'culture' in their designs.

1.2 The Wollotuka Project

The Wollotuka project was motivated by the desire to design a more culturally acceptable website for The Wollotuka Institute. The Wollotuka Institute is an Indigenous study centre. It is part of the University of Newcastle, a large regional university about 170 kilometres North of Sydney, located in the traditional lands of the Pambalong people, who are part of the Awabakal nation. Wollotuka supports a broad range of Aboriginal programs incorporating administrative, academic and research activities. It also provides support and development services for Indigenous staff and students.

Wollotuka employs about 40 full time staff, who come from a wide range of Indigenous language groups from the East of Australia and the Torres Strait Islands. The community embraces a broad range of urban, regional and educational backgrounds. The diverse individual cultures and the overarching Indigenous culture of this community became the backbone of this extended case study.

Wollotuka is housed in a specially designed learning space, the Birabahn building (Figure 1.1), which incorporates the motifs of the Eaglehawk, the primary totem of the Awabakal nation. The architectural space was developed to incorporate aspects of Aboriginal practices and culture, to present the staff, students and the community with a warm familiar environment (UON 2008). In a similar way, the Wollotuka project set out to study the design of an electronic space that incorporates the values of the local community and hence, to provide them with a warm and familiar online environment.

The University of Newcastle is a national leader in Indigenous education, with over 500 Aboriginal and Torres Straight Islander students studying across its five faculties, making them direct potential users of the website. The estimated Indigenous population of Australia was 517,000 people in 2006, with a projected population of between 713,300 and 721,100 in 2021 (Australian Bureau of Statistics 2009), also being potential users of the website.

Figure 1.1: The Birabahn Building Houses The Wollotuka Institute.

(*Source:* Johnston 2011)

Although Wollotuka already has an existing website (Figure 1.2), it was designed to fit a more traditional, Western, Eurocentric, corporate framework as prescribed by the University. The University of Newcastle Web Services designed the look and feel of the website to reflect the University 'brand' (Figure 1.3), which is determined by the Marketing and Public Relations department.

Figure 1.2: The Western-Style Homepage Of The Wollotuka Institute.
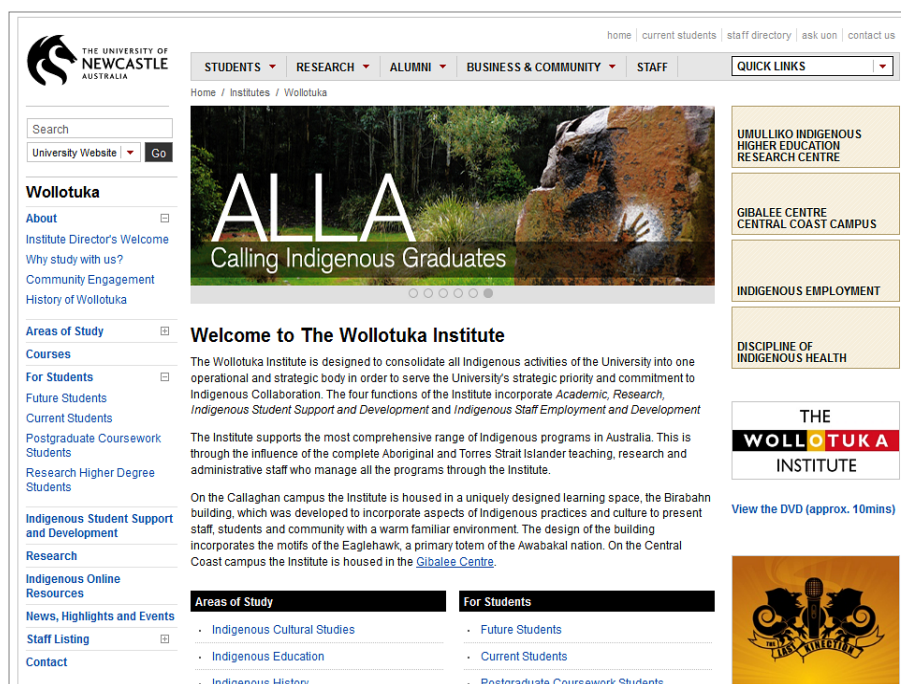
(*Source:* UON 2008)

Figure 1.3: The University of Newcastle 'brand' guidelines.
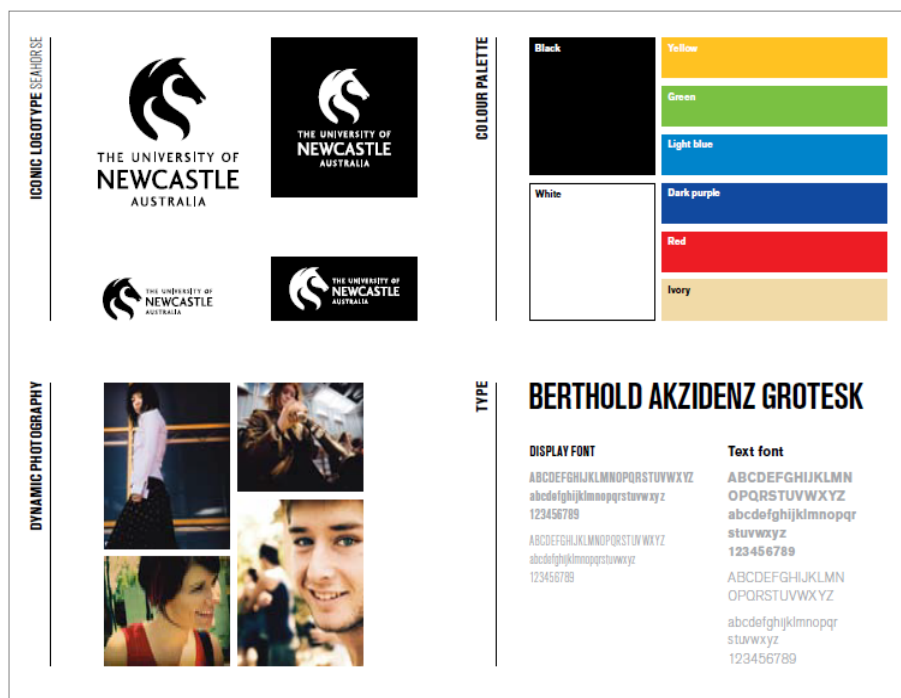
(*Source:* UON 2012)

To manage the websites visual design, The University of Newcastle Web Services use a Content management System (CMS). This ensures a consistent visual identity across all pages and allows staff with minimum website development experience to update the site.

The existing website is well designed in the sense that it is functional and supports the tasks most visitors might expect. Aboriginal staff members at The Wollotuka Institute are responsible for managing their website content but must first complete CMS training. Staff have utilised the CMS to provide a variety of services to their visitors. Services available include details on available courses, student support, employment opportunities, news, videos, music, links to other Aboriginal resources and staff contact details.

While the design is appropriate for accomplishing the goals of the Marketing and Public Relations department, when consulting with the local Aboriginal community during the focus group discussion, on the CMS system, participants said that the 'constrained' design guidelines were considered 'totally inappropriate' for the Wollotuka website because it conveyed an environment where 'you are not allowed to go outside the boxes' (Appendix 7). Another focus group participant expressed his opinion this way:

> 'Its inclusive cultures. I mean, it's like women in management. If we want to attract women into management and we want to turn them into 'blokes', then we have wasted it. If the university

wants Indigenous people to be part of the university then the university itself needs to change to be inclusive' (Appendix 7, Transcript of the Focus Group Discussion).

Figure 1.4: Typical page on the University website showing CMS editable areas. Area 1 allows the sub-menu structure to be edited, Area 2 is the main content area, where the primary content is inserted and Area 3 is for supplementary content to support the main content area (UON 2008c).
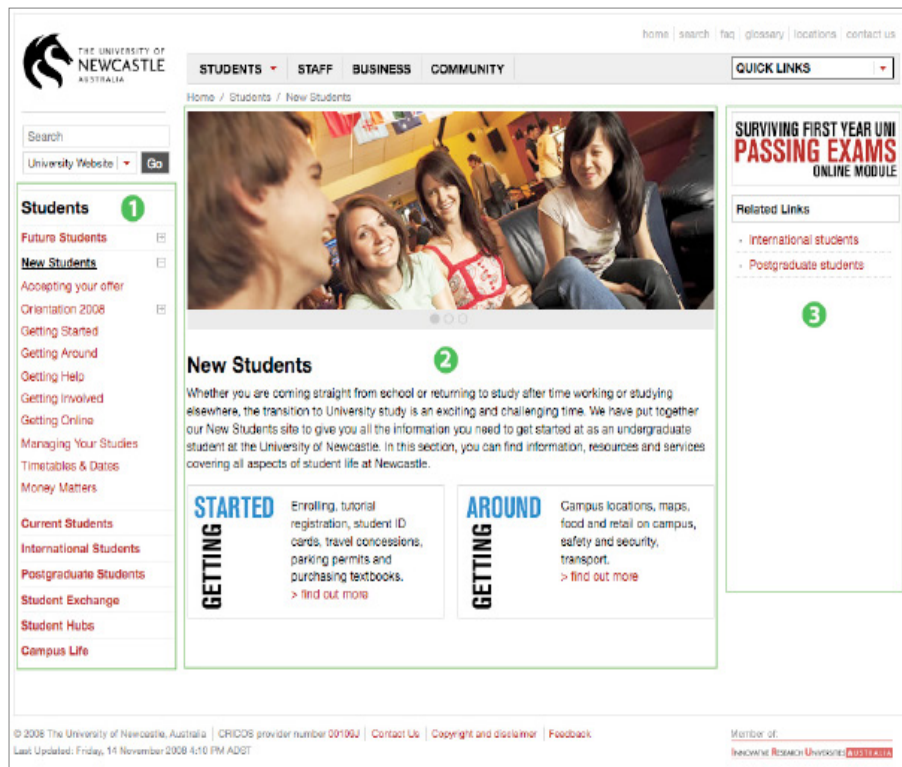
(*Source:* UON 2008c)

This type of cultural design mismatch should not be surprising as all computer programs are human creations and as such must bear the imprints of the cultural nuances of those who create them (Chen 2007). The importance of cultural awareness in web design has also been previously demonstrated (Ho, Lin, & Liu 1996). Unfortunately, in the design of the original Wollotuka website, no discussion regarding cultural appropriateness was made with the Aboriginal community.

1.3 Research Questions

We have already noted that it is not just the design features or artefacts that are important in an Aboriginal context but also the process by which these artefacts are produced. Hence, the chief goal of the Wollotuka project was to investigate two main questions:

1. Firstly, 'What key design features should be incorporated into a website to meet the cultural requirements of this Aboriginal group?'

2. Secondly, 'What is a culturally acceptable process to go about capturing these design requirements?'

1.4 Methodology

Given the broad nature of these questions, the initial intention of the Wollotuka project was one of knowledge discovery concerning the incorporation of Aboriginal culture into websites. It was an extended case study surrounding the design of a new website for the Wollotuka Institute. An important intention was to ensure the close involvement of the Aboriginal community in all stages of the design process.

The Wollotuka project first considered issues of cultural design detailed in existing literature, which were then structured into guidelines that could help underpin later design choices. These guidelines can be found at the conclusion of the literature review (Section 2.9).

The other stages in the case study used an approach that can be considered as action research (Lewin 1946; Argyris 1980; Reason & Bradbury 2001; Garreau 2005) or cooperative inquiry (Reason & Rowan 1981; Reason 1995; Heron 1996). It combined approaches from audience ethnography and iterative prototyping, involving the participants in a focus group and participatory one-on-one interviews to help evolve the key design features of the new website.

Kurt Lewin, considered by many to be the pioneer of action research, described it as '. . . a comparative research on the conditions and effects of various forms of social action and research leading to social action' (1946, p. 201). Reason and Bradbury add to this definition: '. . . Action research is at its best a process that explicitly aims to educate those involved to develop their capacity for inquiry both individually and collectively' (2001, p. 10).

Bradbury makes another pertinent point that has proved to be fundamental to the methodology: '. . . as scholars 'starting out' we bear witness to knowledge, within the paradigm of action research, being construed differently from other paradigms. Knowledge is about rendering useful interpretations for preferred action in the world, rather than simply knowing more 'facts' which are thought to describe an independent reality' (2001, p. 242). This is particularly relevant in an Indigenous sense where 'knowledge' can be thought of as is a living, changing entity that is created as it is performed (Pumpa & Wyeld 2006).

In the design of the research methodology for developing user interfaces, Kuniavsky advises a contextual enquiry, which '... is a field data-gathering technique that studies a few carefully selected individuals in depth to arrive at a fuller understanding of the work practice across all customers' (2003, n.p). Kuniavsky stresses a contextual enquiry because '...it helps to understand the actual environment in which people live and work in' (2003, n.p). It also discloses their needs within the constraints of that specific environment. Kuniavsky defines it further as:

> A technique based in anthropology and ethnography, the basic method of research involves visiting people and observing them as they go about their work. In watching them carefully and studying the tools they use, it's possible to understand what problems people face and how your product can fit into their lives. Such a methodology enables the researcher to evaluate what the people actually do and what is actually valuable to them (2003, n.p).

Thus, using an ethnographic approach and speaking face-to-face with each participant in their environment, the relevant cultural nuances are better revealed. Hamersley and Atkinson (2007) define that the ethnographic method requires a researcher to immerse themselves in diverse cultures and communities, often for a year or more. The aim is to establish rapport with people within their social contexts. It involves interacting with them through participation, observation and dialogue, to uncover their distinctive way of life, as well as the unspoken cultural patterns that shape behaviour. Hamersley and Atkinson (2007) further summarise ethnographic work as usually having most of the following features:

- Ethnographers generally employ an open-ended approach, while they begin with an interest in some particular area of social life, their orientation is exploratory.
- The collection of data is done in the place where participants actually live, work or play, as opposed to a separate research facility.
- The focus of data collection is generally done on a small-scale to facilitate in-depth study.

- Data is gathered from a range of sources.
- Results are presented in terms of local context.

Kuniavsky (2003) also emphasize that in interface design work such as the Wollotuka project it is imperative for the researcher to visit the people and observe them as they are engaged in their daily work. Through this method of close observation, one can more easily decide what types of interactions are really required. A key feature of the Wollotuka project was the close relationship between the researcher and the community itself. The primary researcher in this project was also Aboriginal and had previously been associated with Wollotuka for fifteen years. The use of a focus group at the start of the project and participatory design sessions with individuals during the design process were intended to support the close relationship between the community and the researcher.

In developing a website, observing the user experience is important but '. . . to really know the user's experience, you have to ask him or her about it, and that's an interview' (Kuniavsky, 2003, n.p). This is exactly the approach adopted, using one-on-one interviews with users after they had experienced the various design features. The main difference Kuniavsky has identified between the usability interview and an interview like the one held by a journalist, is that in the former it is '. . . more formal, more standardized, and as a kind of nondirected interview, (2003, n.p). Kuniavsky explains: '. . . Nondirected interviewing is the process of conducting interviews that do not lead or bias the answers. It's the process of getting at the user's thoughts, feelings, and experiences without filtering those thoughts through the preconceptions of the interviewer' (2003, n.p).

In the Wollotuka project, the data analysis of the focus groups used an interpretivism approach. Interpretivists approach their research problems from a social context, acknowledging that numbers and statistics may not be the most appropriate method of understanding the actions of social actors. This view is expounded by Roode:

> 'The interpretivist researcher recognizes that many important problems related to the development, use and implementation of Information Systems intimately concern people, and accepts that the social world presents a better stage to study these phenomena than the purely material world of technology. Moreover, this social world is accepted to be a human construction with many attributes that cannot be quantitatively observed and measured, and the interpretivist deliberately sets out subjectively to understand these constructs, often through active involvement, and never so-called objective, independent observation. Understanding is the main role of the interpretivist, and never prediction' (2003, p. 1)

Miles & Huberman indicate an interpretivism approach requires a deep understanding, an '…empathy or indwelling with the subject of one's enquiry' (1994, p. 8). They report that phenomenologists assume that '… continued immersion through the source material and through vigilance over one's presuppositions, one can… capture the essence of an account' (1994, p.8). An obvious criticism of this approach is lack of objectivity from the researcher. However, the subjectivity of the immersed researcher, their informed judgement is fundamental to the idea of ethnographic research. During the Wollotuka project, there are stages such as the analysis of the focus group outcomes, the selection of design features and the evaluation of the design process where some subjectivity is required.

1.4.1 Ethics

Aboriginal and Torres Strait Islanders are the Indigenous peoples of Australia. The Wollotuka Institute observe that '…Similar to many of the world's Indigenous peoples, they are significantly disadvantaged when compared to the mainstream population. Issues such as employment, health, lower educational attainment and poverty continue to impact on Aboriginal communities' (UON 2012a). Often research conducted on Indigenous peoples is confronted with issues that are rooted in cultural differences and acceptability. Many Indigenous cultures have had bitter experiences because of '… the lack of community control, lack of local benefits, and interpretation of data in isolation from social context' (Henderson et al. 2002, p. 482).

For this reason, the primary researcher, an Indigenous scholar, formulated clear guidelines to ensure that appropriate conduct was maintained at every stage of the research. Before research could begin with Aboriginal and Torres Strait Islander participants, a rigorous human ethics application was also required by The University of Newcastle, demonstrating an understanding of these principles. The applications of these principles engender mutual respect and aided in maintaining communication with the community. Table 1.1 is a summary of the ethical guidelines adopted by the researcher during the Wollotuka project.

In harmony with the principles above, the Wollotuka project also undertook the development and evaluation of a culturally acceptable design process. Particular care was given for designing a process that conformed to the values of the culture. The analysis and evaluation of this approach was difficult as it is qualitative in nature and complicated by the close involvement of the researcher within the community. Even though the principal researcher was from an Indigenous background, he was often required to put aside his own cultural perspectives and focus more attention on the cultural position of the target community.

Table 1.1: Ethical Research Principles Adopted for the Wollotuka Project.

Principle	Description
Integrity	The researcher has an obligation to the integrity of the community not just to individuals. Aboriginal and Torres Strait Islander communities will look to see if what is proposed is consistent with their values. However, the responsibility to demonstrate consistency falls to the researcher (NHMRC 2003, p.19).
Appropriate Methodology	The research methodology will be negotiated and agreed upon with the community during the initial consultations, and any variation in method will be renegotiated prior to implementation (AIATSIS 1999, p. 128).
Community Benefit	The researcher will return a benefit to the community that is valued by the community and which contributes to cohesion (NHMRC 2003, p.10).
Ongoing Relationships	The researcher will undertake continuous consultation and negotiation both during and after the project in order to maintain an ongoing relationship with the community (AIATSIS 1999, p. 128).
Respect for Protocols	The Researcher will inform himself about local structures and seek to engage with these in a spirit of respect and integrity (NHMRC 2003, p.10).
Respect for Sensitive Issues	Respect is critical to all aspects of the research process, especially sensitive negotiations such as those related to publication of research findings (NHMRC 2003, p.12).
Respect for Indigenous Knowledge	The researcher will show appreciation for Aboriginal and Torres Strait Islander Peoples' knowledge and wisdom (NHMRC 2003, p.15).
Trust	The researcher endeavours to demonstrate through ethical negotiation, conduct and dissemination of research that he is trustworthy (NHMRC 2003, p.18).
Intellectual Property	The ownership of research results, including the allocation of rights between the researcher and the sponsoring research organisation, will be clarified by the researcher in the initial negotiations with the community (AIATSIS 1999, p. 128).
Accountability	The researcher will established a process through the Human Research Ethics Committee (HREC) to ensure the researchers' accountability to individuals, families and communities, particularly in relation to the cultural and social dimensions of Aboriginal and Torres Strait Islander life (NHMRC 2003, p.16).
Community Involvement	In the planning of the research project the researcher will consider ways to ensure maximum involvement of community members in the planning, negotiating and carrying out of the project and in the presentation of outcomes (AIATSIS 1999, p. 127).

1.4.2 Transferable Methodology

The current ethnographic and action research methodology is designed to be a transferable. It has been termed 'Ethnographic Action Research' (Tacchi, Slater, Hearn 2003) and has been employed by the United nations Educational, Scientific and Cultural Organisation (UNESCO) to help develop effective and sustainable ICT's, to aid in the reduction of poverty in South Asia.

The UNESCO programme selected nine separate, poor communities in India, Nepal, Bangladesh, Sri Lanka and Bhutan (UNESCO 2004). The projects aim was to develop ICT's tailored to the local needs, taking into account local everyday lives and the social, political, economic and cultural context of each community. This approach allowed researchers to gain a level of understanding of the context and to focus on '… actual practices of use and interaction with technologies in the wider context of people's lives and social and cultural structures' (Tacchi, Slater, Lewis, pp.2 2003). By adapting to the locally defined needs, sustainability was achieved, as real user needs were met.

Two research approaches were combined in this ethnographic action research approach: ethnography and action research. As discussed in section 1.4, ethnography is a research approach that has been used to understand different cultures, while action research is used to bring about new activities through new understandings of situations. Ethnography is used to guide the research process and action research is used to link the research back to the project plans and activities.

1.5 The Design Process

The design process contained three main phases (Figure 1.5). The initial phase was intended to gain an understanding of both Aboriginal and more general cultural design issues and to collect the initial expectations of the community. This stage included a literature review (Chapter 2) and a focus group discussion (Chapter 3).

The focus group discussion employed 'storytelling', as an 'inquiry into ontology and one's connection to people and place' (Somerville et at. 2010). The story telling approach was based on audience ethnography, but Nakata also reminds us that storytelling is '…a very familiar tradition in Indigenous families where we can and do translate expertly difficult concepts' (2010, p. 53).

The second, iterative phase was where the main design work took place (Chapter 4 and 5). Two iterations were completed during this phase, isolating the 'key design features' for prototyping. In each case, a high fidelity prototype incorporating the key design features was developed for use as a prop in one-on-one interviews with the participants. The feedback from these interviews informed further design work. The final phase of the Wollotuka project was to evaluate the resultant key design features and the overall process.

Figure 1.5: An Overview of the Design Process.
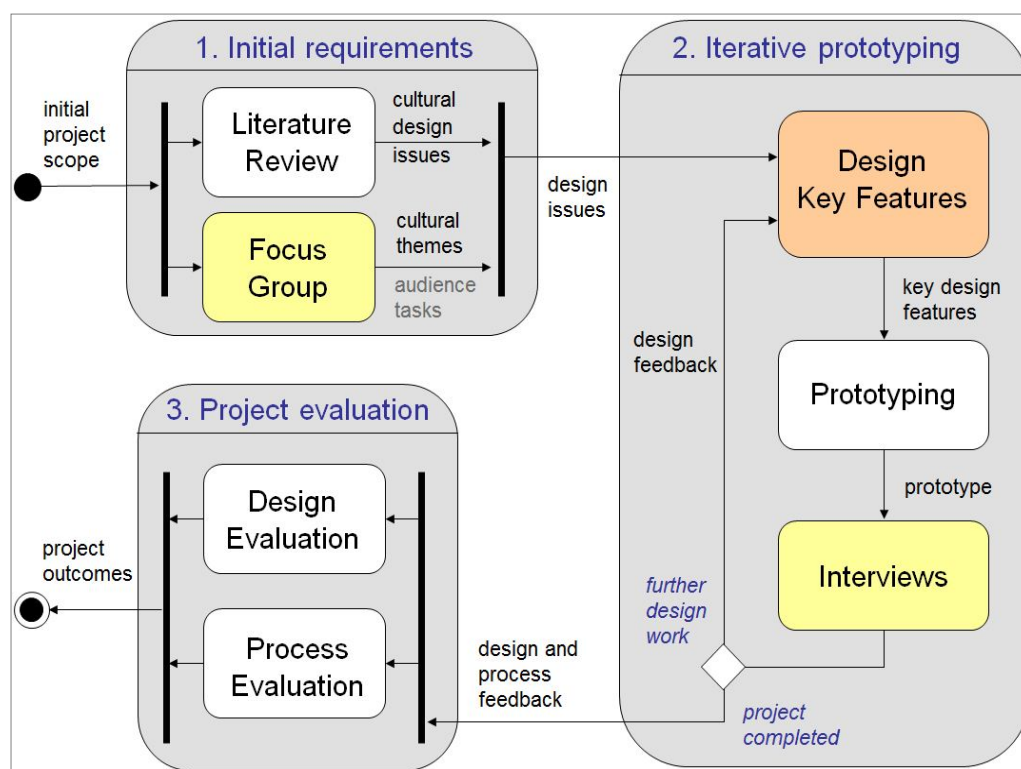
Note that, 'key design features', describes the general design factors dealing with the look and feel of the site. It was not the intention of this project to necessarily capture all the functions or user tasks to be performed on the site. Neither were strict technical limitations in the design considered in detail, for example, network bandwidth or cross-platform browsing issues. The planned outcome of the Wollotuka project was not a fully functional and deployed website but rather a consensus about the critical design factors that were required to meet the cultural requirements of the community. That is, the 'key design features'.

During the design process a range of qualitative methods was used, that included a focus group (Calder 1977; Kuniavsky 2003; Zeller 1986), structured interviews and semi-structured

interviews (Ambler 2004). The design approach can be described as ethnographic; it incorporated iterative, user-centric prototyping (Arnowitz, Arent & Berger 2007).

Such an approach that includes focus groups and interviews, as well as prototypes to gather feedback using structured interviews, has been recommended for identifying the 'meanings' of a representation within cross-cultural 'contexts' (Bourges-Waldegg & Scrivener 1996). Furthermore, for Indigenous Australians a positive preference for real-time communication, face-to-face contacts and one-to-one or small group meetings have been identified (Clemens 2002).

Studies involving cultural sensitive design suggest the need for detailed user involvement to identify cultural-unique specifications but also to support the process. Culture influences the design process because what may be an acceptable process in one culture may not be an acceptable in another (Young 2008, p.5). For example, the first step in the design process is to collect data about the intended target audience. In this process, '…Individual user characteristics and variability of the tasks are the two factors with the largest impact on usability, so they need to be studied carefully' (Nielsen 1993, p. 73). Therefore, each target audience for which the interface is intended, needs to take part in this stage of design process (Callahan 2005).

Figure 1.6: Community Involvements in the Design Process.
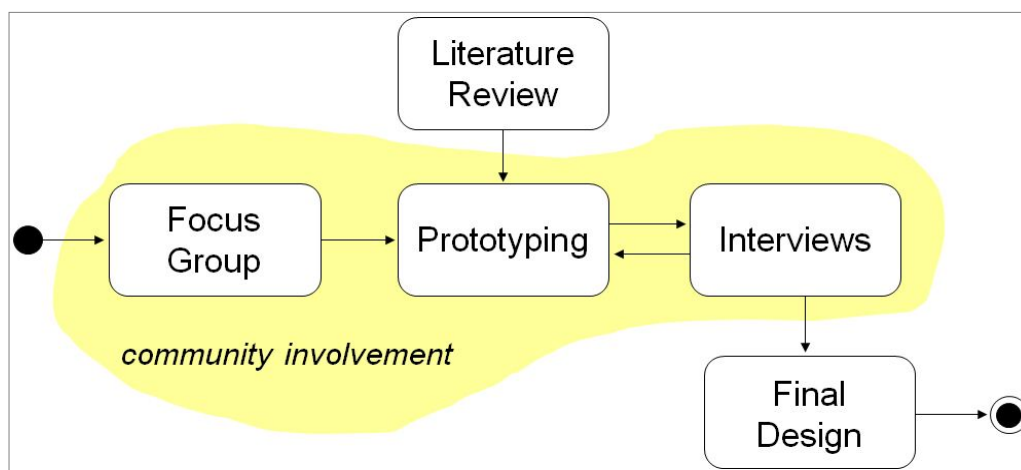
Although user involvement might appear to be 'complicated and time-consuming', many benefits have been identified for involving users in all stages of the software design process (Goransson et al. 2003). Importantly, involving the user community in the planning and design stages of any program for Indigenous Australians has been borne out in other studies

(Johnston 2001; Dyson 2003; Truna 2006; Fernandez 2000). Figure 1.6 illustrates the stages where expert community involvement was employed in the Wollotuka project.

1.6 Hofstede's Values Survey

An ethnographic design approach as described above, while considered essential to achieve the project aims, is no doubt time-consuming. An alternative approach for considering cultural requirements is to characterise the target group based on some well-defined 'cultural' measures. Unfortunately, agreeing on such cultural dimensions is problematic. In terms of interface design, the most frequently cited model for such cultural measures is the one developed by the cultural theorist Geert Hofstede (2005).

Hofstede's cultural model was originally derived from a survey of work-related values. The survey was completed by staff working for subsidiaries of IBM across 50 different countries between 1967 and 1973 (Hofstede 2005). An improved version of the value survey was made generally available in 1982 and many of the studies using Hofstede's work relate to this original survey. In 2008, the value survey was again updated.

In addition to developing key design features for the Wollotuka community using an ethnographic design process described above, this study will also use the 2008 version of the Hofstede's values survey (Hofstede et al., 2008) to analyse the design results in terms of cultural dimensions. The 2008 version of the value survey includes Likert-scale questions for each of the cultural dimensions; and a further six questions that provide demographic information.

The Hofstede model is further relevant, as there have been several studies that employ this model for studying the design of culture in websites (Callahan 2005, Marcus and Gould 2000, Robbins and Stylianou 2003, Singh and Pereira 2005, Yuan et. al 2005). Indeed many of these try to identify the key design features associated with different cultural dimensions. Of particular interest is a study that analysed university websites from eight different countries and reported on how well various design features correlated with Hofstede's cultural dimensions (Callahan 2005).

Using these previous analytical studies and given the position of the Wollotuka group on each cultural dimension, the key design features from this project are analysed in terms of 'expected' website design characteristics. A further discussion on Hofstede's cultural dimensions and their

usage can be found in section 2.7.2. The results of the Hostede analysis are presented in Chapter 6.

A distinguishing factor for this project is that each cultural design feature was identified through an extended ethnographic process and thus there is a good understanding of the motivation behind why each design element was chosen. This contrasts with the "blind" analysis of web site elements undertaken by these other studies. This is not a criticism of these studies as the blind analysis is a key part of their methodology. However, it does mean that any insights into why particular web design elements were used remain unknown.

1.7 Study Participants

Participants were required to be of Aboriginal decent and aged between 18 and 65. A screening questionnaire (Appendix 1) was used to qualify and select the participants for the study. Participants were recruited from multiple sources: the telephone book, a poster (Appendix 2) and from the common room of The Wollotuka Institute. The telephone book was used to identify potential participants, call them, and speak using screening questionnaire as a conversational guide. Participants were also given an information sheet (Appendix 3), which included the contact details of the Human Ethics Committee.

The study was conducted at The Wollotuka Institute within the grounds of The University of Newcastle. This community is comprised of around 40 members who fill teaching, research, administrative and other diverse community roles. From this group 12 subjects (Krueger 1988; Kuniavsky 2003) were selected by convenience to be directly involved in the study. In the justification of this number of participants, Hamersley and Atkinson point out that the focus of ethnographic research is '…on a few cases, generally fairly small scale, perhaps a single setting or group of people. This is to facilitate in depth study' (2007 p. 3).

The 12 participants included six women and nine men who represent a range of Aboriginal language groups, including the Worimi, Eora, Gumbaynggir, Bundjalung, Murray Island, Wirajuri, Wonnarua and Awabakal (Figure 1.7). The participants thus represent a range of Eastern Australian and Torres Strait Island Indigenous cultures rather than a single tribal perspective. Of these participants, five have academic roles at the Institute while the other seven perform important administrative functions. Nine of them are graduates and four of these have post-graduate qualifications.

The term 'Aboriginal' was first introduced by the British, being a name never used by the Indigenous people to describe themselves. In more recent times, it is common to use the terms 'Indigenous Australians', 'Indigenous people' and sometimes 'First Nations people'. Aboriginal people prefer to be identified by the name of the language group to which they belong (Nicholls 2003). For example, the people who speak the Worimi language identify themselves 'Worimi'. The Wollotuka project has adopted the usage of the term 'Aboriginal' to encompass all language groups within Australia and the Torres Strait Islands, the term 'Indigenous' representing the global Indigenous population.

Figure 1.7: Language Groups Represented By Participants.
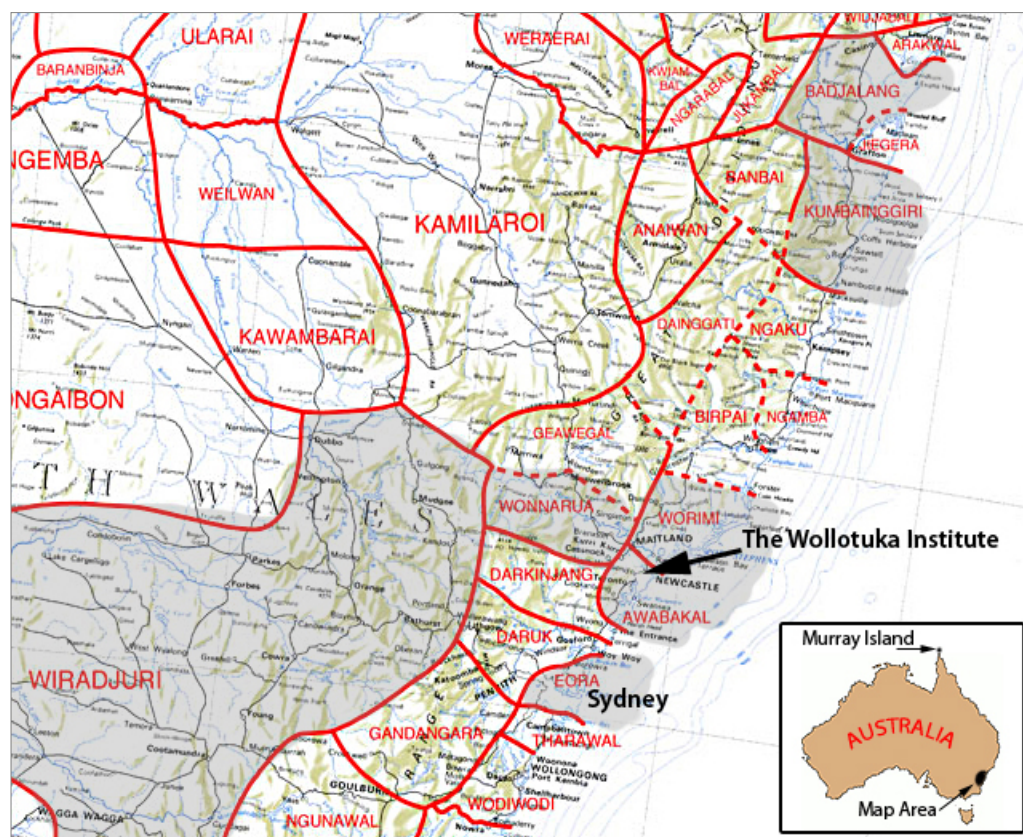
(*Adapted from*: Tindale & Winfred 1974)

The primary researcher is an urban Aboriginal man, a descendant of the Martu people, from the Pilbara region of North Western Australia and was responsible for conducting the research, analysing, and reporting on the outcomes from the study. While not a member of the Eastern Australia language groups, he has been associated with the Wollotuka community since 1997 and is generally accepted as a community member.

All the participants formally took part in the focus group, and provided feedback through one-on-one interviews during two iterative stages of the project. Information was collected directly from the participants, as outlined in Appendix 4 and 5.

1.8 Contributions

The results of the Wollotuka project have provided the following contributions:

- The development of cultural design guidelines from the literature review.
- The identification of 10 key design features for an Aboriginal culture:
    - Simple structure and navigation
    - Location map
    - Virtual tour
    - Multimedia (video and sound)
    - Interactive games
    - Community links
    - Feedback mechanism
    - Informal language and humour
    - Traditional imagery and ceremony
    - Indigenous Wiki
- An evaluation of the designs in terms of Hofstede's cultural dimensions.
- The development and evaluation of a culturally appropriate design process for an Aboriginal culture.

1.9 Conclusion

In summary, the Wollotuka project has attempted to understand the process of incorporating the cultural identity of an Aboriginal community into the design of a website. The aim of this project was to investigate two main questions: what key design features should be incorporated into a website to meet the requirements of this Aboriginal group and what culturally acceptable process can be used to go about capturing these requirements?

To answer these questions, the Wollotuka project has adopted an extended ethnographic design process that focuses on community involvement. The process has employed a focus

group, one-on-one contextual interviews and iterative prototyping to help identify important cultural requirements for the group. This community-based process was found to be a good match for the expectations of our Indigenous group.

The study produced a new and quite different website design for the Wollotuka Institute. The Wollotuka community confirmed that this new website incorporated the essential cultural elements that represented their identity. At the start of this chapter, Figure 1.2 showed the existing, Wollotuka website. For contrast, Figure 1.8 shows a screenshot from the virtual tour prototype. This interactive walkthrough of the Wollotuka Institute was the final prototype from the project.

Figure 1.8: Iteration Two of the Prototype.

Having identified the key design features for the Wollotuka project, we then employed cultural theorist, Gert Hofstede's cultural dimensions to compare these findings against other studies reporting correlations between Hofstede's cultural dimensions and the design features of websites. While we found some agreement with these studies, we also noted a number of differences.

Chapter 2 - Literature Review

2.1 Introduction

Many of the issues that influence the Wollotuka project are studied in the discipline of Human Computer Interaction (HCI). Dix offers this simple underlying principle for HCI, '…the study of interaction between people and computers' (2004, p. 5).

The field of HCI (Human-Computer Interaction) continues to change since its establishment in the 1980's (Rogers 2004). While the 'human' aspect of HCI is fundamental in the development of computer systems, the approach used by many of the design methodologies adopt Western paradigms. This is not necessarily a criticism as the majority of computer systems have been designed specifically for Western audiences. However, the notion of 'human' in HCI covers a much broader spectrum than Western peoples; it also includes Indigenous peoples, who have an estimated worldwide population of 300 million (Fuchs 2004) to 370 million (UN 2007).

The Association for Computing Machinery's (ACM) Special Interest Group on Computer-Human Interaction provide the following working definition of HCI; '…Human-computer interaction is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them' (ACM SIGCHI 2009, p. 5).

As this definition encapsulates the phases of the Wollotuka project, the literature review, in this chapter, has adopted section headings that relate back to key terms used in HCI and defined by the ACM (ACM SIGCHI 2009). A brief explanation of these terms is found in Table 2.1. The following sections relate these terms to specific aspects of the Wollotuka project.

One outcome from this literature review is a collection of guidelines that capture findings about the general design of cultural dependent interfaces, the specific design of Aboriginal interfaces and the consideration of Indigenous culture in the design process.

Table 2.1 Chapter Contents Derived from HCI.

Section	Description
2.2 Use and Context	The process of putting computers to work means that the human, technical, and work aspects of the application must be brought into fit with each other.
2.3 Human Characteristics	Takes into account the human information processing, communication and physical characteristics of users.
2.4 Computer System and Interface Architecture	Specialized machine components for interacting with humans are covered in this topic.
2.4.1 Input and Output Devices	The technical construction of devices for mediating between humans and machines.
2.4.2 Dialogue Genre	The conceptual uses to which the technical means are put. Such concepts arise in any media discipline (e.g., film, graphic design, etc.).
2.5 Development Process	This topic is concerned with the methodology and practice of interface design.
2.6 Design Approaches	The process of design. Relevant topics from other design disciplines.
2.7 Evaluation Techniques	Philosophy and specific methods for evaluations.
2.8 Example Systems and Case Studies	Classic designs to serve as extended examples of human interface design.

(*Adapted from:* ACM SIGCHI 2009, pp. 13-27)

2.2 Use and Context

This section discusses how critical it is to view application development from the user's context. The discussion will begin with some broad definitions followed by a review of the research into culturally diverse computer users. In many of these studies, the term 'culture' has been used to describe the context. The discussion will then consider the complexity in understanding cultural perspectives before considering some cultural and legal issues from an Indigenous perspective. Finally, this section will consider reasons to explore new ways of representing culture from a non-Western perspective before exposing a flaw in current user research and development method.

Computer systems exist within the context of real-world human activity. The term 'application' or 'app' is used to describe the use to which computers are put. The extent to which the application fits within this context of human activity can have a profound effect on

its success. The application needs to satisfy cultural requirements in addition to technical, business and legal ones.

The term *context* is a 'slippery' concept 'that keeps to the periphery, and slips away when one attempts to define it' (Dourish 2004, p. 29). Context relates to the human as an interacting social being (Hewett et al. 1996, p. 18). Within the HCI literature, '…context is typically limited to 'place', i.e., the location, identity, and state of people, groups, and computational and physical objects' (Rasanen & Nyce 2006 p. 176).

The context of the Wollotuka project is the Wollotuka community. The concept of 'community' has also proven difficult to define as Sutherland (2001) argues that the sheer diversity of Aboriginal communities renders the popular concept of an Aboriginal 'community' void, and that '… no one definition of 'community' can be used to cover all Aboriginal communities' (2001, pp. 29-30). For the purpose of this research, the Wollotuka community encompasses a common geographical region, a common lifestyle, a common language, a common history, and are members of The Wollotuka Institute.

Scholarly studies available use the term 'culture' to describe the context of the application. However, what is culture? Kroeber and Kluckhohn (1952) provide 164 different definitions for the concept of culture. There is also a very large body of historical work in the area of Cultural Theory (Cashmore & Rojeck 1999). Ewa Callahan studies how culture is understood in the human-computer interaction (HCI) literature. Callahan agrees that the very idea is complex because '… Operationalising the construct of culture . . . results in multiple descriptions, some of which contradict one another' (2005, p. 258).

Battiste & Henderson suggested that trying to understand Indigenous context from a Eurocentric perspective could not be explained, simply by the word 'culture'. They pointed out that:

> Most Indigenous scholars chose to view every way of life from two different but complementary perspectives: first as a manifestation of human knowledge, heritage, and consciousness, and second as an ecological order. They concluded that they couldn't find any such definition for the word 'culture' (Battiste & Henderson 2000, p. 35).

For the Wollotuka project 'culture' is understood to mean the way of life for a social group or community; this includes their arts, beliefs and institutions and the way they are practiced and shared within the group.

The discussion will now consider a general recognition for the need to provide cultural specific interfaces. Ewa Callahan, in particular has emphasized the importance of culture in interface design. Callahan refers to a survey conducted to collect general views about how people perceived cultural differences in interface designs. Callahan remarks in this context that more than seventy-five per cent of the respondents believed, that in order to bring new people to the web, '… it will be necessary to provide sites in their native languages' (2005, p. 262). Callahan has also pointed out that thirty six per cent felt that it was imperative to show respect for other cultures.

Bourges-Waldegg and Scrivener (1998) analysed the design of interfaces for culturally diverse users. They concluded that cultural diversity is an important phenomenon for HCI designers especially in the context of global markets and multi-user applications. A better understanding of how different cultures use websites will allow designers to develop websites that more fully meet the needs of the users. Their study suggested that it is the responsibility of the designers to design systems, which are usable by culturally heterogeneous user groups.

While the demand for culturally diverse interfaces exists, designers are faced with complex issues in their deployment. This can manifest itself in many ways, including the methods and techniques used, as well as the customs, ideologies and values of the group. Assumptions and expectations of the group may vary in unpredictable ways. Indeed any observed behaviours and artefacts might simply provide a glimpse of the subconscious contextual foundations.

Because these foundations may lie hidden below the surface, culture is sometimes compared to an 'iceberg' (French & Bell 1979; Selfridge & Sokolik 1975). Trompenaars and Hampden-Turner (1997) and Hofstede (2005) prefer a layered 'onion' model of culture, describing core layers of 'basic assumptions' or 'values' that impact on the externally observed practices.

Different levels of culture can range from national to regional identity, and may include ethnic, religious and linguistic levels. Further layers may be based on a person's gender, generation, social class or work culture (Hofstede 2005). To understand this complexity further, Clint Rogers argues, that culture influences mental functioning to such an extent that even responses to questions and the way of solving problems are all pre-determined in the case of several communities, particularly Indigenous communities. According to Rogers, many cultural influences are '... initially invisible' (2006, pp. 15-20).

If we consider the layers of the community associated with the Wollotuka project, there is lot of diversity that can be found in the social group, as they come from different language

groups, which embrace a spectrum of Indigenous values including different languages, traditions and gender roles. The Wollotuka community is unified by their Indigenous backgrounds and their work within a traditional Western style university. It is these higher social levels that need to be understood from the user's perspective.

There is also concern for the potential legal implications towards an institution or academic for perceived inequality. McFarlane and Fuller report that in an e-education context, '…discrimination could be claimed if a flexible delivery method does not cater for a particular disability or cultural difference' (2001 p. 92). They point out that '…failure to deliver the content in a timely and coherent manner could see a law suit regarding inadequate content' (2001 p. 92). They encourage a rethinking in the design approach to online education, to cater for the cultural diversity of on-shore and off-shore learners.

To more fully understand the Indigenous perspective, Linda Tuhiwai-Smith (1999) in her book on decolonizing methodologies, looks at the distinctiveness of Indigenous knowledge and differentiates it from Western knowledge practices. This clear distinction of knowledge practices emphasises the need to approach interface development in the Wollotuka project with a process that is carefully aligned with Indigenous knowledge practices.

Pumpa, Wyeld and Adkins also observed: '… Aboriginal knowledge exists as a self-contained knowledge tradition, radically separate ontologically and epistemologically from Eurocentric knowledge traditions' (2006, p. 810). Wyeld (2005) in a paper on 3D information visualization also suggests that problems may arise in the digital representation of Indigenous knowledge because how we think about information has a key role to play. Everything depends on our concept of what information is, that is, on our perspective. Wyeld stresses the importance of '… the ideologically dominant role perspective plays in Western visual thought.' (2005, pp. 1052).

The dominant role of Western thought in computer applications may be why alternative strategies are rarely explored. Wyeld stresses the importance of finding new ways to '… communicate diverse cultural understandings' and '… how technology can assist in the empowering of cultural identity in an increasingly homogenous world, mediated by Western cultural values, advanced by the same technology' (2007, p. 267).

New perspectives and new modes of representation may be essential as Absolon and Willett pointed out in their paper on Aboriginal research. They remark: '… Aboriginal research and writing then, as forms of media and as tools of education and socialization, demand a

reconstruction and revolution of representations and images' (2004, p. 10). They point out that, any attempt to represent Aboriginal knowledge and experience should therefore, '… liberate authentic Aboriginal knowledge's, voices, and experiences at individual and collective levels' (2004, p. 10).

However, the effective fit between the application and the contextual practices creates a significant challenge when representing Indigenous knowledge. As Hart (2001) maintains: '… there is a clear danger that digital tools and activities will supplant myths, rituals and learning about country from one's direct experience, and immediate community' (Cited in Pumpa, Wyeld & Adkins 2006, p. 811).

Clearly, in the development of an interface intended for an Aboriginal community, the Indigenous perspectives need to be seriously considered. New ways of representing diverse cultural users need to be explored, not from a Western context but from   Indigenous paradigms.

Battiste and Henderson highlight the danger that HCI researchers face when examining one context through the perspective of another context. When speaking on the dilemma researchers faced when studying Indigenous cultures, they said that:

> Rather than attempting to understand Indigenous knowledge as a distinct knowledge system, researchers have tried to make Indigenous knowledge match the existing academic categories of Western knowledge. They have relied on these categories for comfort and security, instead of embarking on an intellectual adventure to connect more deeply with Indigenous ecologies. The viewing of Indigenous knowledge and heritage through Western categories is the result of the researchers' formal training and of the belief that these categories are universal standards. These processes cause the researchers to miss the real adventure of this journey and distract them from developing deeper insights that might lead them to a vast, unforeseen realm of knowing (2000, p. 39).

To HCI, the incorporation of culture into computer usage sounds promising but in some contexts, this notion is fundamentally flawed. The problem lies in the assumption that the data collection process is contextually acceptable. It is further assumed, that the target audience desire to have contextual data collected by researchers. Linda Tuhiwia-Smith, an Indigenous researcher and member of the Maori community, provides this sobering example:

> Stories about research and particularly researchers (the human carriers of research) were intertwined with stories about all other forms of colonisation and injustice. There were cautionary tales where the surface story was not as important as the underlying examples of

cultural protocol broken, values negated, small tests failed and key people ignored. The greater danger, however, was in the creeping policies that intruded into every aspect of our lives, legitimated by research, informed more often by ideology. The power of the research was not in the visits made by researchers to our communities, nor by their fieldwork and the rude questions they often asked . . . 'We are the most researched people in the world' is a comment I have heard frequently from several Indigenous communities. The truth of such a comment is unimportant, what does need to be taken seriously is the sense of weight and unspoken cynicism about research that the message conveys (1999, p. 3).

In view of this, HCI professionals cannot assume that their user research methodology is acceptable to their target audiences. For example, setting up a usability lab within an Indigenous community, may initially seem like a reasonable idea from a Western perspective, but from an Indigenous perspective it may be highly offensive, especially if the community had experienced negative effects on account of past research procedures and outcomes.

It is also important to note that any indifference shown towards users may have serious consequences for an Indigenous community, who otherwise often see themselves outside the whole process, whether it is the design, usage, or evaluation of the software. To ensure that the group is not alienated, the design process needs to be seen as a social process, as well as a technical one, as this best matches Aboriginal cultural expectations (Turk & Trees 1998). The importance of involving the user community in the planning and design stages of any program for Indigenous Australians has also been borne out by other studies (Johnston 2001; Dyson 2003; Turner 2006; Fernandez 2000).

As a final note, restraint needs to be exercised; even an Indigenous researcher cannot assume that they will be accepted into all communities. Time is needed for any person to gain the trust of community members. Trust must be established before any research can start. Even when an Aboriginal researcher is communicating with other Aboriginal persons, it is important to establish some background as an Aboriginal person, especially family connections, as this allows the researcher's identity as an Aboriginal person to be '… reinforced and verified' (Claverie 2005, p. 76).

The main issues as they relate to design within an Aboriginal context have been summarised in Table 2.2. Care will be taken to ensure these principles are well integrated into the project.

This section has highlighted some serious contextual issues that needed to be addressed in the management of the Wollotuka project. It required an understanding of the Aboriginal context and the adopting of an Aboriginal perspective. Western methods of user research in HCI

needed to be reconsidered as to whether they are effective in a non-Western context. Having considered this broader context of use, the next section will look at literature concerning human psychology and communication.

Table 2.2: Issues in the Design Process for an Aboriginal Community.

Item	Principle
2.2.1	Stories about research and particularly researchers (the human carriers of research) were intertwined with stories about all other forms of colonisation and injustice (Tuhiwia-Smith 1999)
2.2.2	The need for community involvement in the design process, resulting in traditional norms being maintained (elders passing on the knowledge), cultural sensitivity, and appropriate content and emphasis (Fleer 1989).
2.2.3	The design process needs to be seen as a social process, as well as a technical one as these best match Aboriginal cultural expectations (Turk & Trees 1998).
2.2.4	Aboriginal knowledge exists as a self-contained knowledge tradition, radically separate ontologically and epistemologically from Eurocentric knowledge traditions (Pumpa & Wyeld 2006, p. 810)
2.2.5	Consultation with Indigenous artists and representatives from the country to ensure that the program has been designed correctly. (Pumpa, Wyeld 2006, p. 240)
2.2.6	Plan for change and provide the scope of redesigning as the needs of the target groups change (Clemens 2002).
2.2.7	Final results need to be disseminated back to the people in culturally appropriate ways and in a language that can be understood (Tuhiwia-Smith 1999)
2.2.8	Discrimination could be claimed if '… a flexible delivery method does not cater for a particular disability or cultural difference' (Mcfarlane & Fuller 2001 p. 92).
2.2.9	Avoid the mistaken notion that Indigenous culture is monolithic (Dyson 2002).
2.2.10	The usage of Aboriginal knowledge without permission '…is treated as theft and recognized to be highly subversive of the traditional gerontocratic social structure' (Butchman 2000, p. 63).
2.2.11	Storytelling is an integral part of Aboriginal culture (Somerville et a. 2010)

2.3 Human Characteristics

The previous section dealt with the cultural context of applications in the real-world of human activity, this section will now consider cognitive psychology issues, by taking into account some characteristics of Aboriginal information-processing and communication, as distinct from Western information-processing. It is not the intention of this section to build a cognitive

model but to provide general examples from the literature, to inform the design of the Wollotuka project.

It is neither the intention of this section to attempt to explain Aboriginal concepts in Western terms, as there are limits to the extent that Aboriginal knowledge can be explained. Marie Battiste, in her paper on Indigenous knowledge and pedagogy, comments that the Indigenous knowledge systems are unique with '… its own internal consistency and ways of knowing, and there are limits to how far it can be comprehended from a Eurocentric point of view' (2002, pp. 2-3).

In general terms, a Western thinker might find a preference for clear and simple design categories that focus on the attributes of objects, the adoption of rules and discrete content areas. By contrast, Holistic thinking is associated with East Asian and Indigenous Australian thought processes. It allows for multiple perspectives and the careful consideration of the harmonious relationship between an object and its context. Knowledge is experience-based rather than deductive and rule based (Nisbett 2003; Nisbett & Masuda 2003; Nisbett et al. 2001). Using a computer metaphor Dewey (2007) contrasts the two cognitive styles in this way:

> A holistic person might be regarded as a parallel processor. That would be the case if a correct response evolves out of widespread simultaneous activity instead of resulting from a controlled, step by step process.

However, there are some fundamental principles related to Aboriginal thought, which have been reported in the literature and are relevant to the Wollotuka project. The foremost principle is the connection to the 'land'. David Lewis (1976) travelled with tribal Aboriginal groups for three years, covering a distance of 7,800kms, to report on the techniques and concepts relating to spatial orientation. Lewis found that '…a general identification with the land and its flora and fauna seems to perpetuate much of the Aborigines' orientation ability and environmental knowledge' (1976, p.254). This affinity with the natural landscape is a feature of Indigenous information processing. Lewis went on to report that:

> All the Aborigines with whom I travelled demonstrated extraordinary acuity of perception of natural signs and ability to interpret them, and almost total recall of every topographical feature of any country they had ever crossed. A single visit 40 years ago would be sufficient to make an indelible imprint (Lewis, 1976, p. 271).

As Gibson observed, the Aboriginal 'visual world ... is filled with things which have meaning' (1950, p. 3). Lewis further observed that even among non-tribal Aboriginals there

existed '… a deep emotional relationship with the bush country' (1976, p. 254). This meaningful connectedness to the land, which lies at the heart of Aboriginal being is often expressed and preserved in natural forms of media:

> The land for Aboriginal people, is a vibrant spiritual landscape… song, dance, body, rock and sand paintings, special languages and the oral explanation of the myths encoded in these essential religious art forms have been the media of the Law to the present day. (Anderson 1987 in Kleinert & Neale 2000, p. 9)

Pumpa, Wyeld & Adkins state that Aboriginal people see knowledge as reifying culture and identity (2006). It exists in '… kinship, language and humour.' As against '… Western traditions which emphasize the differences between what exists and how we represent it in a variety of symbolic systems,' the Aboriginal knowledge traditions '… emphasize the unity of symbol and object - of what exist and how we represent it.' They go on:

> In Aboriginal knowledge traditions, language, ceremony, singing, dancing and other representational forms can influence events and cause real world events to happen. Objects and phenomena can be 'sung' or 'talked' into and out of existence. These processes of the amalgamation of representation and reality have been going on since the Dreamtime (in Australian Aboriginal terms, the time of creation of things) and continues to this day (Pumpa, Wyeld & Adkins 2006, p. 811).

David Lewis also comments on the extensive usage of song by the Pintupi people of the Western Desert, reportedly they:

> [S]ang the Dreamings of every rock outcrop, creek-bed or plain, hour after hour, all day as we drove through their 'country'. The major Dreamings were sung by the campfires until everyone fell asleep, the Malu Tjukurpa taking two evenings to sing, during which no note-taking, tape-recording or photography was permitted' (1976, p. 276).

Lydia Buchtmann in her work on 'Digital Songlines' analyses Aboriginal modes of communication and says that they are '… extensions of the oral and face-to-face nature of that society' (2000, p. 63).

While these Aboriginal communication styles may appear difficult to translate into a website interface, to the contrary Lesley Clemens comments on the '…flexibility of the Internet as a technology to enhance communication with Indigenous communities' (2001, n.p). Clemens views the communication networks of Indigenous people and their approach to communication '… as an advantage when entering an online environment' (2001, n.p). Website designers will be particularly encouraged when they ponder Clemens's remark that

'… Indigenous peoples show a particular interest in authentic expression and representation, as well as moving with apparent ease into visual and aural areas of expertise' (2001, n.p).

However, Buchtmann provides a warning for developers intending to use Aboriginal stories and songs in application development. Buchtmann says that they are '… the prerogative of senior men and women (elders) and the rules governing transmission are highly regulated' (2000, p. 63). One special feature of these stories and songs and their transmission is that any violation of the '… speaking constraints and rights here is treated as theft and recognized to be highly subversive of the traditional gerontocratic social structure' (2000, p. 63).

Fleer (1989) also suggests a cognitive strength existing in Aboriginal visual and spatial information processing. Fleer provided a summary of design principles used in the development of the Tjina project, an educational application for Aboriginal children. In 1989 the developments of such applications were restricted by the available technology, however the design principles are still of practical value today. Below is Fleer's list of guidelines for developing applications for Aboriginal peoples:

- Familiar content (e.g., Australian animals);
- Inclusion of Aboriginal characters in the graphics and text;
- Familiar life experiences (e.g., hunting, family);
- Inclusion of cultural values and beliefs where appropriate (e.g., importance of the extended family, less emphasis on the assumption of a nuclear family);
- The need for community involvement in the software design process, resulting in traditional norms being maintained (elders passing on the knowledge), cultural sensitivity, and appropriate content and emphasis;
- Emphasis on graphics and animation, to support Aboriginal cognitive strengths;
- Greater interaction by students, particularly peer and group work;
- Self-selecting difficulty levels;
- Open-ended design; and
- Easily modifiable text to cater for a range of literacy skills and school environments. (*Source:* Fleer 1989, p. 616)

Garoufallou, Siatri & Balatsoukas further recommend that when we design computer programs or websites for Indigenous people we should increase the visibility of the user guide by using a '... larger font size, or, automatic display of a pop up box that prompts users to use the User Guide.' Another recommendation is the use of more elaborate search facility that

would '... provide synonymous terms to assist users in their quest for information' (2008, p. 599).

This section has considered the differences between Western and Aboriginal styles of communication. Key aspects of Indigenous communication such as the natural landscape, their art, song and dance can all be effectively represented using current Internet technologies. In the Wollotuka project, multimedia will be considered where possible, to represent these natural forms of Aboriginal information processing and to communicate more effectively with the Aboriginal audience.

2.4 Computer System and Interface Architecture

Having discussed the contextual and human aspects of this project, we now deal with the computer-related issues of hardware infrastructure and interface metaphors. Computer systems have evolved to a point where they now come 'out of the box' with specialised software and hardware for interacting with humans. This section covers both the basic input/output hardware devices and the software architecture theory used to build the application.

2.4.1 Input and Output Devices

The scope of the Wollotuka project does not include the development of input and output devices for an Aboriginal context. However, some projects may need to consider how cultural needs impacts on the provision of hardware. Modern hardware interfaces may be acceptable in a Eurocentric context but they may cause difficulties in other parts of the world. Properly localized input and output devices are attuned to cultural differences. A further discussion on localization and culturally appropriate interfaces can be found in Section 2.6.

Prasolova-Forland, Sourin and Sourina have published a detailed study of cyber campuses; they conclude that cross-cultural pedagogical activities are to be cautiously designed. They feel that it is essential to have, in addition to the educational material in English, '... culturally-unbiased avatars and building blocks' (2006, p. 1025), since in the current educational systems '... most of the predefined library objects are based on the Western culture' (2006, p. 1025). They warn that such Western-oriented instructional modules can seriously '... limit the expression means for Asian and African students' (2006, p. 1025). They

have the conviction that the cultural barriers can be overcome through '... additional communication means such as video conferencing' (2006, p. 1025). These additional hardware devices are viewed as necessary to engage student curiosity and provoke the urge to learn more. However, in order to facilitate that kind of a constructive learning process, people belonging to different cultural backgrounds must have access to the hardware suitable for their cultural make-up.

The Wollotuka project will explore Pumpa and Wyeld's claim, in their study on the narratological representation of Australian Aboriginal knowledge, that '… some formats are more suited to representing the Australian Aboriginal oral cultural tradition (such as audio, video, graphics) than others' (2006, Introduction). To study this claim a certain level of hardware, including a high-resolution monitor and a speaker system were required for displaying multimedia.

A key part of our design process was the development of high-fidelity prototypes. High fidelity prototypes are rich in detail and intended to include many (but not all) elements of visual and interaction design, in a way that does not cause misinterpretation to the user (Arnowitz, Arent & Berger 2007). To view these prototypes, a computer needed to have the following input/output devices: keyboard, mouse, video and audio cards, monitor, speakers and network card connected to the Internet.

All computer systems at The University of Newcastle generally meet these minimum requirements. Hence, no provisions were made in this research to supply these devices. This allowed participants to use their own everyday work computer system to view the prototypes and partake in the one-on-one interviews.

The development of multimedia for the prototypes required additional hardware devices; a digital camera, a robotic camera mount (for panoramic imaging) and a handheld digital movie camera.

The prototypes were made available on the Internet by uploading to a web server. This allowed all participants access to the prototypes by way of a standard web browser. The webhosting server included a Cisco™ certified network and multiple backbone providers. This ensured fast downloads and reliability, with a genuine 99.99% uptime for websites. The server architecture is setup and maintained by the webhosting service provider for a monthly fee (1GigHost 2005).

The University of Newcastle currently provides high bandwidth Internet access to all staff and students to access information outside the universities network. The Internet is rightly viewed by the University as an essential tool for research (UON, 2008b). This availability of Internet access for research meant that no additional network devices or Internet services were needed during the research.

2.4.2 Dialogue Genre

The dialogue genre in HCI is concerned with the communication between human and computer. This is often represented in the interface by adopting an interaction metaphor. This section will discuss the development of an Aboriginal community metaphor, raising once again issues related to Indigenous knowledge representation before suggesting some possible solutions.

A conceptual design metaphor is best defined by Lakoff and Johnson's view as '… a way of conceiving of one thing in terms of another, and its primary function is understanding' (1980, p. 37). The Macintosh™ human interface guidelines state:

> You can take advantage of people's knowledge of the world around them by using metaphors to convey concepts and features of your application. Use metaphors involving concrete, familiar ideas and make the metaphors plain, so that users have a set of expectations to apply to computer environments (Apple Computer Inc. 1992).

The Windows™ interface guidelines similarly advise that:

> Familiar metaphors provide a direct and intuitive interface to user tasks. By allowing users to transfer their knowledge and experience, metaphors make it easier to predict and learn the behaviours of software-based representations (Microsoft Corp. 1995).

An interface metaphor for an Aboriginal community needs to draw heavily on culture specific knowledge and practices. The cultural differences in the comprehension of metaphors for an Indigenous community need to go beyond superficial changes, such as the shape and colour of icons. The metaphor needs to take into account the culturally different cognitive, emotional, behavioural, social processes and structures.

The Wollotuka project is not concerned with Western thinking and detaching objects from their context but intends to develop a more holistic style of metaphor. For the Wollotuka project, it was not expected that an Aboriginal metaphor would fit within the current corporate

(Western) website framework prescribed by The University of Newcastle. For this reason the final design gave no consideration to the Universities design guidelines. This decision allowed for much more design flexibility.

However, it is not always possible to achieve all design goals within the given constraints and in this situation, a 'trade-off' in the design needed to be adopted (Dix et al. 2004). The trade-off involves relaxing some goals and constraints in order to achieve the most appropriate design. In this project, we were constrained by the available tools and the general way web browser's function.

As previously discussed in section 2.2, trying to find an appropriate metaphor is difficult as we are confronted with the problem of fitting an application within an Aboriginal context. Malcolm Pumpa and Theodor Wyeld have dwelt on this aspect at length. They remark that in Aboriginal culture and practice, since there is no written language, '… any representation of an object is considered as real as the object itself.' Which means '… a sketch of an Australian Aboriginal person is thought to be part of, rather than merely a representation of, that person.'

However, a possible suggestion for representing Aboriginal knowledge effectively is for the user is to be '… involved in an extended collaborative, performative narrative which pursues a purposeful journey through a sentient (responsive) landscape, exploring and reaffirming relationships with significant people and the land.' (Pumpa and Wyeld 2006 p.240). The problem with current practice is that: '…Aboriginal knowledge seems to be split into either data based tools or narrative based tools—collecting and telling' (Pumpa and Wyeld 2006 p.240). This reveals a serious dichotomy in Western thought, that between database and narrative.

While any database tool is '… presenting at best only half of the knowledge practice tradition,' the '… narrative tools, such as digital story books, struggle with the linearity, lack of multidimensionality and simplification of the digital publishing formats' (Pumpa and Wyeld 2006 p.240). Pumpa and Wyeld identify a major defect here: '… Both these types of tools also lack the essential capacity for the user to '… 'perform knowledge' (to actively participate in knowledge construction), rather than merely access and manipulate what is given' (2006, p. 240).

While confronted with these difficulties in the development of an Aboriginal interface metaphor, Pumpa and Wyeld also report on the development of a three dimensional landscape using a software gaming engine, which is designed to represent Aboriginal knowledge

practices more accurately than a database or narrative. The project is known as 'The Digital Songlines Project' and has been referenced frequently within this thesis due to its innovative nature. The 'Digital Songlines Project' is discussed in more detail later in this chapter (Section 2.8.2).

Similar to the Digital Songlines project, the Wollotuka project intended to develop a metaphor of the geographical landscape in a way that views the users as 'travellers' (Salgado, de Souza & Leitão, 2009). A key difference being the Wollotuka project and the Digital Songlines project is the platform available. The metaphor supported in the Wollotuka project needs to be web-based and is restricted by processing power, bandwidth and browsing technology. By contrast, the more immersive metaphor adopted by the Digital Songlines project is supported by a fast and flexible, PC-based game engine.

2.5 Development Process

This section discusses the considerations of choosing a process used in the development of cultural applications. It will argue the need for a culturally appropriate development process that is free from designer bias and the need for developers to be immersed in the culture of the intended application.

One approach used in HCI in designing cultural artefacts is to try to categorize the target group along some well-defined 'cultural dimensions', then using design features that match these categories. While this method does have some value in providing design direction, agreeing on such dimensions is problematic. Scahdwitz reports that as many as 29 different dimensions have been identified for the purpose of cross-cultural design (Scahdwitz 2008). Turas, Rowney and Steel (2009) further identified 121 instruments for quantifying culture. Choosing the most appropriate cultural dimensions is complicated because many are subjective scales that are problematic to measure. We will later discuss Hofstede's cultural dimensions and use them to consider the outcomes from our final design. For the Wollotuka project, we did not consider this general approach as culturally appropriate.

It is contended, that a culturally appropriate development process is critical if a culturally appropriate artefact is to be produced. Young (2008) suggests that culture is at the core of any design process and highlights Human Computer Interaction and Instructional Design as fields that have tried to integrate cultural requirements into the design process. For example, Dyson (2002), in her work on the design of Indigenous educational resources, stresses the fact that a

computer course must be designed with Indigenous culture and Indigenous ways of doing, thinking and learning at its core. Thus, it is not just the metaphor that must represent the culture but also the manner in which it is designed.

Researchers working on HCI are increasingly aware that '… online communicative interface [are] subject to cultural interpretation' (Macfadyen, n.p). A deep understanding of the culture of the users is of paramount importance as it is their culture, which ultimately gives meaning to the created design. There is also the awareness that '… Educational computing and the use of technology to mediate learning are imbued with cultural values and assumptions' (McLoughlin & Oliver 1999, p. 59).

Paragman (1998) further highlights the possibility of having technical and social bias in the design of websites or software for a specific community. The methodology developed has to be effective and suitable at the same time. As Paragman states:

> The design rationale would naturally be of great use in identifying embedded values and as a basis for discussions of whether design decisions were reasonable or if they contained bias that were built right into the system' (1998, p. 83).

Tuhiwai Smith (1999) takes us boldly through the difficulties arising from a general attitude towards Indigenous traditions and perspectives. In fact, there are many mistaken notions about the appropriate ways to deal with or represent cultures as such. Smith warns us:

> Some researchers regard the values and beliefs, practices and customs of communities as 'barriers' to research or as exotic customs with which researchers need to be familiar in order to carry out their work without causing offence (Smith 1999, p. 15).

Smith takes a strong exception to such an attitude and recommends a near-total involvement on the part of the researcher and the context. More importantly, the very methodology of the research has to be designed accordingly: '… Indigenous methodologies tend to approach cultural protocols, values and behaviours as an integral part of methodology' (1999, p. 15). Smith goes a step further and provides the full significance of such a research methodology:

> They are 'factors' to be built in to research explicitly, to be thought about reflexively, to be discussed as part of the final results of a study and to be disseminated back to the people in culturally appropriate ways and in a language that can be understood (Smith 1999, p. 15).

Smith further comments that this methodology can be termed '… an ethical and respectful approach' (1999, p. 15).

Wyeld (2007), in a short paper on visualizing Indigenous knowledge, commented that the perceptions about how to represent cultural vary from place to place. Wyeld considers the importance of the need to suspend one's beliefs and learn anew the knowledge systems of the Indigenous people in order to create a design that will get universal acceptance. That will ensure that the Indigenous context is communicated and preserved effectively.

In the case of research conducted among Aboriginal people, on a subject, that has a strong bearing on Aboriginal experience; particular attention must be given to gathering requirements in a manner acceptable to the users. Accordingly, the active involvement of the representatives of the Aboriginal community in the research design becomes imperative. As Absolon and Willett have pointed out: '… community participation and community control and ownership at all levels of research process must be evident.' The implication they make here is that the '… Aboriginal research methodology requires Aboriginal paradigms' (2004, p. 12).

In the development of an application in an Aboriginal context, the application needs to be done by Aboriginal people who have a very keen awareness about the target culture. Fernandez (2000) asserts that the designers should know the culture well enough to foresee which items might be seen as offensive or rude.

Hence, for the Wollotuka project, it is the responsibility of the researcher to ensure that bias is minimised in the development process. To achieve this, every effort was made to be aware of the subtle cultural overtones and the possibility of bias engendered by mainstream Western culture. For example, the primary researcher is an Aboriginal scholar who has maintained close ties to the Wollotuka community since 1997, the development of key design features for the prototypes were carried out by an Aboriginal website developer and the Wollotuka project has maintained at least one Aboriginal supervisor for its entire duration.

2.6 Design Approaches

This section will discuss previous design approaches for developing user-centred systems. It will consider relevant work in usability, culturability and localization, highlighting some benefits and limitations in these approaches. This section concludes with some examples of cultural interfaces that went wrong due to simple oversights and provides possible reasons for these problems.

As Cooper, Reimann and Cronin point out in their study, a website designer is very likely to fail unless they have a '… clear and detailed knowledge of the users,' irrespective of the skill in designing (2007, n.p). Likewise, Nielsen and Loranger highlight the importance of designing a website with the users in mind (2006).

There have been several in-depth studies on user-centred systems design in software development. Goransson, Gulliksen and Boivie give attention to the various aspects of systems design. At the outset, they remark that there is work going on to bridge the gaps between software engineering and HCI. They are aware that user-centred design '… must be tightly integrated in the software development process' through the usability design process. They define usability design process as an approach for '… developing usable interactive systems, combining usability engineering with interaction design, and emphasizing extensive active user involvement throughout the iterative process.'

One feature of the Goransson, Gulliksen and Boivie study is that it provides examples from real-life design cases that help demonstrate that usability is '… not just the concern of usability professionals but the concern of everyone involved in the process' (2003, pp. 111-128).

Hillier regards the usability of a user interface as '... the fluency or ease with which a user is able to interact with a system without 'thinking' about it' (2003, pp. 9). Hillier views it as using the interface 'naturally' or without feeling 'discomfort', either physical or mental' (2003, pp. 9). This kind of awareness is crucial when considering the Wollotuka project as the interface not only needs to be natural for Aboriginal people to use but the design approach also needs to closely involve the Aboriginal community.

Shen and others confirm that this approach is bound to '… be concentrated around the target user and his/her specific cultural conditions' (2006, p. 828). It is also necessary that '… the design process needs to be characterized by iterative analyses,' with each design choice being checked for its '… cultural appropriateness, relevance, semiotics, functionality and usability' (2006, p. 828).

Nielsen (1993) points out that '… Individual user characteristics and variability of the tasks are the two factors with the largest impact on usability, so they have to be studied carefully' (in Callahan 2004, p. 292). The basic methods of data collection usually involve watching users perform tasks with the user interface as well as the administration of questionnaires. During data collection, the user interface is tested by the target audience, in order to see how

easy it is to complete the assigned tasks. These tasks are developed after determining which tasks the target audience will want to complete on the system. Each target audience, for which the interface is intended, needs to take part in this stage of design process (Callahan 2004).

Iterative design and user-centred design thus serve dual purposes in the Wollotuka project, ensuring a culturally inclusive approach and supporting usability evaluations of the design outcomes.

Culturability is defined by Barber and Badre (1998) as the merging of culture and usability:

> Cultural usability is a term we use to emphasize the importance of the relationship between culture and usability in WWW design. . . . Color, spatial organization, fonts, shapes, icons, metaphors, geography, language, flags, sounds, and motion contribute to the design and content of a Web page, which directly affects the way that a user interacts with the site (Cited in Cry & Trevor-Smith, 2004, p. 2).

The application of culturability principles involves determining the differences between cultures and the issues such differences are likely to cause. Many studies have contributed to the development of culturability (Marcus & Gould 2000; Sun 2001; Del Galdo 1996; and Nielsen 1990). Culturability studies typically produce a set of design guidelines that assist in the development of a culturally appropriate interface. The guidelines are validated through usability tests, but in the case of Indigenous populations, alternative usability tests may become necessary. As Vatrapu (2002) concluded, '…usability assessment techniques have not been carefully studied in a cross-cultural context to evaluate their efficacy'. However, Vatrapu did not provide examples of alternative usability tests.

Another design approach often described in the literature is 'localization'. *Localization* is an approach used to produce an interface that incorporates local content and functionality (Shannon, 2000). On the other hand, removing culture specific elements perhaps makes for a less offensive, more pleasing design. This approach is known as the 'globalization' of an interface. *Globalization* implies the development of a generic, culturally neutral artefact (Tixier 2005) and is in direct contrast to localization.

The World Wide Web Consortium (W3C) defines localization as the process of adapting '… a product, application or document content to meet the language, cultural and other requirements of a specific target market (a 'locale').' Regarding the mechanics of localization, WC3 says:

Localization may even necessitate a comprehensive rethinking of logic, visual design, or presentation if the way of doing business (eg. accounting) or the accepted paradigm for learning (eg. focus on individual vs. group) in a given locale differs substantially from the originating culture (WC3 2010).

Fernandez (2000) identified various cultural issues to consider when developing user interfaces: language, social context, time, currency, units of measure, cultural values, body positions, symbols and aesthetics. Russo and Boor presented '... a checklist of design items to consider in interface design: text, number, date and time formats, images, symbols, colours, flow, and functionality' (Cited in Vatrapu 2002, p. 17). They discussed each of these design elements and what to consider when deciding on implementation. They also emphasised the need to test the interface design out on the intended audience in every stage of the design process.

When a website has been localized '… it appears that the site has been developed specifically for the local audience' (Cyr & Trevor-Smith 2004, p. 1199). Some possible design considerations for the Wollotuka project include the type of language, time zones, currency, local colour sensitivities, product or service names, gender roles, and geographic examples. However, there are no consolidated localization guidelines for an Aboriginal culture.

Table 2.3 is a summary of the design principles identified in the literature during this study. These principles highlight content and design ideas that can be used to localize a webpage for an Aboriginal audience. These principles are not sufficient to develop the final user interface but they are useful to inform design decisions in the Wollotuka project. These principles will be used in conjunction with focus group feedback, 1-on-1 interviews and iterative prototyping to formulate final design decisions.

Table 2.3: Design Principles for an Aboriginal Community.

Item	Principle	Hofstede Dimension
2.3.1	The geographical land is the foundation of Indigenous thinking. Aboriginal people have a strong respect for the land, as well as for their culture and language (Auld 2007).	Low Power-distance
2.3.2	Even among non-tribal Aboriginals there exists a deep emotional relationship with the bush country (Lewis 1976, p. 254)	
2.3.3	Familiar images of concrete things, that are understood and loved, constitute the key communication device and form a text in themselves. The use of local pictures and images of people is	Low Power distance Low Individualism

essential (Williams 2002).

2.3.4	Spatial aspects like location are especially significant (Turk & Trees 1998).	
2.3.5	Inclusion of cultural values and beliefs where appropriate (e.g., importance of the extended family, less emphasis on the assumption of a nuclear family) (Fleer 1989).	Low Individualism Low Power-distance
2.3.6	Include familiar content (e.g., Australian animals) and familiar life experiences (e.g., hunting, family) (Fleer 1989).	Low Individualism
2.3.7	In an Aboriginal community, family life and children always come before individual pursuits (Gibb 2006).	Low Individualism Low Masculinity
2.3.8	Aboriginal peoples approach to communication is an advantage when entering an online environment. Indigenous peoples show a particular interest in authentic expression and representation, as well as moving with apparent ease into visual and aural areas of expertise. (Clemens 2001)	Low Masculinity
2.3.9	Singing and dancing are often used to teach in the traditional Aboriginal teaching situations (Fischer 1995).	Low Masculinity
2.3.10	Use of stories, songs and images are used to pass on the message (Remedio 1996).	Low Masculinity
2.3.11	In Aboriginal knowledge traditions, language, ceremony, singing, dancing and other representational forms can influence events and cause real world events to happen. Objects and phenomena can be 'sung' or 'talked' into and out of existence. (Pumpa, Wyeld & Adkins 2006, p. 811).	
2.3.12	Aboriginal students prefer simple, 'straight to the point' and easy to read English (Gibb 2006).	High Uncertainty avoidance
2.3.13	There may be the use of icons that provide an alternative form of language (Munn 1973).	Low Uncertainty avoidance
2.3.14	The user should be able to 'perform knowledge, which is to actively participate in knowledge construction, rather than merely accessing and manipulating what is provided' (Pumpa & Wyeld 2006, p. 240).	
2.3.15	Provide multimedia rich environments rather than texts based ones and incorporate a range of audio and visual techniques to encourage usage. (Fischer 1995; Buchtmann 2000).	Low Masculinity
2.3.16	There is a preference for real-time communication (Clemens 2002).	
2.3.17	There are areas where the full significance of Indigenous knowledge or awareness cannot be represented (Pumpa & Wyeld 2006).	

2.3.18	Students '… needed to have an interpersonal relationship with the instructor and the other learners; when this was missing, they were reluctant to participate' (Johnston 2001, p. 81).	Low Masculinity Low Individualism
2.3.19	Plan for change and provide the scope of redesigning as the needs of the target groups change (Clemens 2002).	Low Uncertainty avoidance
2.3.20	Internet technology enhances communication with Indigenous communities. (Clemens 2001)	
2.3.21	Respected teachers or elders are typically used to impart knowledge (Trudgen 1983).	High Power distance
2.3.22	Navigation by images is preferred over navigation linked to words (Williams 2002).	Low Uncertainty avoidance

Table 2.4 further presents some general cultural design issues collected from the culturability and localization literature. These guidelines cover general issues relating to language, icons, graphics, date formats, colour, page orientation and information arrangement for any culture. These principles form general design guidelines for the Wollotuka project; however, they need to be considered within the context of the Table 2.3 design principles, the focus group feedback, 1-on-1 interviews and the iterative prototyping.

While design guidelines may support the localization approach, any overdependence on such guidelines creates a limited and potentially hazardous approach when developing websites for non-European (Eurocentric) cultures. Bourges-Waldegg and Scrivener have analysed culturalisation in detail. They feel that the value of culturalisation as an approach to designing usable HCI systems must be questioned. That is because of its '… over dependence on guidelines and rules, etc., the difficulty of determining the user base on cultural grounds, its tendency to stereotype, its insensitivity to bi- and multi-lingualism and other forms of cultural heterogeneity, and its misplaced paternalism' (1996, p. 316).

Parallel conclusions have also been reached by education researches when working with Indigenous cultures. Clements (2002) pointed out that it is vitally important not to make assumptions about what is culturally appropriate because frequently these assumptions are based on fictitious ideas about Indigenous culture and Indigenous identity.

Localization relies on the analysis of existing websites to draw conclusions. While the websites chosen for a certain culture will produce a generally consistent national 'look and feel', localization experts need to consider some of the possible reasons for this perpetuating phenomenon. McFarlane (2011) suggests that website developers may be prone to imitating other website designs within their own country simply because clients don't want their

website to look unfamiliar. Glasnapp (2010), an ethnographer from the Palo Alto Research Centre is of the opinion that many website development clients are so focused on their competitors that they do not actually consider the users.

Table 2.4: General Cultural Design Guidelines.

Item	General cultural design issues
2.4.1	Translation of the menus, boxes, and icon text can be problematic because the length of words varies between languages (Dray 1996).
2.4.2	New technical words in other countries have to be recreated by adapting English words or creating new ones based on native concepts (Callahan 2005).
2.4.3	Design to fit the local writing style, e.g., languages such as Arabic which are written right-to-left (Amara & Portaneri 1996).
2.4.4	Icons based on metaphors such as the mailbox and trashcans may be interpreted differently (Duncker 2002; Shen, Woolley & Prior 2006).
2.4.5	Icons considered international are not necessarily understood globally (Brugger 1990).
2.4.6	Using icons versus text for navigation can affect error rates and task completion times depending on culture (Choong & Salvendy 1998).
2.4.7	Care should also be given to the presentation of pictures. Some cultures are very sensitive to how human features are represented (Russo & Boor 1993).
2.4.8	Use of non-local images (scenes, faces, architecture, and customs) can affect learnability (Barber & Badre 1998).
2.4.9	Cultures vary as to how they present numbers, time, and dates (Callahan 2005; del Galdo 1990).
2.4.10	Use of colour in web design can influence the user's expectations about navigation, content, and links, as well as overall satisfaction (Barber & Badre 1998).
2.4.11	Specific orientations and page placement vary by culture (Barber & Badre 1998).
2.4.12	The way holistically versus analytically minded people scan a web page is different. Ordering and arrangement of information needs to be considered (Dong & Lee 2008).

The localization of a website can produce a number of complex translation problems. For instance, Fernandez remarks that designers end up with graphic design problems because the symbols, which are acceptable and intelligible for the Western user, may not be so for a non-Western user. As an example, Fernandez says that '... in some Asian sites the icon representing 'Home' is a pair of shoes, instead of a little house' (2000, p. 20). The World Wide Web Consortium (W3C) gives this warning to web developers: '… localization is thought of as simply the translation of the user interface and documentation, but localization is often a substantially more complex issue' (W3C 2010).

Localization implies the translation of a website into a new culture. Sandrini also takes up the issues related to website translation and sheds light on the specific demands from users belonging to another linguistic or cultural background. Such a user looks for '… perfectly clear and understandable information, but he does not want to be culturally offended by language, images, colours, and so on' (2005, p. 3). Sandrini suggests that a website could be perfectly translated in this way and dovetailed to a specific target user.

A study on the various aspects of localization has been made by Thomas Pack (2003). It has identified certain crucial problems faced by anyone targeting a global audience. While every attempt is being made to appeal to the users by incorporating local colour, style, etc., some very elementary mistakes still occur, either through carelessness or through ignorance. Pack cites the example of a cosmetics company that launches an Asian version of its website, carefully designing the language and layout. However, the digital face offered to the viewers for applying makeup happened to be a white woman's face, an apparently minor mistake that unfortunately has serious consequences. Pack concludes the experience by saying: '… Localizing a Web site - converting it for users in another country or culture - and globalising a site - can be complex projects, and it's easy to overlook one or two seemingly small things' (2003, pp. 29). While these small things may appear insignificant, Pack warns us, they may turn out to be the things that '… mean the difference between success and failure' (2003, pp. 30).

Heemskerk and others look at a serious problem that emerges when the localization procedure was overlooked, in a study on ethnicity and ICT in education (2003). They point out a gender bias issue that has crept into computer-aided educational packages. Games as well as educational software are often '… unintentionally tailored to the interest of boys' (2003, p. 1). They go on to relate that example to ethnic and cultural groups and find there is a tendency to ignore them during the design stage. Therefore, they make a plea for '… increased cultural sensitivity where the use of ICT in education is concerned' (2003, p. 1).

To further highlight the extensive need for cultural sensitivity in interface design, Kang and Corbitt compared the development of e-commerce websites between Australian and Singaporean designers. Their paper also considered the level of adoption of cultural issues by 10 global IT companies (Apple™, Compaq™, Dell™, Gateway™, IBM™, Intel™, Microsoft™, Oracle™, SAP™ and SUN™). Comparing the United States, Singaporean and Australian websites of these companies, they found that '…All of these companies provide the same graphical design as home based design…' (2001, p. 4). These major IT companies re-used the same website interface for three different cultures.

Dysart provides a description of how localization should be effected so that the site does not offend or antagonize any culture:

> Web sites with international ambitions must be bullet-proofed against symbols that have different meanings in various cultures, variations in language dialect and idiom, starkly different cultural reactions to the same color, and a host of similar nuances and subtleties that can deeply offend and/or confuse a potential customer or trading partner' (2001, p. 4).

A surprising finding is that during localization studies, the users themselves may not be studied and therefore vital information is not gathered. Rather it is the representatives of the software companies or the website designers who are interviewed. For instance, the elaborate study conducted by Tixier included carefully planned interviews but they were conducted among '… managers in charge of multimedia in French subsidiaries of large American companies . . . and of French companies' (2005, p. 22). The surveys were conducted among '… the major industrial and service sectors' (2005, p. 22).

Indeed, in many real-world software projects, the user is often overlooked. Goransson, Gulliksen and Boivie suggest that the software developing community must become more aware of the benefits of involving users in the design process. User involvement may at first, appear to be '… complicated and time-consuming' and is often disposed of as merely expedient (2003, p. 115).

Nor can we necessarily trust usability studies when localizing sites for different cultures. Indeed the process of evaluating design elements needs to be repeated for each individual target audience of the user interface. Nielsen (1990) points out:

> An interface which is used in another country than the one [for which] it was designed, is a new interface. One cannot trust the original usability work on the user interface to necessarily have produced a design which will be equally usable around the world' (Nielsen 1990, p.39).

Having discussed some of the methods used in the development of cultural interfaces and their limitations, it was deemed appropriate to adopt a user-centred approach in the Wollotuka project. This would see users closely involved in an iterative design process. The users would be required to test the design for its cultural appropriateness and suggest possible design solutions. It would also require a slight modification to the standard usability testing method by adopting a more open-ended approach to interview questions.

2.7 Evaluation Techniques

The evaluation techniques used in HCI range from informal and subjective usability trials to more objective experimental styles of usability tests. For the Wollotuka project two types of evaluation methods were adopted; iterative prototyping and an analysis using Hofstede's cultural dimensions. Iterative prototyping is an integral to the design process, involving users directly in the evaluation of the design. This type of evaluation is formative in that it helps formulate improvements to the design. The Hostede cultural evaluation was carried out as a more summative assessment at the end of the project (chapter 6). This evaluation compares key design elements of the Wollotuka community against their measured position on the Hofstede cultural dimensions. These two diverse evaluation methods are discussed in this section.

2.7.1 Iterative Prototyping

This section will argue not only how important it is to use iteration in the design process but also how handicapped a design process is without it. The discussion will then explain what a lightweight iterative prototyping process encompasses and some of the practical advantages of using this process.

Highlighting the need for iterative prototyping in any design process, Donald Norman, in his book, 'The Design of Everyday Things' relates his conversation with a designer about the frustrations of developing the best product ideas for the marketplace:

> "It usually takes five or six attempts to get a product right. This may be acceptable in an established product, but consider what it means in a new one. Suppose a company wants to make a product that will perhaps make a real difference. The problem is that if the product is truly revolutionary, it is unlikely that any anyone will quite know how to design it right the first time, it will take several tries. But if a product is introduced into the marketplace and fails, well that is it. Perhaps it could be introduced a second time, or maybe even a third time, but after that it's dead: everyone believes it to be a failure."

> I asked him to explain. "You mean," I said, "that it takes five or six tries to get an idea right?"

> "Yes," he said, "at least that."

> "But," I replied, "you also said that if a newly introduced product doesn't catch on in the first two or three times, then its dead?"

"Yup," he said.

"Then new products are almost guaranteed to fail, no matter how good the idea."

"Now you understand," said the designer. "Consider the use of voice messages on complex devices such as cameras, soft-drink machines and copiers. A failure. No longer even tried. Too bad. It really is a good idea, for it can be very useful when the hands or eyes are busy elsewhere. But those first few attempts were very badly done and the public scoffed – properly. Now nobody dares try it again, even in those places where it is needed." (Norman, 1989, p. 29).

As highlighted in the above example, a successful design generally includes some form of iteration and prototyping. A prototype can be as simple as a drawing on the back of a dinner napkin or as complete as a high fidelity software model. The purpose of a prototype is to give the audience an understanding of ideas without overwhelming them with unnecessary details (Arnowitz, Arent & Berger 2007).

Prototypes can be developed, with the intention of becoming part of the final design (evolutionary prototype) or they can be discarded (throw-away prototyping) after serving their purpose (Hardgrave, Wilson & Eastman, 1999). The collaboration between the system builder and user is at the heart of prototyping (West, 1986). Cooprider & Henderson report that '…The essence of prototyping is in the dialogue between builder and user, within the resource constraints established by management' (1990, p. 72).

The prototyping model below (Figure 2.1) illustrates the iterative process between the users and the developers of the application. The user's basic requirements are identified and then developed into a working prototype. The prototype is then put to use, to identify any problems or contextual misfits. The developers may then revise the design and re-test the new prototype. Following this repetitive process, incremental progress is made, until a final solution can be described in terms of the original problem constraints (Adams & Atman, 1999).

When considering user participation, Visser and Visser (2006) observed that even after a four-month interval, participant's sensitivity to their study had not been reduced. They further noted that by not re-using participants, the richness of their contributions would be lost in the later development phases. However, they did not want to generalize based on one case. To the contrary, Blume (in Sova and Neilsen 2003) reports that it takes more effort to get good data when reusing participants, claiming that such participants become expert testers and lose their perspective, wanting to do the redesign and not the study tasks. Sova and Neilsen (2003) also

make the distinction between 'novice' and 'expert' participants, advising that participants should generally, not be used more than twice a year.

Figure 2.1: Prototyping Model.
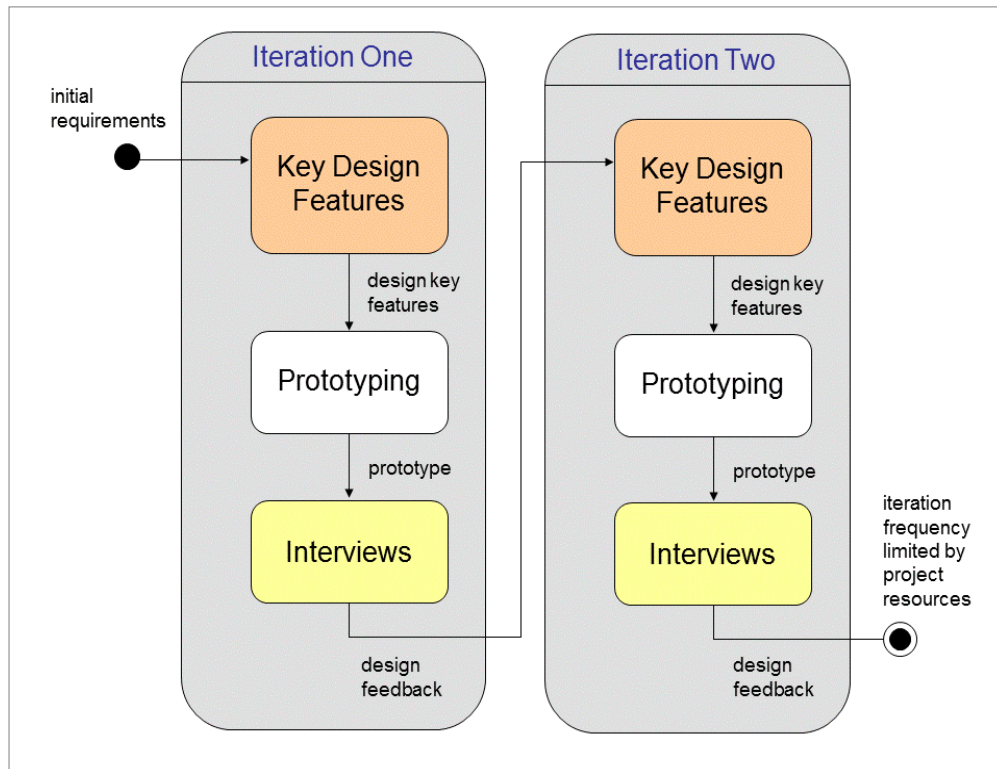
This iterative development methodology is a lightweight process model based on multiple successive iterations that allows the developer to '…find the weak points in the design of the previous iterations' (Sotirovski, 2001, p. 67). Problems with the system become apparent when people actually sit in front of the system and use it, (Fowler 2003) reducing the risk to applications early in the development process.

This model is culturally appropriate in an Aboriginal context as cultural requirements insist in fully involving the community members in the process (Fleer 1989). Iterative prototyping allows community members to understand the problems and generate possible design solutions, resulting in a 'community design' solution.

2.7.2 Hofstede's Cultural Dimensions

This section will discuss the dimensions of a cultural model developed by Gert Hofstede. These dimensions are relevant because they will be used to evaluate the design features

identified in the Wollotuka project. It will allow for a comparison or outcomes with other studies that have found correlations between design features of websites and each of the Hofstede dimensions. Indeed Hofstede's model has been frequently used in studies that look at design features and their relationship to national culture. Below we describe Hofstede's view of culture and how it exists at multiple levels of society. We also explain Hofstede's five cultural dimensions; Power Distance, Individualism, Masculinity, Uncertainty Avoidance and Long-term Orientation. The discussion then considers some research results, including a study done on an Aboriginal group in Cape York, Queensland. Finally, this section concludes with some general criticisms that have been made of the Hofstede model.

Many requirements of interface design can be captured in an analytical way. It is much more difficult to analytically describe aspects of individual cultures. One well known, especially in management circles is a model developed by the cultural theorist Geert Hofstede. Hofstede developed a four (later five) dimensional cultural model for classifying different national cultures (Hofstede 2005). Hofstede's model is typically used in business studies but has also been applied in the domain of HCI, especially for considering cultural design issues with websites.

Hofstede describes culture as the 'collective programming of the mind which distinguishes the members of one category of people from another' (Hofstede 2005, p.51). Culture is described as a collective phenomenon because it is shared with the people who live in the same social context where it is learned. He stresses that culture is learned and not inherited and distinguishes culture from human nature which he considers a universal aspect of mental programming and something that is inherited. He further distinguishes culture from an individual's personality that he describes as partly learned and partly inherited.

Hofstede describes a number of different layers of culture that relate to different social groups, beginning at a national level, then a regional, and possibly ethnic, religious or linguistic level, followed by a gender level. Further levels may be related to the person's generation, their social class and the work culture of the organisation they work for. These different levels all relate to the different types of social groups that a person may interact with.

In Hofstede's terms, cultural differences are seen as manifesting themselves in several different ways, such as the symbols, heroes, rituals and values of the group. In this sense, symbols are words, objects, and gestures that carry a particular meaning that can only be recognised by that culture. Rituals are group activities that serve no purpose and yet are considered socially essential activities within the group. Hofstede describes the core of culture

as being composed of values that are broad preferences or feelings for a particular state of things. For example, values would determine what is evil or good, what is ugly or beautiful and what is normal or abnormal.

The four, original dimensions of Hofstede's model are related to: power distribution; individual versus collective Relationships; masculine versus feminine characteristics and the tendency to avoid uncertainty (Hofstede 2005). This model was later extended to include a fifth dimension (Hofstede 2005) that distinguished between short-term and long-term orientation. Some examples of national cultures and estimated values for an Indigenous Australian group are listed in Table 2.3.

The Power Distance index is related to the extent that power is distributed in the culture's society. Higher values indicate that power is exercised centrally from above, while lower values indicate a more even spread of power through all levels of society. Table 2.5 presents the key differences between small and large power distance cultures, within a family, school and workplace context. This has been suggested to impact on website design in terms of the level of structure, use of national and authority symbols, the emphasis of leaders versus general community in the web page and the level of security (Marcus & Gould 2000).

Table 2.5: Key Differences between small and large power distance societies in a family, school, and workplace context.

Small power distance	Large power distance
Inequalities among people should be minimized	Inequalities among people are both expected and desired
There should be, and there is to some extent, interdependence between less and more powerful people	Less powerful people should be dependent on the more powerful; in practice, less powerful people are polarized between dependence and counter dependence
Parents treat children as equals	Parents teach children obedience
Children treat parents as equals	Children treat parents with respect
Teachers expect initiatives from students in class	Teachers are expected to take all initiatives in class
Teachers are experts who transfer impersonal truths	Teachers are gurus who transfer personal wisdom
Students treat teachers as equals	Students treat teachers with respect
More educated persons hold less authoritarian values than less educated persons	Both more and less educated persons show almost equally authoritarian values
Hierarchy in organizations means an inequality of roles, established for convenience	Hierarchy in organizations reflects the existential inequality between higher- ups and lower-downs
Decentralization is popular	Centralization is popular

Narrow salary range between top and bottom of organization	Wide salary range between top and bottom of organization
Subordinates expect to be consulted	Subordinates expect to be told what to do
The ideal boss is a resourceful democrat	The ideal boss is a benevolent autocrat or good father
Privileges and status symbols are frowned upon	Privileges and status symbols for managers are both expected and popular

(*Source:* Hofstede & Hofstede 2005)

The individualism measure relates to the way larger, strong cohesive social groups function as opposed to smaller individual and tight family groupings. It is typically associated with Asian cultures with a lower value of individualism compared to western cultures such as America and Australia. Table 2.6 presents the key differences between collectivist and individualist cultures, within a family, school and workplace context. This has been suggested to influence how different images are used on a website, individuals versus groups as well as rhetorical styles and the use of young versus older and new versus traditional knowledge (Marcus & Gould 2000).

Table 2.6: Key differences between collectivist and individualist societies in a family, school, and workplace context.

Collectivist	Individualist
People are born into extended families or other in groups which continue to protect them in exchange for loyalty	Everyone grows up to look after him/ herself and his/her immediate (nuclear) family only
Identity is based in the social network to which one belongs	Identity is based in the individual
Children learn to think in terms of 'we'	Children learn to think in terms of 'I'
Harmony should always be maintained and direct confrontations avoided	Speaking one's mind is a characteristic of an honest person
High-context communication	Low-context communication
Trespassing leads to shame and loss of face for self and group	Trespassing leads to guilt and loss of self- respect
Purpose of education is learning how to do	Purpose of education is learning how to learn
Diplomas provide entry to higher status groups	Diplomas increase economic worth and/or self-respect
Relationship employer-employee is perceived in moral terms, like a family link	Relationship employer-employee is a contract supposed to be based on mutual advantage
Hiring and promotion decisions take employees' in-group into account	Hiring and promotion decisions are supposed to be based on skills and rules only
Management is management of groups	Management is management of individuals
Relationship prevails over task	Task prevails over relationship

(*Source:* Hofstede & Hofstede 2005)

The Masculinity index is intended to estimate the way roles are distributed between genders in the culture. While female values were found not to vary greatly between cultures, male attitudes were found to vary greatly between cultures. They could be very similar to female attitudes where roles were often shared to the other extreme where they were maximally different in terms of assertiveness, modesty and competitiveness. Table 2.7 presents the key differences between feminine and masculine cultures, within a family, school and workplace context. It is suggested, that interfaces for higher masculinity cultures should focus on providing efficient results for a limited number of tasks along with an exploratory style of navigation and the use of competition and games. In contrast, cultures that are more feminine would blur gender roles and support mutual cooperation (Marcus & Gould 2000).

Table 2.7: Key differences between feminine and masculine societies in a family, school, and workplace context.

Feminine	Masculine
Dominant values in society are caring for others and preservation	Dominant values in society are material success and progress
People and warm relationships are important	Money and things are important
Everybody is supposed to be modest	Men are supposed to be assertive, ambitious, and tough
Both men and women are allowed to be tender and to be concerned with relationships	Women are supposed to be tender and to take care of relationships
In the family, both fathers and mothers deal with facts and feelings	In the family, fathers deal with facts and mothers with feelings
Both boys and girls are allowed to cry but neither should fight	Girls cry, boys don't; boys should fight back when attacked, girls shouldn't fight
Sympathy for the weak	Sympathy for the strong
Average student is the norm	Best student is the norm
Failing in school is a minor accident	Failing in school is a disaster
Friendliness in teachers appreciated	Brilliance in teachers appreciated
Boys and girls study same subjects	Boys and girls study different subjects
Work in order to live	Live in order to work
Managers use intuition and strive for consensus	Managers expected to be decisive and assertive
Stress on equality, solidarity, and quality of work life	Stress on equity, competition among colleagues, and performance
Resolution of conflicts by compromise and negotiation	Resolution of conflicts by fighting them out

(*Source:* Hofstede & Hofstede 2005)

The Uncertainty Avoidance index measures the tolerance for ambiguity and uncertainty and indicates the acceptance or not, of less structured or surprising situations. Table 2.8 presents the key differences between weak and strong uncertainty avoidance cultures, within a family, school and workplace context. Cultures with higher uncertainty avoidance measures are suggested to prefer simple, limited choice interfaces. Navigation schemes should focus on preventing user becoming lost, and redundant cues can be used for reduce ambiguity and user errors. By contrast, cultures with a low score on this index may enjoy more uncontrolled navigation, in complex web sites focusing on more content and a maximum use of information cues (Marcus & Gould 2000).

Table: 2.8: Key differences between weak and strong uncertainty avoidance societies in a family, school, and workplace context.

Weak uncertainty avoidance	Strong uncertainty avoidance
Uncertainty is a normal feature of life and each day is accepted as it comes	The uncertainty inherent in life is felt as a continuous threat which must be fought
Low stress; subjective feeling of wellbeing	High stress; subjective feeling of anxiety
Aggression and emotions should not be shown	Aggression and emotions may at proper times and places be ventilated
Comfortable in ambiguous situations and with unfamiliar risks	Acceptance of familiar risks; fear of ambiguous situations and of unfamiliar risks
Lenient rules for children on what is dirty and taboo	Tight rules for children on what is dirty and taboo
What is different, is curious	What is different, is dangerous
Students comfortable with open- ended learning situations and concerned with good discussions	Students comfortable in structured learning situations and concerned with the right answers
Teachers may say 'I don't know'	Teachers supposed to have all the answers
There should not be more rules than necessary	Emotional need for rules, even if these will never work
Time is a framework for orientation	Time is money
Comfortable feeling when lazy; hard- working only when needed	Emotional need to be busy; inner urge to work hard
Precision and punctuality have to be learned	Precision and punctuality come naturally
Tolerance of deviant and innovative ideas and behavior	Suppression of deviant ideas and behavior; resistance to innovation
Motivation by achievement and esteem or belongingness	Motivation by security and esteem or belongingness

(*Source:* Hofstede & Hofstede 2005)

The Long-Term Orientation measure was added to the Hofstede model after some criticism that the original four dimensions failed to capture some key differences between some cultures. Values such as thrift and perseverance are associated with a high long-term

orientation, while respect for tradition and meeting social obligations are relates with lower values. Long-term cultures suggest a preference for content in websites that provide practical value, while users will have greater patience in achieving their goals. Short-term cultures will seek immediate results from the interface and rely on rules as a source of information and credibility rather than truth being interpreted based on relationships (Marcus & Gould 2000).

Hofstede's model was used in a study, 'Cultural Values in Website Design', to compare university websites in the Netherlands and Austria. The study found some correlations between feminine values and the masculinity index in the low masculinity country of Netherlands, compared to the high masculinity culture in Austria (Dormann & Chisalita 2003). When Indian and American university websites were compared, differences in the design were measured in the three dimensions of; uncertainty avoidance, individualism and long-term orientation (Rajkumar 2003 in Callahan 2005). A study by Callahan (2005) compared the way web sites were structured, as well as the types of graphical elements that were used in university web pages from eight different countries. This study found a general correlation with Hofstede's cultural dimensions. A further discussion, including the results from our own design outcomes are presented in chapter 6.

When comparing Hofstede's cultural dimensions (Table 2.9) for Australia as a whole and the Indigenous Australian group surveyed in Cape York, Queensland (Simonsen 1999; Hofstede 2005), the Indigenous group has a higher centralised power measure, a similar individualism ranking, a lower measure for the masculinity index and a much higher risk avoidance along with longer term orientation. The outcomes of Marcus and Gould (2000) would suggest a website design for an Indigenous group would put emphasis on leaders, with a simple interface with practical content and good navigation cues. However, caution needs to be emphasised here because these measures are for a regional Aboriginal group in Queensland and that cultural values for the Wollotuka community may well be different.

It should also be noted that Hofstede's cultural model is not without criticisms, and some of these include the use of an initial sample made up of employees from a single company and then how well these relate to the national culture as a whole (Sondergaard 1994). There is also the question of whether the survey is even an appropriate method to measure culture and whether the data, much of which is from around 1970 is still relevant to current cultures (Sondergaard 1994). Callahan provides a good review of these issues and the debate in general surrounding Hofstede's model (Callahan 2005).

Despite the criticisms of Hofstede's model, we believe, like many others, that it provides a valuable framework for considering some issues that we need to address in our design. It is certainly not all encompassing and at best provides general guidelines that might assist in the design process.

Table 2.9: Hofstede Dimensions for a Selection of Countries.

Cultural Group	Cultural Dimensions				
	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long-term Orientation
Australia (Western)	36	90	61	51	31
Australian (Indigenous)	80	89	22	128	-10
Austria	11	55	79	70	
China	80	20	66	30	118
Finland	33	63	26	59	
India	77	48	56	40	61
Japan	54	46	95	92	80
Netherlands	38	80	14	53	44
South Korea	60	18	39	85	75
United Kingdom	35	89	66	35	25
United States	40	91	62	46	29

(*Source:* Hofstede 2005)

On the positive side the Hofstede model does provide a well-known framework for studying culture and so provide a pragmatic, structured framework for evaluating culture in design (Williamson 2002). While the Wollotuka project did not consider Hofstede's model as a prescriptive method for cultural design it was useful to leverage on the existing studies during the project. These previous quantitative studies provide a baseline for our studies as we compare the key design features that emerged from the Wollotuka community with the results of other studies. A detailed discussion on how Hofstede's cultural model applies to the current study can be found in Chapter 6.

2.8 Example Systems and Case Studies

The literature review will now conclude by examining two Indigenous IT projects in more detail. The following case studies were chosen due to their diversity in the application of computer technology within an Aboriginal context. The 'Design for a Culturally Affirming Indigenous Computer Literacy Course' is considered because it provided culturally affirming computer services to an 'urban' Aboriginal group. 'The Digital Songlines' project, as earlier noted, is ground-breaking in its approach to representing Aboriginal knowledge on computer systems, using a three-dimensional gaming engine.

While these projects do not deal specifically with the development of Aboriginal websites, there are many design principles that can inform the research in the Wollotuka project. A summation of these principles can be found at the end of each case study.

2.8.1 Indigenous Computer Literacy Course

A study entitled 'Design for a Culturally Affirming Indigenous Computer Literacy Course' by Laurel Evelyn Dyson (2002) is a pioneering project. It was undertaken to formulate a design for the proposed computer literacy module of the University of Technology, Sydney, aimed at providing computer literacy to students wishing to study Information Technology, particularly for Indigenous students.

This educational design study grew from a series of studies conducted at the university that showed a large number of Indigenous students were failing to complete courses. Those studies had pointed out a range of factors but Dyson remarks that in order for a computer literacy course to be successful, '… it must be culturally affirming and appropriate to Indigenous students' interests, perspectives, values, learning styles and identity' (2002, p. 185)

Dyson notes with concern that though a number of studies have examined computer use among Indigenous people, research of the use among urban environments is more or less absent. Dyson also warns that in the attempt to incorporate Indigenous cultural elements into the instructional modules and programs care should be taken to '… avoid the mistaken notion that Indigenous culture is monolithic' (2002, p. 189). Indeed, rather than having a single set of common cultural values, much diversity exists between different Indigenous communities.

Martin Nakata has voiced a similar concern in the thought-provoking study entitled 'Aboriginal and Islander Education.' In it, Nakata emphasizes the fact that '… education principles based on the acceptance of the universalities conflict with the diversities' (1990, p. 705). This observation was made in connection with the cultural identity of the Torres Strait Islander community.

Dyson's case study conducted at the University of Technology, Sydney, had shown that computer literacy among Indigenous students was very low and that it '… gave them a lack of confidence in accessing the computer labs provided by the university and meant that they used email for contacting staff members and other students less often' (Dyson 2002, p. 186). They were also not likely to own personal computers owing to economic disadvantage. The Indigenous students often complained about lack of support for developing computer skills even though some support was provided through the Aboriginal Tutorial Assistance Scheme and a computer lab had been provided for Indigenous students.

Dyson (2002) examines Indigenous learning styles theories in detail before trying to expound the reasons for the slow uptake of computer literacy. A key outcome of the study is that a course, especially a computer course, '… must be designed with Indigenous culture and Indigenous ways of doing, thinking and learning at its core' (2002, p. 187).

Dyson and Underwood have also made a detailed study of the participation of Indigenous people on the Web (2006). They identify the most obvious challenge faced by the Indigenous people in this context is '… access to computer technology' (2006, p. 67). They conclude that generally, Indigenous people have '… low computer ownership, low computer literacy and low connectivity to the Internet' (2006, p. 67). The remoteness of Indigenous settlements is often the reason for some of these problems (2006).

Dyson and Underwood also examined the participation of Indigenous Australians in computer-related technology. Dyson inquires whether '… the values inherent in the technology are of concern to them and discourage use, or whether other factors, such as the cost of the technology, create more important barriers.' Dyson warns the designers and planners that '… technology is inseparable from the social, cultural, historical and political context which produced it.' Even where the Indigenous people have shown enthusiasm for computers, '… the adoption of computer technology by these people is low.' The reason, according to Dyson and several other researchers, is often the cost or the non-availability. The conclusion Dyson arrives at is that the main factors limiting Indigenous adoption of IT are factors like '… access and lack of awareness' (2006, pp. 2-9).

However, such shortcomings may not be due to any inherent fault in the system, but rather in the way that it is applied. Dyson says that one of the very objectives of the course had been to '… provide students with the computer skills, understanding and confidence to use the hardware and software that they will need in their degree program' (2002, p. 190).

An importance aspect of developing the program was the involvement of the appropriate user community in the planning and design stages of the program. As Dyson notes:

> The content was developed in consultation with an Aboriginal management committee. There was an attempt to make sure that the curriculum met with Native philosophy, and considered Aboriginal traditions' (2001, p. 91).

Dyson concludes that computer technology can be ideal as an instructional medium for Indigenous students because '… computers open up the classroom and level off the power hierarchy between teacher and student' (2002, p. 189). Computer technology has certain obvious advantages: '… By placing the student in control of the keyboard and mouse, and relegating the teacher to the role of facilitator, it is the student's culture which has the opportunity of affirming itself' (2002, p. 189). Dyson also referred to the role of the teacher in the Indigenous computer programs as facilitators.

Dyson also pointed out that Indigenous cultural content for computer courses included offline handouts, exercises and activities that were not directly part of the computer based curriculum. For example, '… content of interest to Indigenous people, e.g., Indigenous sport or land rights.' Browsing '… Indigenous websites such as nasca.com.au or bidjigal.com, or Indigenous, African or African-American websites overseas' (2002, p. 191) must be a part of the exercises. One valuable suggestion put forward by Dyson is that the '… computer lab for the Indigenous students should be in the Faculty computer labs with paintings, posters and Aboriginal colours used elaborately to convert the lab into a welcoming Indigenous environment' (2002, p. 190).

Dyson recommends some innovative assessment strategies to be adopted in the case of Indigenous learners. Among them, the most important suggestion is to move '… away from formal assessment to informal observation of demonstrated computer techniques and skills' (2002, p. 192). Yet, another is to make use of oral assessment such as discussions of computer theory and small group presentations. If tests are to be conducted, students should be '… taught beforehand how to do tests and given trial runs before actual results are counted' (2002, p. 192).

Dyson also recommends some changes in the evaluation pattern. Evaluation methods may be discussed with the students and it should be '… related to goals and needs expressed by students' (2002, p. 192). Dyson makes the additional suggestion that the methods of evaluation are to be appropriate to the learning styles of the students, such as '… interviews, small group or class discussions, etc.' (2002, p. 192) and suggests '… all aspects of the course to be the subject of evaluation' (2002, p. 192).

Dyson concludes that it is not a major issue to design a course that is acceptable to all, particularly Indigenous people, because an Indigenous learning style '… allows teachers, particularly non-Indigenous teachers, a way of creating a learning environment which affirms Indigenous interests, values and identity' (2002, p. 189).

In summary, a number of important points arise from Dyson's case study that is relevant to the Wollotuka project:

- Avoid the mistaken notion that Indigenous culture is monolithic.
- There is low computer ownership, low computer literacy and low connectivity to the Internet for Aboriginal people.
- Applications must be designed with Indigenous culture and Indigenous ways of doing, thinking and learning at its core (Dyson 2002, p. 187).
- Involve the user community in the planning and design stages.
- Consult with Aboriginal management '…to make sure that the curriculum meet with Native philosophy, and considered Aboriginal traditions' (Dyson 2001, p. 191).

2.8.2 The Digital Songlines Project

The Digital Songlines project was an in-depth study in creating a world that emphasised Aboriginal cultural experience. The project utilised game technology to provide an interactive landscape that was more consistent with the Indigenous perspective of the land. The project was in collaboration with CyberDreaming, an Indigenous owned multi-media company. The main aim of the Digital Songlines project to:

> Reconstruct the Indigenous experience from an Indigenous perspective rather than the usual cultural archiving which tends to prioritize the needs of the database structure and meta-data tags and fields (Indigenous Communities Project 2006, p. 95).

The basis for the vision was that: '… if the culture sees its knowledge as embedded in the land, recreate the land in order to provide a more appropriate cultural storehouse and place to tell their own stories' (Indigenous Communities Project 2006, p. 95). The 'land' is the fundamental entity in Aboriginal culture. From an Indigenous perspective: '… landscapes are not the parcels and lots of the Western view, the country is like a living breathing entity' (Indigenous Communities Project 2006, p. 95).

Truna (2006) similarly notes:

> People say that country knows, hears, smells, takes notice, takes care, is sorry or happy. Country is not a generalized or undifferentiated type of place, such as one might indicate with terms like 'spending a day in the country' or 'going up the country.' We also find that 'country is a living entity with a yesterday, today and tomorrow, with a consciousness, and a will toward life.'' (2006, p. 90)

The Digital Songlines project was one of the most revolutionary attempts to integrate Indigenous knowledge into computer environment and so '… facilitate the collection, education and sharing of Indigenous cultural heritage knowledge' (Wyeld 2007). Wyeld explains the importance of the project in terms of cultural heritage as it '… is concerned with the preservation of historically, culturally, and sociologically significant places, infrastructure, or artefacts for current and future generations' (2007, p. 261). Significantly, the project also attempts to preserve cultural heritage in the way participants interact with the knowledge. Wyeld notes that the Digital Songlines provides '… a toolkit where players, in a serious gaming sense, can experience Indigenous virtual heritage in a fidelity fashion with culturally appropriate interface tools' (Figure 2.2, 2.3).

Pumpa, Wyeld, and Adkins have also worked together on reporting traditional knowledge using a game engine. In their work, they challenge the '… current practices in the use of digital media to communicate Australian Aboriginal knowledge practices in a learning context' (2006, p.810). Their argument is that any digital representation of Aboriginal knowledge systems must '… design digital environments that effectively support and enable existing Aboriginal knowledge practices in the real world' (2006, p. 810).

In order for a digital representation to recreate Aboriginal knowledge, it must '… resolve the conflict between database and narrative views of knowledge' (Pumpa, Wyeld & Adkins 2006, p. 810). Pumpa and Wyeld studied the use of a 3D game engine as a landscape metaphor for hosting Australian Aboriginal knowledge practices based on performance narratives. They warn us that '… much of what is written on traditional Aboriginal knowledge systems is

written by non-Aboriginals, cast in a Eurocentric framework' (2007, p. 397) They attempt to explain Aboriginality in less Eurocentric terms using the Digital Songlines environment as a means of '… recreating landscapes populated by Indigenous Australian flora and fauna' (2007, pp. 398).

Figure 2.2: Screenshot1 of the Digital Songlines Project from YouTube™.

(*Source:* Digital Songlines 2010)

Figure 2.3: Screenshot2 of the Digital Songlines Project from YouTube™.

(*Source:* Digital Songlines 2010)

Pumpa and Wyeld view the Digital Songlines project as: '… an attempt to address the need to combine narrative and knowledge artefact as a database of information which emulates Australian Aboriginal cultural understanding' (2006, p. 239). The main idea behind the project is to use: '… a computer game engine to immerse participants in a narratological landscape similar to that espoused by Indigenous contributors' (Pumpa and Wyeld 2006, p. 239).

Pumpa and Wyeld describe the Digital Songlines by saying: '… It presents a visualization of a landscape, which has elements of sentience or responsiveness. To visualize this sentience the data objects are embedded in an interconnected network of multi-layered pathways or Songlines' (2006, p. 239). They go on to add the specifics of the programme: '… This network of data is made accessible by a matrix of interactive narrative which acts as a metadata structure for the data objects' (2006, p. 239). The result is that '… the narrative and the situation in a landscape provide meaning, purpose and ownership to the data objects in an intuitive and complex manner which is extremely difficult for a conventional database to emulate' (2006, p. 239).

Several key design features were identified in the project. One important feature is that it catches the Indigenous tradition: '… What the Digital Songlines project provides is a vehicle for the unfolding of real-time narratives involving Elders and the ancestral spirits of the landscape' (Pumpa and Wyeld 2006, p.240). Another key element is that contemporary Aboriginal knowledge forms a primary part of the project. Pumpa and Wyeld cite an example: '… we have developed some animated sequences from an Aboriginal dreamtime story that is included as part of the world in a transparent manner' (2006, p. 240). Another important feature concerns the design process. The study stresses the importance of involving the Indigenous people in the development of the program. For instance, Pumpa and Wyeld refer to '… the regular consultation with Indigenous artists and representatives from the country' in an attempt to ensure that the program has been designed correctly (2006, p. 240).

However, in spite of the care and interest shown towards Indigenous culture and knowledge, there are areas where the full significance of Indigenous knowledge or awareness cannot be represented. Pumpa & Wyeld remark in this context that:

> While in place, Indigenous knowing pauses at each rock, knows the cycle of the winds, can track underground water, find food and medicine, and uses of the land to speak its stories and keep its history (2006, p. 240).

Pumpa, Wyeld and Adkins, when studying the digital representation of Aboriginal knowledge point out:

> Any digital representation of Aboriginal knowledge practices needs to examine the epistemology and ontology of these practices. It should address the core characteristics which have enabled Aboriginal knowledge practices to persevere across large spans of time and, more recently, across rapidly changing contexts and alongside competing cultural traditions (urban Aboriginal Australia). These core characteristics may then enable the design of believable representations of Aboriginal knowledge practices in a digital environment. Such a digital environment would not only collect and describe this knowledge but allow virtual performance (traditional dance and song) and, more importantly, support the performance of these practices in the landscape. The form, meaning, and purpose of these characteristics need to be represented in order to present a more complete view of Aboriginal knowledge practices and to avoid what Christie (2005) calls a 'cognitive injustice,' that is, the selective emphasis of certain aspects of knowledge practices at the expense of other aspects. This cognitive injustice may currently serve the purposes of Western archives and commodities which utilize Aboriginal knowledge, but has failed to represent the deep and complex entirety of these knowledge practices and their primary purpose in maintaining cultural traditions' (2006, p. 811).

Pumpa, Wyeld and Adkins, in their study on the narratological representation of Australian Aboriginal knowledge, have made the claim that '… the gathering and documentation of Aboriginal knowledge has been accelerated due to the increased capability of digital environments to store and manipulate large amounts of information in various accessible formats' (2006, p. 810). However, Pumpa and Wyeld believe that a major issue that influences the design of the digital tools is that of '… representation of the environmentally contextualized narratological nature of Aboriginal knowledge traditions' (2006, p. 237).

When exploring the representation of Aboriginal knowledge practices in the digital media, Pumpa and Wyeld recommend '… a multidimensional non-linear, database visualization schema that better supports real time narratives spatially contextualized' (2006, p. 237). The paper 'critiques how Aboriginal knowledge practices have been, until recently, represented in digital media and then suggests some prerequisite characteristics of such media if they are to support traditional knowledge traditions' (2006, p. 237). A number of relevant points to be considered in the Wollotuka project emerge from this case study:

- Design work must be done in collaboration with Indigenous designers.
- The Indigenous experience needs to be reconstructed from an Indigenous perspective.
- The landscape needs to be recreated in order to provide a more appropriate cultural storehouse and place to tell Aboriginal stories.

- From an Aboriginal perspective, 'the country is like a living breathing entity' (Indigenous Communities Project 2006, p. 95). Country knows, hears, smells, takes notice, takes care, is sorry or happy (Turner 2006, p. 90). Indigenous knowing pauses at each rock, knows the cycle of the winds, can track underground water, find food and medicine, and uses of the land to speak its stories and keep its history (Pumpa, Wyeld 2006, p. 240).

- Much of what is written on traditional Aboriginal knowledge systems is written by non-Aboriginals, cast in a Eurocentric framework (Pumpa, Wyeld 2007, p. 397).

- Consultation with Indigenous artists and representatives from the country must be done, in an attempt to ensure that the program has been designed correctly. (Pumpa, Wyeld 2006, p. 240).

- There are areas where the full significance of Indigenous knowledge or awareness cannot be represented.

- Allow for virtual performances (traditional dance and song) and, more importantly, support the performance of these practices in the landscape (Pumpa, Wyeld & Adkins 2006, p. 811)

2.9 Conclusion

The literature review began with a discussion of the domain of Human Computer Interaction before considering the Wollotuka project in key areas such as the human, the computer and interaction metaphors. The review also considered design processes, questions of usability and particular cultural design approaches such as localization. Evaluation approaches, including user-centred iterative methods were discussed, including an introduction to Hofstede's cultural model, as an approach that could be used for later validation of the design outcomes from the Wollotuka project.

As part of the review process, some general cultural design guidelines were identified from previous literature (Table 2.2). A number of other key issues were also raised that will need to be considered in both the choice of key design features for the Wollotuka website and the most appropriate design process to follow in designing the site. These issues are summarised below.

For the Wollotuka project, multimedia will be considered extensively to represent natural forms of Aboriginal information processing, to communicate more effectively with the

Aboriginal audience. The project also intends to explore a metaphor of the geographical landscape in a way that views users as 'travellers'. However, the scope of the project does not include developing specific input and output devices that might better support an Aboriginal audience.

Care will be taken in the project to avoid the potentially limiting Western perspective in many exiting design approaches. Aboriginal persons occupy the key decision making roles within the Wollotuka project. The primary researcher is an Aboriginal person who has maintained close ties to the Wollotuka community for over 15 years. The prototypes will be developed by this same Aboriginal researcher. Furthermore, this PhD project has included at least one Aboriginal supervisor for its entire duration.

The literature suggests that it is best to adopt a usability approach in the Wollotuka project that closely involves the users in an iterative design process. For evaluation purposes members of the Wollotuka community will test the design for its cultural appropriateness and be asked to suggest possible design solutions. Based on previous literature, an iterative prototyping model fits well within an Aboriginal design context. Iterative prototyping allows community members to be continuously involved in generating design solutions. This approach satisfies the cultural requirements of fully involving the community members in the process.

The Wollotuka project will also use Hofstede cultural dimensions to evaluate the final design. However, it is important to note that we do not view Hofstede's model to be prescriptive for evaluating cultural design. We have selected this model because it is useful to leverage on the existing studies, especially in terms of website designs for universities across different cultures.

Chapter 3 – Focus Group

3.1 Introduction

The main intention of the focus group was to capture significant cultural design requirements that would form the basis of the initial prototype design. However, the focus group also allowed the first close involvement of the community in the project, aligning the process with Aboriginal cultural expectations (Fleer 1989). Input was gathered from a small group of twelve, knowledgeable Aboriginal users, by employing the services of a facilitator experienced in focus group research. This activity was organized on the principles from audience ethnography (Murphy, 1999), which involved a storytelling process to explore what members of the Aboriginal audience were seeking in a website.

The following section will outline the method used in the focus group, which was based on traditional Aboriginal storytelling. Themes emerging from the analysis of the focus group are also discussed. Many of these themes have also been identified in previous literature. These cultural themes form the main outcomes from the chapter and are used to underpin the design of the first prototype (Chapter 4).

3.2 Focus Group Approach

Participants were of Aboriginal decent and aged between 18 and 65. Twelve subjects (Krueger 1988; Kuniavsky 2003) were selected, including five women and seven men who represented a range of Indigenous language groups, including the Worimi, Eora, Gumbaynggir, Bundjalung, Murray Island, Wirajuri, Wonnarua and Awabakal. The participants thus represented a broad range of Eastern Australian and Torres Strait Island Indigenous cultures rather than a single perspective. These same twelve subjects took part in the entire project. Section 1.7 describes participant demographics in more detail.

The participants were aware that the focus group was about sharing their knowledge, based on their experiences. Participants at times worked in pairs, sharing and writing down stories. Group discussions also took place, at these times the key points were summarised on a white

board. A non-Indigenous researcher experienced in audience ethnography facilitated the discussions. The focus group was recorded with a video camera and the primary researcher made additional notes, capturing key points and first impressions.

The focus group process adopted a commercial research approach, for constructing a comprehensive picture of the Wollotuka community. Insite Mapping® is an ethnographic research methodology designed to provide knowledge about audiences, leveraging on the combined existing intelligence possessed by the people of a target community. It has been effectively used for the evaluation of services and development of websites for museums, libraries, government, small business and corporate organisations (Coppice Communication 2012).

Figure 3.1: The Focus Group Process.
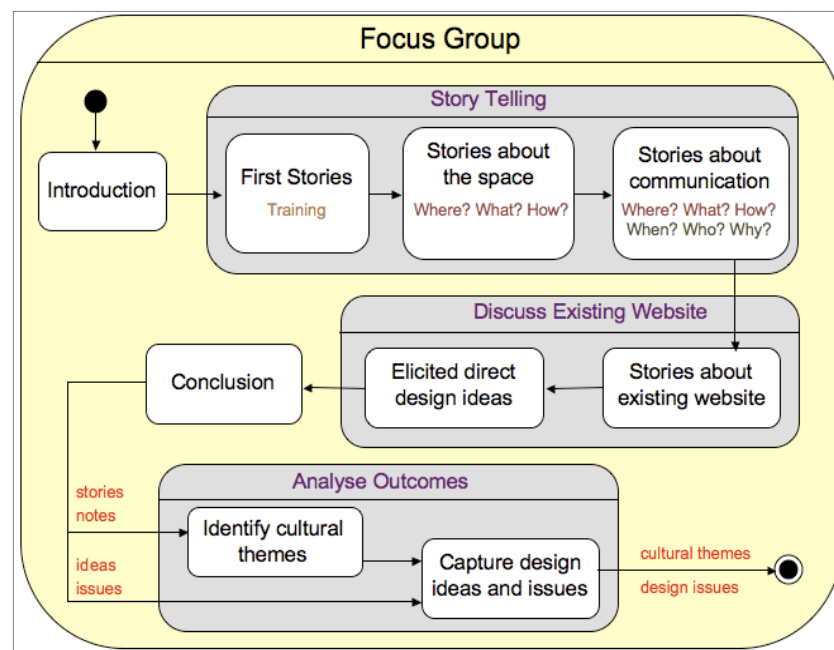
(*Adapted from:* Insite Mapping® 2009)

The focus group process (Figure 3.1) ran for approximately two hours. It consisted of the following activities:

- Introduction to the focus group (scoping).
- First story telling (training).
- Stories about the space.
- Stories about communication.
- Stories about the existing website.

- Direct design ideas.

- Conclusion of the focus group.

The following sections will now describe these activities in more detail.

3.2.1 Introduction (Scoping)

Participants were told they were being approached for their thoughts on the design of the Wollotuka website, as part of a research project that was trying to understand how to design a website, in a way that was more meaningful for their culture.

3.2.2 First Stories (Training)

Participants were asked not to focus on websites at this stage but rather to think of a personal story about Wollotuka. These stories should involve the way the Aboriginal people engage with the school of Aboriginal studies and within the space itself. They were instructed to think of each story as a brief event, like a 30 second movie. Storytelling suited the participants as it is an integral part of the Aboriginal communication process (Somerville et al., 2010).

Participants were given a few minutes to think about their stories and briefly write them down. The facilitator then asked the volunteers to share their stories. Ideally, each story should have answered three main questions: Where did it happen? What happened? How did it happen? This activity was intended as a training round and so the facilitator interacted with the group to highlight these features (Where? What? How?). A whiteboard was used to assist in this activity.

3.2.3 Stories about the Space

Participants were reminded to share stories dealing with the place or space of Wollotuka. Spatial aspects, such as the location are especially significant to Aboriginal culture (Turk & Trees 1998). The group broke into pairs, one person listening as the other told a story. The listener helped the storyteller to clarify the main points of the story by asking pertinent questions (Where? What? How?). When the first person had finished the story, they swapped roles and repeated the exercise.

After the work in pairs was completed, the group came together. The facilitator again asked the volunteers to share a story. Once more the key elements of the stories were emphasized using the white board (Where? What? How?). Often one story generated further discussion about the event. During this activity, some further key elements of stories were introduced. When did it happen? Who was involved? Why did it happen?

3.2 4 Stories about Communication

Participants were directed to focus on stories dealing with communication, some kind of interaction that happened in relation to The Wollotuka Institute. Along with the original key elements (Where? What? How?), they were asked to clarify other relevant elements of each story (When? Who? Why?).

Participants broke into pairs and worked as before, discussing and writing down stories. At the end of this story telling session, the group again came together and worked with the facilitator to share their stories. The facilitator again helped to clarify the key elements of each story that was discussed (Where? What? How? When? Who? Why?). Once again, the stories generated further discussion about the event and some additional related stories were told. By having community member's work together in this way the web design process can be seen as a social process as well as a technical one (Turk & Trees 1998).

3.2.5 Stories about the Existing Website

The story-telling process was repeated. This time the participants were asked to share stories that related directly to the existing Wollotuka website, especially stories involving people's interactions with the website. They were reminded that the six key elements (Where? What? How? When? Who? Why?) should be identified for each story. This session began with pair work and was once again followed by a group discussion with the facilitator.

3.2.6 Direct Design Ideas

As a group the participants were then asked for any general ideas about how a new

website should look. They were also asked to share what they liked or did not like in other websites. Ideas were captured on a white board.

3.2.7 Conclusion of Focus Group

Participants were thanked for their help and encouraged to contact the researchers, if there were any further discussions or items of relevance they would like to share.

3.3 Analysis of Outcomes

When analysing the focus group care was taken to ensure that all the pertinent ideas and even the subtle suggestions and implications contained in the responses of the participants were considered. This included for example, the emotional overtones of the group members when certain issues were discussed. A criticism of this analysis is that it relies on the subjective assessment of the primary researcher, however this is also the presumed strength consistent with an ethnographic approach, as the primary researcher was best situated to make these assessments.

The researcher analysed the video recording and transcript for emerging themes. The rich contents of the transcript itself (Appendix 7) reveal many areas of agreement between participants. QSR NVivo qualitative software (QSR 2011) was used to help analyse the transcript of the focus group. The data results are presented in Appendix 6. The NVivo software allowed the data to be coded into categories relatively quickly. Again, the researcher is still responsible for the patterns, themes and what meanings to extract from the data (Patton 2002).

Grounded theory techniques were particularly appropriate for analysing the data because it is the data itself that directs the course of the investigation. The process involved 'discovering' general principles or key components that are assumed to underlie the phenomenon. The results of the analysis (Figure 3.2) reported some significant coverage of the 'community' category.

Figure 3.2: NVIVO - Percentage of Transcript Covered by Each Category
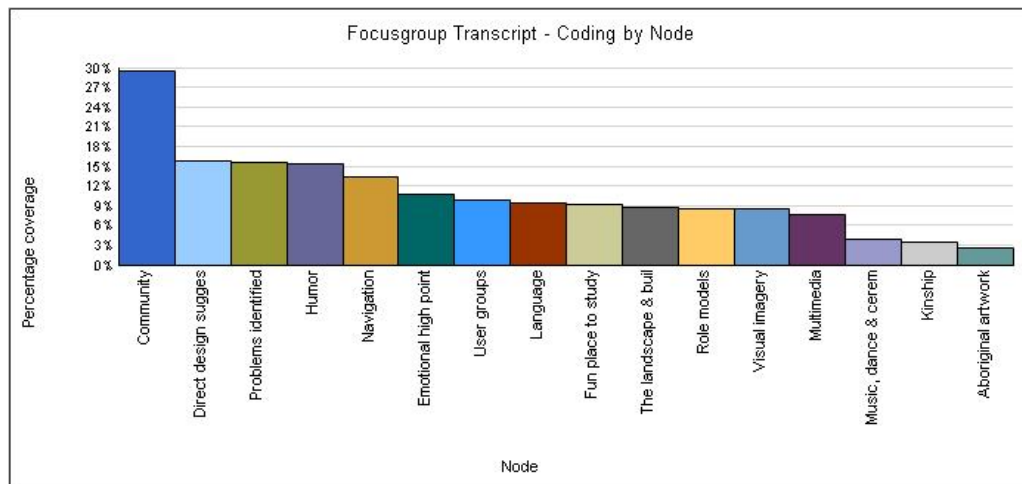
The intention of the focus group was to identify broad cultural design themes to help underpin the prototyping steps. The key cultural themes identified were:

- Local Landscape.
- A Fun Place to Study.
- Community Involvement.
- Aboriginal Artwork.
- Navigation.
- Multimedia.
- Role Models.
- Kinship.
- Language.
- Humour.
- Music, Dance and Ceremony.
- Not Using Templates.

We note that apart from 'A Fun Place to Study' and 'Not Using Templates, most of these themes have also been reported in previous literature (Table 3.1).

Table 3.1: Emerging Themes Supported by Literature Review.

Item	Emerging Theme	Theme Support from the Literature
3.1.1	Local Landscape	Auld 2007; Lewis 1976; Turk & Trees 1998; Fleer 1989
3.1.2	A Fun Place to Study	New finding
3.1.3	Community Involvement	Fleer 1989; Turk & Trees 1998; Clemens 2002; Tuhiwia-Smith 1999; Butchman 2000; NVIVO analysis
3.1.4	Aboriginal Artwork	Williams 2002; Fleer 1989; Munn 1973
3.1.5	Navigation	Williams 2002
3.1.6	Multimedia	Clemens 2001; Pumpa & Wyeld 2006; Clemens 2002
3.1.7	Role Models	Johnston 2001; Trudgen 1983
3.1.8	Kinship	Fleer 1989; Gibb 2006
3.1.9	Language	Remedio 1996; Gibb 2006; Pumpa & Wyeld 2006; Somerville et at. 2010
3.1.10	Humour	Kleinert & Neale 2006; Pumpa, Wyeld & Adkins 2006
3.1.11	Music, Dance and Ceremony	Pumpa, Wyeld & Adkins 2006; Fischer 1995
3.1.12	Not Using Templates	New finding

3.4 Discussion of Themes

In this section each of the emergent themes are discussed and some representative comments of the participants are provided.

3.4.1 Local Landscape

The participants made significant references to the local landscape, which is also well reported in the literature (Auld 2007; Lewis 1976; Turk & Trees 1998; Fleer 1989). For one, the Birabahn building was 'our concept of place in a contemporary cultural environment.' Another spoke of the building itself as having symbolic life during a ceremony, 'The unique symbolism of clap sticks echoing from the Birabahn building as though the building had a life and was engaged in the ceremony'. The very design of the building produces a unique communication and resulted in giving symbolic life to the building. Various participants pointed out the 'reception area', 'the student common area' and 'the blue lounges upstairs' as places where staff engage with students and visitors to the building.

The local wildlife was also pointed out by one participant who recalled seeing 'a kookaburra, watching a black snake, chasing a skink lizard, just outside the building near the waterhole'. Meticulous care had been given to the various aspects of the landscape, both animate and inanimate. For instance, the 'dust in the car park,' the 'sign out the front' and the 'flagpoles' were referenced during the discussion.

Another referred passionately to the finer aspects of the landscape that could be transported directly to the design of an interface: 'the site could have footprints, pictures of animals, not just images but interactive images, videos. There need to be things happening, things moving, people speaking.'

This one narrative is characteristic of the deeper meanings that emerged when even a seemingly ordinary event occurred: 'The axolotl story is one of the greatest stories ever told' claimed one participant. The story was told this way, 'One of the staff members had an axolotl that died, one that was bulimic and swimming around the fish tank devouring itself, and all that was left was its lips.' The axolotl was eating its tail, and the staff member thought it was dead, but it was going through a transformation process. 'It was sick and it was eating itself and vomiting; it was bulimic.' She tried to flush it down the toilet to kill it but it would not go down the toilet. She was lying in bed and she could hear the axolotl making noises from the toilet bowl. One participant assuredly stated, 'It may sound like a mythical event but it is all true.'

One participant said: 'the website needs to engage the visitor, enable him to walk through the building and interact with people. You could have the Birabahn building with the flashing neon lights and you could walk through the building and meet the girl at reception and be told how to submit your assignments. You could meet lecturers and interact with the people in the building.' This interaction with the local landscape became a common theme.

The identity of the Wollotuka Institute and the ease with which someone could find its geographical location was identified as serious issue in the success of the institution. One participant complained that 'although the school is known as 'Wollotuka' we actually have a sign out the front that says 'Birabahn' and every one looking for Wollotuka for the first time gets lost. The Aboriginal flags are right back off the road where nobody can see them either'. The irony, according to him, is that the name is very important to them but it is not visible.

The participants also provided direct visual ideas for a possible website designs. This included the digital representation on the Birabahn building with flashing neon lights on top of the

building. This remarkable idea arose from the continued confusion over the location of the building, caused by the current inadequate signage. Even though one suspected that this would give the impression that the Wollotuka School resembled a casino, another light-heartedly felt that a 'casino' image was acceptable, as it would attract more people to study at the university. Following a similar notion, another participant suggested a big sign that goes across the top of the building that has neon flashing lights, that says 'Wollyworld is here.' The remark was appreciated by the whole group as was evidenced by the loud laughter that followed.

3.4.2 A Fun Place to Study

The participants wanted to portray a fun image of the school on the website. While, humour has been discussed in the literature, making a community a 'fun place' is a new finding. The replacement of the word 'Wollotuka' by the term 'Wollyworld' was unexpected; it arose from a variety of activities that likened the school to a theme park. The staff members affectionately called the school 'Wolly' and started speaking of themselves light-heartedly as a 'bunch of wollys.' When the moderator asked whether they called the place 'Wollyworld,' one participant had no hesitation in replying that they were accustomed to calling it 'Wolly' for short.

The use of the word 'Wollyworld' emphasized the desire of the participants to portray the school as a fun place to learn. Participants were certain the visitors to the website needed to see that the school was a fun place to study. They were unanimous in their conviction, that it was this message that would make the website successful.

3.4.3 Community Involvement

Another important concern the focus group participants shared was the need for community involvement. This is a significant cultural requirement also reported in the literature (Fleer 1989; Turk & Trees 1998; Clemens 2002; Tuhiwia-Smith 1999; Butchman 2000). It was agreed that community involvement was essential in the development of an Indigenous website.

The website would also require an interface that provided a personal family connection with its audience. The website would need to reflect the special sense of community, not only to provide a sense of what the Wollotuka community was like, but also to encourage the students

to support one another. The aim was to assist students to learn that Wollotuka is a place to eat, meet and receive an education, all in one caring community. That would be diametrically opposed to having a sterile building where you simply go to study.

It was highlighted by one participant that there might be great human diversities within the Wollotuka community. Hence, it was to be borne in mind that those who work here or come here are often 'accidents by birth; that is, they are not responsible for their race or colour'. The participant wanted 'respect for natural diversity among all types of Aboriginal people' and concluded that this human diversity needed to be reflected through the website. All agreed that the resulting website design should not remove the natural diversity but sustain it. The participant had more to offer in this context: 'one effective ploy NITV (a national Indigenous television station) uses is to put one black face and one white face on at the same time, one fair skinned and one dark face, two of them in tandem.'

Another participant suggested that there are ways to reflect and encourage community diversity and involvement. There could be a system of having theme weeks. There could be an electronic newsletter highlighting the events that are happening in the community. It would be something different each week and a different group could be responsible for designing and organizing the theme week of that particular group. In this way, each group would have a week to highlight events, objects or messages culturally significant to them.

Another participant highlighted that 'the community spirit is infectious'. The participant recalled large groups of people from Wollotuka going out together. The group included lecturers from other faculties and students. They would play a game of pool and have a meal. People wanted to be a part of Wollotuka because of the community spirit. The participant commented that these community events are 'not held so much anymore as the staff feel they have become a little old.'

It was agreed by multiple participants that the sense of community does not happen in other university faculties. The participants were proud to say that Wollotuka is an exception. Providing an example, one staff member organized an event that included a corporate box at the rugby union. The corporate box included unlimited supply of food and drink and the afternoon was spent enjoying themselves. People were watching the entertainment in their corporate box rather than the football. There were quite a few events like this over time that highlighted the community spirit of Wollotuka.

Another discussion focused on the relationship between students and teachers. It was felt that one of the most crucial reasons for which students engage administrative staff at Wollotuka is to hand in assignments. In most cases, the attitude of the teachers has been a welcoming, encouraging one.

Another story involved inviting students every Wednesday to community lunches where they could sit, talk and eat together. The purpose was to instil a sense of community into the students as many of them had not been involved in the community previously. The program was designed for Aboriginal medical students. It helped the students to interact with other community members in a way that was significant and culturally appropriate.

Specific cases, where the security of a close-knit community can be of immense help, were pointed out. A student was crying loudly in the blue lounges upstairs in the Birabahn building. The student was with one of her friends and they were worried about studying. A staff member who happened to be around assured them that everything would be OK and that everyone initially felt overwhelmed. They were assured that they would soon feel better.

The focus group also took notice of the fact that Wollotuka received many enquiries from local businesses who often wanted to employ students, especially students who were about to graduate. 'We do have an Indigenous employment webpage in the university's careers pages' stated one participant. The participant recommended putting advertisements for jobs suitable for Indigenous people on the new website. For example, short-term labour, workplace trainees and employment within other local Indigenous organisations. It was thought that if some of these services can be built into the website it would be useful.

3.4.4 Aboriginal Artwork

Aboriginal artwork was discussed. It has also been widely discussed in the literature (Williams 2002; Fleer 1989; Munn 1973). One participant said that it was possible to re-use the Indigenous employment artwork that had been done many years before; 'it would be good to use those graphics as the background for the new website'. This artwork would be relevant as well as informative. She said, 'if you go to a website and see Indigenous art, then you are immediately going to have a different reaction than if you open it up and see a corporate website, with only written text about Indigenous people and nothing that visually identifies Indigenous people'.

Participants were asked directly whether they had any graphic design ideas. One participant remarked that the website graphics would need to be colourful and the message of the site delivered through visual media. For example, 'it could have a changing background of different Aboriginal artworks'. Another participant wanted to ensure that only community members were involved; for example, 'if someone was not a community member then they could not appear to be trying to sell a product from the website'. That could be accomplished if the website graphics only showed actual community members and themes closely related to the community's life and experiences. Another participant added that 'if we are going to build an Aboriginal website, for whatever community that is involved, they should have different faces of people who belong to that particular community'.

3.4.5 Navigation

A further consideration was how to deal with navigation. The profound accuracy to which Aboriginal persons navigate the natural world has been reported on (Williams 2002). However, navigation in a virtual world will either attract visitors by making it easy or repel them by making it difficult. It is especially significant when dealing with the Indigenous people of any nation. One comment that came from the focus group was that 'simplicity will make it work'. Complex and complicated mechanisms or comparatively strenuous procedures would only succeed in dissuading Aboriginal people from visiting the website. The group was unanimous in upholding the view that navigation has to be an easy task for the user.

One participant humorously remarked that they 'don't want to open ten doors to go to where they are going'. The probable outcome of such a laborious procedure would be 'stuff this, I can't be bothered.' Most Aboriginal people will probably give up using the site, and that means we have lost them.

3.4.6 Multimedia

The participants were unanimous that they wanted interactive images, video, things happening, and things moving, not just images. The literature also supports this notion (Clemens 2001; Pumpa & Wyeld 2006; Clemens 2002). Images alone, however attractive or carefully chosen, are not likely to attract many viewers from the Aboriginal community. What seemed to be necessary, as per the opinion of the focus group, was interaction with people.

One participant made this pertinent remark, 'We get a lot of people who cannot fill out paperwork and cannot read or write properly'. They suggested having someone speaking the information via video in addition to written text. The participant also pointed out that, 'we are going to have some older people who are not going to be able to read because they need glasses, and also people who do not have the necessary education.' There could be someone saying 'if you are finding it hard to read, click on this area,' or 'if you are finding it hard to hear, click on here and you can read it.'

One participant enquired if the researcher had any design ideas. The researcher recommended having a video introducing a staff member saying, 'hi there, I'm so and so, this is what I do here, and give me a call if you need help with this or that.' That would be friendlier than using text for everyone's names, phone numbers and their email addresses.

The same participant suggested that in a staff introductory video, it could say something along the line of, 'this is my family, and this is my community.' The participant said that when 'Aboriginal people hear this type of talk they are likely to respond positively because they can relate to it'. This type of message not only allows visitors of the site to associate with the person but also with The Wollotuka Institute. Participants agreed that use of video would be a wonderful addition.

The participant said that if 'you have a picture of someone sitting behind their desk, then a visitor who has seen that will undoubtedly have a connection when he or she comes into the building, knocks on the door and looks in there'. He or she would immediately recollect that they had seen that face somewhere and normally, they would have connected with that space already. The advantage is that presenting this information online allows anyone with an Internet access to become familiar with the environment.

The size of a video is always an issue because large videos can take a long time to download. The participant said that 'each video would need to be very short and concise,' and that each video would need 'to be very clear'. They would be used primarily as a visual tool to connect people.

3.4.7 Role models

The focus group raised the importance of role models. The importance of role models in Aboriginal culture has also been highlight in the literature (Johnston 2001; Trudgen 1983).

One participant commented that the sports industry provides appropriate role models, especially to children. Another pointed out that they had young family members who were deeply moved by sports events and were already imitating sports personalities. It was agreed that kids no longer show enough respect and it was creating so many problems. One participant candidly acknowledged that 'we don't know if they are looking up to the elders or not'.

One participant remarked that we also have students who are still gaining an understanding of their culture and community, so that the establishment of role models is important. To have a firmly fixed role model in front of them will steer them in the right path and motivate them to advance to their goals. The model could very well be older kids, sports personalities, or community elders, provided they are well known community figures. The participant also pointed out that if national Indigenous sports personalities are used, then the face would be much better known.

One participant thought that Indigenous kids look up to sports personalities, and even American black gangster personalities. Kids are turning less and less to elders for guidance but are turning to media icons. The leaders today are not like the leaders twenty years ago. The group thought that the leaders of yesterday have been forgotten. Some suggested that some respect for sports personalities and the desire to emulate them was to be preferred. Such role models could be featured on the website.

Participants generally agreed that community elders should be included with the celebrity figures as the role models for the youngsters. This was intended to engage as many of the students as possible from the different communities. It must be executed in a way that subtly undermines the celebrity culture and brings the users into contact with real people.

3.4.8 Kinship

There has been much discussion on the relevance of kinship in Aboriginal communities (Fleer 1989; Gibb 2006). One member went to the extent of likening the Wollotuka environment to 'a family unit and not like a school.' The members had clear notions of how this close kinship would work and benefit the community: 'the members of Wollotuka would make themselves available to help one another if they were in trouble.'

One participant commented that 'there is a special sense of community, sharing of good and bad times.' One participant spoke of his 'sense of belonging and personal pride in Wollotuka.' Another participant compared the return of a former staff member to the reunion with a relative or close friend: 'laughing and embracing, like an old friend coming home.' These select examples suffice to show the deep relationships the staff members had succeeded in cultivating with one another. One member put the importance of kinship in the Aboriginal community this way: 'An Indigenous website must reflect the personal family connections.' Thus, they were all convinced that the website would derive effectiveness through incorporating images reflecting the bond of kinship.

One participant stressed the significance of the community feeling that was present among its members. 'It was hard to define' he said, 'but when people have been members of Wollotuka for a long time, it is very much like a family unit.' The close connection created within the community was a significant cultural principle that could not be overlooked. The participant went on to say that outside his own family, this place was where he feels mostly at home, in a warm supporting environment. He said that there 'may be people here who have a lot of personal problems but those rarely lead to any sense of hostility within the school'. He believes that most members feel the same way about Wollotuka; 'that is just the way it is'. The participants seemed to be grateful that they have shared many experiences together.

3.4.9 Language

Another aspect that came up for discussion was language. Language in application development has been considered in the literature by many studies, both within and outside Aboriginal contexts (Remedio 1996; Gibb 2006; Pumpa & Wyeld 2006; Somerville et at. 2010; Amara & Portaneri 1996; Dray 1996; Callahan 2005).

Confusion over the signs used for the process of naming has been a long-term issue at the highest level within the university. Certain names were acknowledged and accepted generally. The school is known as 'Wollotuka', the building is named 'Birabahn' and the staff affectionately calls the school 'Wolly'. The titles of individuals were humorous. Rather than using official titles or positions during the focus group discussion, one of the participants introduced himself as a 'healer', whereas another participant introduced himself as a 'dictator'.

When commenting on the design of an Indigenous website, one participant had this to say about the language to be used on an Aboriginal website: 'Most importantly, the website needs to speak the message rather than written text.' This requirement for multimedia elements to replace text was further expressed in this way: 'There needs to be more than just writing about Indigenous people, there needs to be elements that identify Aboriginal people.' This requirement also showed respect for the elderly and for those members of the community who were not able to read. Many people in the wider Aboriginal community would also consider it disrespectful to use big words that they did not understand.

3.4.10 Humour

Humour has been reported on in the literature as an integral facet of Aboriginal communication (Kleinert & Neale 2006; Pumpa, Wyeld & Adkins 2006). Humour was not discussed as a subject, yet an underlying humour was present for the entire duration of the focus group.

Only a few examples suffice to show the humour maintained. For instance, one participant was commenting on the 'opening of the Birabahn building and the spectacular flight of the Birabahn bird, from the top of the Birabahn building.' The participant explained that the 'bird was a woman in a bird suit hooked up to a flying fox.' After a break he commented seriously: 'She hasn't flown again since.' When commenting on the design of an Aboriginal website, one participant suggested 'putting the name 'Wollotuka' up in pink neon lights across the top of the building, like the 'Hollywood' sign, saying 'Wollyworld is here' with a big arrow.'

Another participant related a story about a student attempting to stamp her assignment with a child's toy instead of the bundy clock (sometimes known as a clock card machine or punch clock). When submitting assignments, students are required to stamp their assignments with the bundy clock to provide evidence of the date of submission. 'One of the students was putting in an assignment; she went to use the bundy clock. She was given instructions about where the bundy clock was and what was supposed to be done. Next to where the bundy clock was, there was also a little kid's toy, a white duck; so the student picked up the little toy and tried to stamp her assignment with the toy.' This story of confusion and the white assignment duck has been told many times.

3.4.11 Music, Dance and Ceremony

Significantly, music, dance and ceremony were spoken of in relation to creating life. The literature also reports on the extensive use of these traditional customs in Aboriginal life (Pumpa, Wyeld & Adkins 2006; Fischer 1995; Williams 2002).

One story happened near the Birabahn building. It included male Aboriginal dancers, community members, students, staff and general university staff. Members commented that even the structure and ambience of the building sent symbolic messages to their hearts. Singing and dancing was also related to community spirit and the sharing of Aboriginal culture.

Another recounted a similar experience elsewhere: 'there was a student camp up at the Barrington tops where a group of Torres Strait dancers performed for the rest of the students. People from all around the camping site heard what was going on and started popping their heads in. The second night they went around and invited all of the people who were also camping in the area to come and see the Aboriginal dances.' Such examples of entertainment could be translated and incorporated into the website, the focus group participants concluded.

3.4.12 Not Using Templates

The final theme emerging from the focus group concerned the design restrictions imposed by the University template system. The university has a corporate template structure that every department in the university must follow. However, it is very difficult to design the website for Aboriginal audiences within this rigid structure. No references regarding the use of templates could be found in the literature.

Those participants who are responsible for maintaining the Wollotuka website found fault with the University's template framework: 'the graphical restrictions placed by the university makes it impossible to design the site to include Indigenous art in the background.' One participant was concerned that the response from an Aboriginal person viewing a website with Aboriginal art will necessarily be different from viewing a website that has a corporate design. The art cannot be represented in little restricted boxes. The participant stressed the 'there needs to be more than just writing about Indigenous people, there needs to be elements that identify Aboriginal people.'

Moreover, it was pointed out in the focus group, that each of staff members responsible for maintaining part of the Wollotuka website are required by the University to attend training. The problem is that 'the course stressed the need to keep within the university website structure and the need not to go outside the boxes. This is really inappropriate for the message that staff members want to convey.'

However, one member alluded to some latitude extended by the university: 'When working on a website advertisement to employ new lecturers, the university was adamant that it had to be done the university's way but Wollotuka wanted the advertisement written their way, advertised their way, with their content. They got what they wanted from the university web department because they pushed for it. If you don't ask for what you want, you won't get even to the first base.'

Commenting on this rigid website template structure, one member compared the situation, 'to trying to attract women into management positions.' The member has a powerful point: 'the purpose is not to turn women managers into men managers; otherwise, they have defeated the whole purpose. If the university wants Indigenous people to be part of the university, then the university itself needs to change to be inclusive.'

3.5 Limitations of the Focus Group

Focus group discussions such as this are known to be susceptible to facilitator bias (ERT, 2008). While employing an Aboriginal facilitator would have been ideal for this essential role, a non-Aboriginal facilitator experienced in ethnographic communication research conducted the discussion. The experience of the facilitator ensured that the discussion was not dominated by a few individuals.

It has also been a criticism of focus groups that the output is not projectable (PBWorks, 2012). By conducting one focus group, it meant that there is no correlation of multiple focus group results. Multiple focus groups were not considered necessary at the exploratory stage as the design methodology also included one-on-one interviews. Participants were encouraged in the one-on-one interviews to identify any issues relating to design interpretations drawn from the focus group.

The main intention of the focus group was to capture significant cultural design requirements, which would form the basis of the initial prototype design. However, the focus group is not the

sole means of obtaining these design requirements. Requirements from the focus group were cross-referenced with the requirements elicited from previous literature (See Table 2.3). The data collected from the focus group must also be considered in conjunction with the 1-on-1 interviews and iterative prototyping facets of the design method (Chapter 4 and 5). These three sources of design requirements work together to produce the final design.

For Aboriginal culture, each community wants to be represented individually. While many of the emerging themes were supported by previous studies, some themes were not. The results of the focus group are not intended to represent all Aboriginal communities, only the Wollotuka community.

Reasonable validity required the researcher to first familiarize himself with the data. Transcribing the video recording involved watching the video and reading the transcript in their entirety several times. As an Aboriginal person and as a member of the Wollotuka community, the researcher was in a position to view the data with a strong appreciation for Aboriginal perspectives. The researcher thus immersed himself in the details before breaking it into emerging themes. The aim of the focus group was to identify key website design principles. There was no further analysis done to break the themes down into sub-themes.

3.6 Conclusion

The focus group was about sharing knowledge, based on participant experiences. Using Insite Mapping®, a commercial ethnographic research methodology, 'storytelling' was used to involve participants in a social design process that would satisfy Aboriginal cultural requirements.

Broad cultural themes emerged; many of these were further supported by findings in the literature (Table 3.1). A final summation of the emerging themes is presented in Table 3.2. These themes will underpin the further design work described in the next chapter.

Table 3.2: Themes Emerging From the Focus Group Discussion.

Item	Theme	Comments
3.4.1	The landscape	Many significant references to the local landscape and local wildlife need to be reflected.
3.4.2	Fun place to study	Portray a fun image of the school on the website.
3.4.3	Community involvement	Provide a personal family connection with the audience and respect for natural diversity among all types of Indigenous people.
3.4.4	Aboriginal artwork	Colourful Aboriginal art is going to have an immediate positive effect.
3.4.5	Navigation	Complicated navigation would only dissuade Aboriginal people from visiting the website
3.4.6	Maps	The ease with which someone could find its geographical location was identified as crucial in the success of the institution.
3.4.7	Multimedia	Requested interactive images, video, things happening, and things moving, not just images, the site needed to 'speak', rather than using written text alone.
3.4.8	Role models	Possibly are older kids, sports personalities, TV personalities or community elders provided they are well known community figures.
3.4.9	Kinship	Website must reflect the personal family connections using images and videos.
3.4.10	Language	Adopt simple, straightforward English. Sense of aloofness created by the formal academic language. No specific demand to use only an Indigenous language.
3.4.11	Humour	The focus group revealed sustained humour as a powerful method of communication.
3.4.12	Music, dance and ceremony	Music, dance and ceremony were spoken of in relation to creating life, community spirit and the sharing of Aboriginal culture. Videos and pictures of these events are appropriate.
3.4.13	No template framework	It is very difficult to design the website for Aboriginal audiences within a rigid template structure. Avoid using a CMS template website.

Chapter 4 - Iteration One

4.1 Introduction

During the first phase of the project (Figure 4.1), potential design issues were identified from the literature review (Table 2.2, Table 2.3 and Table 2.4) and some key cultural themes from the focus group (Table 3.2).

Figure 4.1: The Design Process of Iteration One.
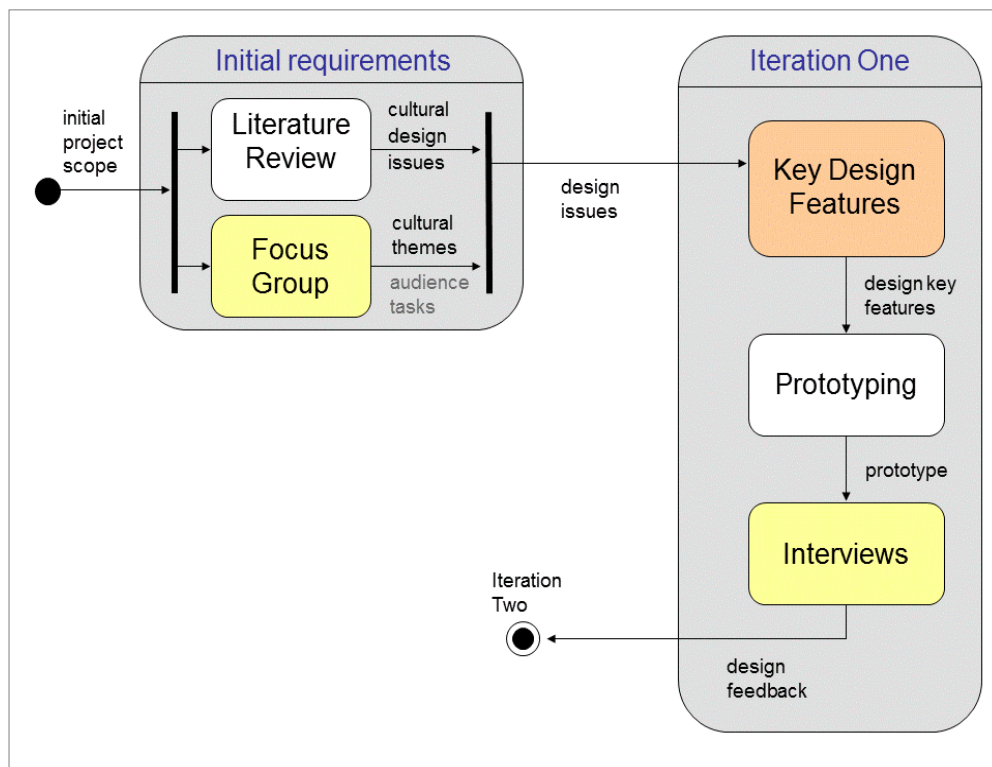
This chapter will now discuss the design of the first prototype and in particular the identification of some key design elements. These design elements are informed from these previous findings from the first phase of the project. The design of the first prototype is intended as the first iteration of our iterative design process. As part of this user-centred process, one-on-one interviews with the participants are used to gather feedback about the design elements. In the concluding section, we will summarise the key findings from this community feedback to be used to inform the next stage of design.

4.2 Key Design Features of Prototype One

To design the prototype, the primary researcher consulted with the project supervisors to determine possible design features needed to address the cultural requirements. This was a creative exercise and was carried out in informal discussion supported by the findings from the first phase of the project.

The primary researcher and one supervisor were already familiar with many technical aspects of Web design and implementation. Some conceptual ideas became invalid at this stage due to project resource restrictions, such as the implementation of real-time communication services.

A high fidelity prototype (Prototype1 2012) was constructed, including each of the key design elements:

- Simple structure and navigation
- Location Map
- Virtual tour
- Multimedia (video and sound)
- Interactive games
- Community links
- Feedback mechanism
- Informal language and humour
- Traditional art, imagery and ceremony
- Indigenous Wiki

Table 4.1 shows how each these design elements relate to findings from the focus group and literature review. Each of these key design features is discussed in more detail in the next section.

While low-fidelity prototypes, often only paper-based, are generally used in early stages of the development process (Arnowitz, Arent & Berger 2007), in this project, a high fidelity, interactive prototype was preferred. This allowed interaction to be broadly assessed within an Aboriginal context. We wanted to provide a reasonably high level of visual interaction with various forms of multimedia so that the intention of each design element would be clear to the Aboriginal participants. We stress that the intention of the prototype was not to provide all of

the website's final functionality or to develop a completed polished design; it was simply to assess the choice of key design features for cultural appropriateness.

Table 4.1: References to Design Ideas from the Focus Group and Literature.

Key Design Ideas	Literature Review Reference from Tables 2.2, 2.3 & 2.4	Focus Group Reference from Table 3.2
Simple structure and navigation	2.4.10; 2.4.11; 2.4.12; 2.3.22	3.2.5
Location Map	2.3.4	3.2.6
Virtual tour	2.3.1; 2.3.2	3.2.1
Multimedia (video and sound)	2.3.8; 2.3.10; 2.3.15; 2.3.18	3.2.7
Interactive games		3.2.2
Community links	2.3.7	3.2.3
Feedback mechanism	2.3.19; 2.4.2; 2.4.6	
Informal language and humour	2.4.1; 2.4.2; 2.4.3; 2.4.9; 2.3.12; 2.3.13; 2.3.23	3.2.10, 3.2.11
Traditional art, imagery and ceremony	2.4.4; 2.4.6; 2.4.7, 2.4.8; 2.3.3; 2.3.5; 2.3.6; 2.3.9; 2.3.11; 2.3.21; 2.4.9	3.2.4, 3.2.8, 3.2.9, 3.2.12
Indigenous Wiki	2.3.14	

4.2.1 Simple Structure and Navigation

In terms of navigation and layout, the literature revealed that specific orientations and page placement vary by culture (Barber & Badre 1998). The way holistically versus analytically minded people scan a web page is different, so the ordering and arrangement of information needed to be considered (Dong & Lee 2008). The focus group had suggested a very simple style of navigation with minimal depth. Therefore, the first prototype was contained on a single page. The website used a basic layout with a simple menu at the top (Figure 4.2). All other content was obtained by scrolling down the single page.

Figure 4.2: Simple Menu Using a Handwritten font and Aboriginal Dot Art.

4.2.2 Location Map

Because the identity of Wollotuka and the ease with which someone could find the building were considered crucial in the success of the institution, the prototype also included a satellite image map (Figure 4.3). This location map showed the school and allowed for navigation by utilising Google™ mapping services. Although such maps are commonly featured in web designs, we note that the 'land' has been identified as the most fundamental aspect in Indigenous culture and so spatial aspects like location are especially significant (Turk & Trees 1998).

Figure 4.3: Satellite Map Showing Geographical Location.

(*Source:* Google™ et al. 2011)

4.2.3 Virtual Tour

A virtual tour of the building and the surroundings (Figure 4.4) was included. Like the location map, this design feature is informed by the knowledge that geographical features form the foundation of Indigenous thinking (Auld 2007). Indeed, the location or 'land' has

been identified as the most fundamental aspect in Aboriginal culture (Turk & Trees 1998). This requirement had also been reflected in the findings from the focus group.

The development of the virtual tour was a three step process. The first step required capturing the virtual tour images. This was done by attaching a Cannon™ PowerShot A550 digital camera (Cannon 2012) to a GigaPan® EPIC robotic mount (Gigapan 2012). The hardware was placed at the center point of the scene, the robotic mount automatically rotated the camera after each image capture. The second step required the use of krpano software (krpano 2012) to stitch the multiple images together. The final step required the use of an Adobe™ Flash® player Web browser plugin, which was also included with krpano software. Additional Java™ plugins are available to make the virtual tour viewable on mobile devices such as the iPad™ and iPhone™.

Figure 4.4: Virtual Tour of the Birabahn Building.

The 360 degree images were taken at seven locations within and around the Birabahn building. Clicking on the hospots within the virtual tour enabled the movement from one location to another. Navigation within each location required clicking on the virtual tour and dragging the mouse in the desired direction. Additional graphical arrows were added for navigational ease.

4.2.4 Multimedia (Video and Sound)

The participants of the focus group were unanimous in wanting interactive images, 'video, things happening, things moving,' and not just images. This concurs with other guidelines for cultural localization that recommend providing multimedia rich environments rather than text-based ones (Fischer 1995; Buchtmann 2000). A number of videos were, therefore, included that were set in the school building with the staff at the school introducing themselves (Figure 4.5).

Figure 4.5: Video Showing Staff Introducing Themselves.

4.2.5 Interactive Games

To provide further multimedia content and to satisfy the request to portray the school as a fun place to study, two interactive games that incorporated local wildlife and local Indigenous art were included (Figure 4.6). There is a strong sense of relationship and community in the shared humour of Aboriginal people (Kleinert & Neale, 2006) and the focus group identified that a sense of fun and humour was an important message to communicate.

Both games were developed using Flash and Actionscript 3.0 and were based on code developed by Rosenberg (Rosenzweig 2011). The first game was a traditional memory matching game, were users had to turn over cards and find matching symbols. When cards were matched, they were then removed. Correct matches scored points and points were lost for incorrect matches. The back of the cards incorporated traditional Aboriginal artwork and the images on the front of the cards showed local wildlife such as frogs, snakes, kangaroos and koalas. The second game was an action game based on 'Asteroids' (Atari 1979). Although in this case the game involved driving a utility vehicle through the desert and shooting kangaroos, a traditional hazard of outback drivers. The game was designed to be tongue in cheek and intended to be humorous in nature.

Figure 4.6: Games Using Local Indigenous Art and Humorous Overtones.
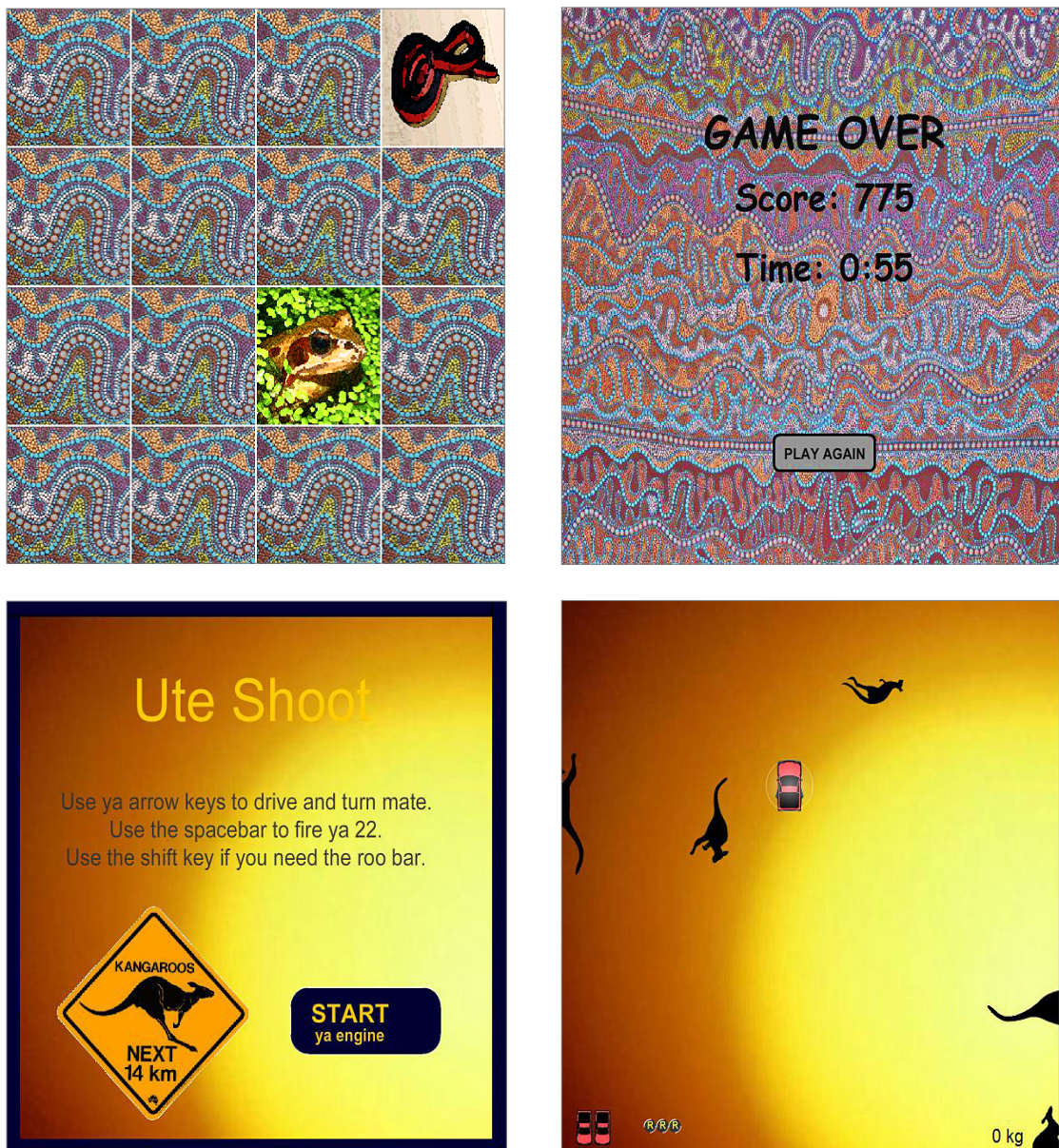
4.2.6 Community Links

Because Aboriginal community, family life and children always come before individual pursuits (Gibb 2006), it was also important to include images showing community groups. Indeed community and kinship had been cultural themes found in our focus group as well.

Many of the design elements served to highlight community and kinship, by using appropriately selected imagery. With permission, photos of Wollotuka community members were reproduced using existing resources from The Wollotuka Institute. To further highlight this sense of community, hypertext links to community relevant information were also provided (Figure 4.7). These community links including a range of Indigenous role models, a theme that had also emerged from the focus groups.

Figure 4.7: Community Links to Other Local Aboriginal Organizations.
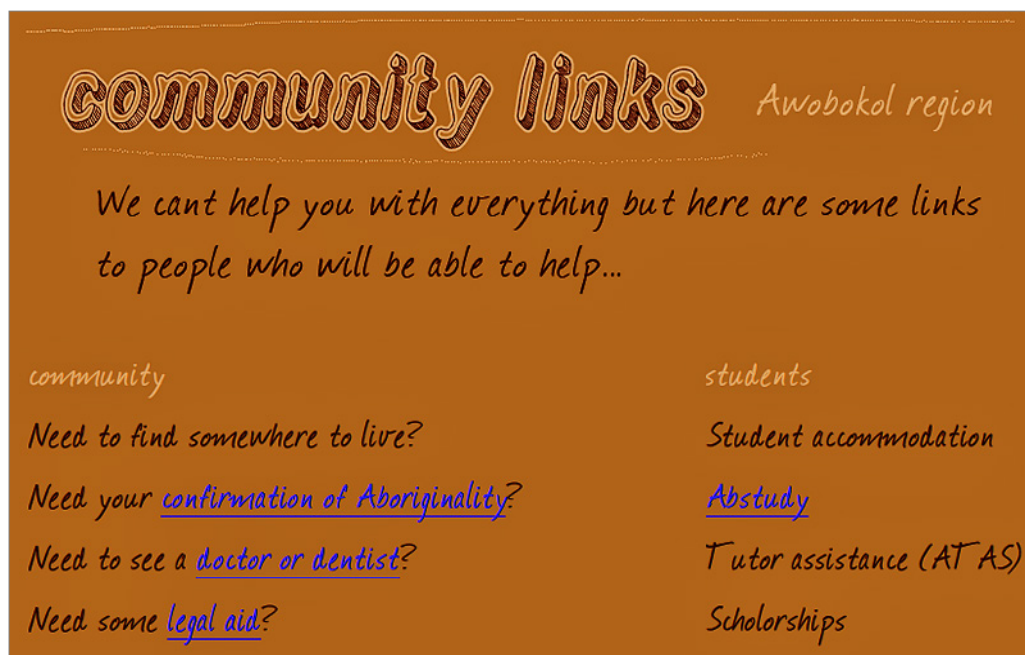
4.2.7 Feedback Mechanism

Consultation with an Indigenous community has also been recognized as a continuous two-way process (AIATSIS 2000). A feedback system (Figure 4.8) was included to encourage the sharing of ideas among the extended website community. This design element also extended the notion of community participation in the project, allowing in time, for broader cross sections of the wider community to be involved in the creation of the website.

Figure 4.8: Anonymous Feedback System.

4.2.8 Informal Language and Humour

In terms of cultural design, the importance of adapting language to local styles is well reported (Callahan 2005; Amara & Portaneri 1996). In particular, Aboriginal students often prefer simple, 'straight to the point' and easy to read English (Gibb 2006). Thus, it was decided to keep the language very informal and simple (Figure 4.9) and thus appeal to the broadest group.

Figure 4.9: Straightforward Informal Language with Humorous Overtones.

Note: Since the creation of the first prototype, 'The Wollotuka Institute' has changed its name from 'The Wollotuka School of Indigenous Studies'.

4.2.9 Traditional Art, Imagery and Ceremony

The focus group identified the need to see Aboriginal art on the website so it would be immediately identifiable as an Indigenous site. The literature also provided awareness for such things as, how the use of colour in web design can affect the user's expectations and overall satisfaction (Barber & Badre 1998). To address these issues, custom dot images (Figure 4.10), a casual handwritten font and earthy colours (Figure 4.11) that related to traditional Indigenous culture were used. Local images of the people and the physical location were also used, as this has been suggested as a key technique in the localization of sites (Williams 2002).

Figure 4.10: Aboriginal Dot Art.

Figure 4.11: Casual Handwritten Font and Earthy Colours.

4.2.10 Indigenous Wiki

The final design element incorporated in the prototype was a wiki. This was intended to support knowledge capture and sharing. It was thought that a wiki would easily fit in with the way Aboriginal knowledge is created and shared. Like knowledge on a wiki, Indigenous knowledge is not static (AIATSIS 2000), but rather morphs with the community as it is created (Pumpa & Wyeld 2006). Typically respected teachers or elders are used to impart and govern knowledge in the community (Trudgen 1983), so selected elders could serve as overseers of the wiki.

Figure 4.12: Screenshot of Indigenous Australians Wiki on Wikipedia™.

(*Source:* Wikipedia 2012)

Due to resource restrictions, it was not possible to develop a Wiki for the Wollotuka community. Instead, the testing of this idea was done using the 'Indigenous Australians' section of the Wikipedia™ website (Wikipedia 2012). See Figure 4.12.

4.3 Evaluation Interviews

On completion of the prototype, one-on-one interviews were used to collect feedback on the design assumptions, and further refine the key design features. Once again, these sessions were intended to have the Aboriginal community closely involved in the design process. This evaluation was intended as a formative way to evaluate the design, using the prototype as a prop to further discuss the cultural design principles Aboriginal people would like to see incorporated in the website. It was expected that the involvement of the Aboriginal community would both help to confirm some design choices but also provide a spectrum of different design options.

Interviews were conducted with eight participants. These eight participants were also present during the focus group discussion so they were already familiar with the project. Four of the original twelve participants were not available for interviews at this stage. Each participant had a similar environment and the same set of conditions. Each interviewee was given similar

introductions and encouragement. The interviews were videotaped and transcribed later. The major opinions and suggestions were then consolidated and analysed for implementation. The consolidated feedback derived from the eight interviews is summarised in Section 4.4.

The interviewees were required to sit in front of a computer screen with a browser displaying the working prototype. The interviews were conducted using the participants own computer system, within their regular work environment. Interviews lasted for approximately 2 hours each.

Only a few tips were necessary to facilitate an effective interview session. There was a need to be as open and frank as possible. This was very important because the success or otherwise of a website depended largely on the impression it created on the mind of a viewer. Participants were told that they were free to browse the prototype any way they liked and that nobody would interfere or show them how to use it. However, they would be free to ask questions if they would like help understanding any part of the user interface they found confusing. The interviewees were, in short, expected to figure things out on their own, as if they were surfing the Internet without the help of anyone.

After about 20 minutes of browsing the participants were interviewed in a semi-structured fashion (Appendix 4). They were asked some guided questions about key design features such as videos, graphics, the language, the colour scheme, icons, etc. They were also asked to openly comment on their general impression and how the site could be made more culturally appropriate. A summary of the feedback from each participant is provided in the following sections.

4.3.1 Interview 1

The first impression the interviewee got was positive; what especially attracted the person were the hand-made images at the top of the page. However, the interviewee thought that the Wollotuka image might be better in another colour, so that it could contrast more with the background. Another suggestion was that the blank space down either side of the page could have Aboriginal images watermarked into the background.

The language was thought to be appropriate because an Aboriginal user could easily relate to it. The interviewee also liked the videos. However, what attracted the person most was the virtual tour, particularly the way it '…took a person all around the building and gave a feel for

the place'. The participant further suggested, '…videos could be set into the virtual tour near each of the paintings to explain what each of them is about.' The participant also felt that it would be beneficial to have more hotspots and pop-ups pointing to significant parts of the Wollotuka environment as one took a virtual tour.

The concept of community links was also appreciated by the participant, who suggested improving these links by providing maps for each of the service locations. A new section on 'interesting links' was also suggested. Another pertinent suggestion was that the '…Contact Us video must explain the high level of support available to students at Wollotuka.'

Adding a link to the Newcastle University campus map was yet another suggestion. The addition of '…a carousel of scrolling images showing students and with a short explanation of what they studied' was also suggested. A carousel was suggested because it '…could be used for community images of local community members.'

The participant also appreciated the anonymity of the feedback system because many Aboriginal people do not want to be identified.

The concept of an Indigenous wiki was appreciated in terms of sharing knowledge construction. However, the participant doubted whether the currently available information in Wikipedia has been given sufficient weight in an academic context. The interviewee concluded that an Indigenous wiki would need to be monitored by academics with the constructive use of a peer review to make it more effective. He doubted whether the information provided in a wiki would be of high academic quality.

4.3.2 Interview 2

The first issue that the second participant identified was that there was '…nothing to immediately identify the site as an Aboriginal website.' He suggested using the Aboriginal flag in a prominent position at the top of the page so that it could be seen upon entry. The participant particularly appreciated the handwritten font.

Another potential problem according to the participant was that nothing in the site explains what the Wollotuka Institute actually does. He pointed out that users might look for this specific information at the top of the page. The participant suggested putting more information towards the top to immediately tell visitors what the Wollotuka Institute does.

The participant appreciated the videos in general, but suggested the ideal would be to have videos for each of the staff members introducing themselves. He also suggested using videos to introduce courses and the curriculum.

The participant suggested that the top of the page should highlight the fact that '…an Aboriginal person can get into the university and go right through the different programs, all the way to their PhD through the Wollotuka Institute.' He suggested emphasizing the fact that '…students can be taught completely by other Aboriginal people all the way through university.' He suggested that this might help in reducing the diffidence of some.

He thought the virtual tour was fantastic but suggested that it could be more user-friendly with a clearer explanation about how to navigate. He pointed out that the virtual tour must be developed more so that it provides a complete tour of the entire facility, highlighting all the salient features. One area of confusion was that the hotspots were not self-explanatory. The participant's solution was to provide a 'click here' button.

Some of the wording of community links appeared confusing; the participant did not know why there were links to certain external sites. The link to the 'funny' website was not appreciated. The participant pointed out that content on external sites must be appropriate and it needs to be monitored effectively. The participant saw the danger of having the external page showing pornographic or other inappropriate material and the school unknowingly linking to it.

The participant also had some useful suggestions on other aspects of the prototype. For instance, '…each of the community graphics could be explained in detail.' He also suggested providing more information on each individual photo and about the people on the site, describing what they did at the university.

The participant agreed that the games were appropriate but they required more instructions about how to play them. In general, the idea of the games appears to be appreciated because it '…might encourage young Aboriginal people to go to university' in the future. The participant considered the map of the campus to be useful but suggested incorporating a complete map of the Newcastle University campus, that was provided by the university.

The participant appreciated the feedback system and approved of the language in general. However, he recommended more detail is needed about what the Wollotuka Institute does. The overall colours were also well received.

One recommendation was to use one of the young staff members as the 'face' of the website and to present one of the local leaders as a possible role model.

With regard to an Aboriginal Wiki, the participant commented that although the concept is excellent, '…academics are too busy to spend sufficient time on the new wiki to ensure that there is sufficient information and that the information provided is accurate.' The participant was aware that the current information in Wikipedia on Aboriginal people is inaccurate.

4.3.3 Interview 3

The third participant immediately appreciated that the front page was easy and simple. The language was considered the 'way that we talk.' However, the participant suggested more attention needed to be given on providing information that 'aimed for our mob.'

The participant suggested adding '…more orange colour to the background.' They also noticed that the wrong first name was used for one of the staff members. The participant would also have liked more Aboriginal artwork. The participant suggested asking one of the local Aboriginal musicians to do a dijeridoo solo, to be played as music in the background.

Another suggestion was to add a video showing exactly what happens at the university. She pointed out that if visitors can see an actual lecture, it would help attract them into the university. Another video suggestion was to show potential students at a lunch held at the school or some other support event. They also pointed out that a video showing exactly what Aboriginal tutorial assistance (ATAS) does would be much better than simply telling them. More videos could also be used to emphasise how much fun it is to be part of the school.

4.3.4 Interview 4

The fourth participant also appreciated the virtual tour but found the animated hotspot in the virtual tour very annoying. They had no idea what it was. The games were also a little confusing.

One suggestion from the participant was that '…it would be better for website users to try to contact staff members through their individual contact details first, rather than contacting them through the reception.' They also noticed that the name of one of the lecturers name was wrong. Two spelling errors were also pointed out—'Awabakal' instead of 'Awobokol' and 'can't' instead of 'cant.'

It was suggested that more instructions should be added on the map telling people how to find the school. They thought that it was essential to make it clear on the map that the bus stops are very close to the school.

This participant also suggested further video content be added. For example, they recommended using a video to '…show how to get tutorial assistance through ATAS' and '…a video showing students how to submit assignments.'

There were other valuable suggestions offered. For instance, '…links to the Indigenous student games should be added to the community links section' as well as '…links to community health services' (doctors, nurses, etc.). Although the participant thought the community links was a good idea, they did not think it would reduce the community enquiries to the front desk.

4.3.5 Interview 5

The fifth participant had only words of appreciation for the general appearance of the site and found nothing offensive to identify. They commented that the colours and the layout were excellent. The participants overall attitude towards the site was positive.

The participant particularly liked the virtual tour and wanted to see it further developed, to provide more information to a viewer, '…as they walked through the landscape.' One suggestion was to '…have more videos and voice-overs explaining the cultural significance of objects and places within the landscape.' However, the participant was a little confused by the virtual tour navigation. She was interested to know if additional labels and controls were possible options for further development.

The virtual tour included the bushland and the parklands around the school and this aspect was particularly appreciated. The participant pointed out that this showed prospective students that buildings did not surround the school. They thought that it was important to show

students that they could go outside and sit in the bushland to take a break and relax. The participant also appreciated the virtual tour background as it attracted viewers to explore more.

The videos of staff members and games on the site also attracted the participant. This participant actually played both games and was ready to challenge other staff members to a game.

The map was another element that drew a positive response from the participant. She appreciated the map because it did not look like the usual sterile campus maps.

4.3.6 Interview 6

Participant number six appreciated the colours because they were '…nice and simple.' The participant also responded positively to the simple English used on the site. The participant saw the need for common spoken English and not some weighty academic talk, which would only put up a barrier with potential Aboriginal students. Too many Aboriginal words were also not considered ideal.

This participant really liked the virtual tour but did not explore any of the controls and did not understand how to click on the hotspots. The participant suggested that the photos needed to be explained with more background information on each. The participant liked the games and even played both and thought that they were appropriate for the website. The videos were also positively received. The participant was curious about whether each staff member would have a video on the site. One issue anticipated by this was that having so many videos on the same page would make it too crowded.

One major suggestion was to change the name of the school to 'The Wollotuka Institute.' It was also suggested that a section on the site to '…tell a little history about the Wollotuka School.'

Although the videos were considered good in general, the participant thought it would be beneficial to '…have someone upfront explaining exactly what the school does.' They pointed out that '…videos explaining both online and offline courses would be very helpful to the prospective students.' Another innovative suggestion was to '…put more information on the support level that Wollotuka offers to their students.' For instance, they suggested

highlighting the fact that there is '…many staff employed by the School whose sole job is to support students.' The participant also appreciated the concept of community links but suggested they could be made more useful to Wollotuka.

The participant referred to modern technologies which can make lectures available online. For example, many courses at the University of Newcastle are recorded in MP3 and made available for download through the Blackboard software. They suggested using the same strategy to reach out to the Aboriginal community members who cannot physically attend lectures in Newcastle. Further innovations ideas included integrating the Wollotuka Institutes research journal 'Coolamon' into the site, so that papers could be submitted online.

The participant thought that the concept of an Aboriginal Wikipedia is quite good but did not recognise that a wiki could be changed or updated in a collaborative fashion.

4.3.7 Interview 7

The participant appreciated the use of a single page. One suggestion was to have a better gender balance on the site. It was pointed out that this is particularly important in the case of videos where only males are shown. If a lot of people are shown in the videos instead of a single person that would give a community focus. An ideal scenario would also include images or videos of Torres Straight Islanders.

The participant suggested that the first video needed to be '…a community video with many people involved.' He pointed out that the videos of individuals could be shifted conveniently towards the end of the page. The participant considered some of the language to be '…a bit too loose.' The participant said, '…Although the language should be simple conversational English as far as possible, it still needs to resemble that of an educational institution, as some parents may also be reading the website.' He suggested the slang approach be removed for fear that it creates a bad impression. The participant pointed out that an ideal solution would be to use a simple, straightforward form of the English language.

The participant wanted to see the photos and graphics positioned in a more logical sequence with the staff members at the end of the page. Another valuable suggestion was to '…use pictures or videos of local animals on the site', to give it a natural flavour and appeal. One example suggested was the local Kookaburra.

In relation to the virtual tour, the participant thought, '…that since Wollotuka is a people-oriented place then more videos of people should be added to the virtual tour.'

4.3.8 Interview 8

The first impression of the participant was that the colours in the virtual tour were magnificent. The participant has a firm notion that the concept of telling Aboriginal stories on the site was excellent.

The participant offered valuable suggestions with regard to the map. One was to make useful information pop up on the map. One improvement suggested, could be to add a picture of the building and pictures of driveway taken from the front entrance. The bus stops could also be highlighted in the map. The participant further pointed out that it is especially important to make it easy for students to locate the local bank on the map.

Another major suggestion was that '…each of the photos needed to be explained.' He thought that the photos would be better if additional background information is provided. For instance, one photo was about student games, which implied the promotion of a healthy lifestyle, which involved university students from all over Australia; such photos would possess greater significance if the viewers were supplied with further contextual information.

The participant suggested that it will be very helpful to the student community if a video of students is included, which talks about the level of support they receive from Wollotuka. The participant pointed out that '…there were at least three main types of students; those who are away from their country, those who live in Newcastle, and those in the Yapug program [a tertiary preparation program], because they have nothing better to do. The first type needs support for homesickness and relocation.'

The participant thought that the site could include information from the Central Coast, Port Macquarie and Armidale campus. They pointed out that his would be very beneficial since those locations do not have their own sites.

The participant was very particular about the inclusion of a video on a resident community elder, welcoming people to the Wollotuka community. They said that '…it is better to have a local elder give a welcome message on behalf of the Pambalong [local Indigenous tribe], up front.' Then, '…a second video using a local elder may be given at the end of the site,

thanking everyone for using the site.' Then suggesting, '…that should be the time when they could wish them all good luck for their future studies.' The participant emphasizes the fact that Wollotuka is the only Aboriginal School with an 'elder in residence.'

One last suggestion from this participant was that the slang word 'deadly' be used, as in 'We can give you a deadly education'. This, it was suggested, would help give the students a feeling of familiarity.

4.4 Conclusion

The general design of the first prototype was well received. A number of suggestions were made about additional content, including images, video, community links and general information. The prototype incorporated ten key design features (Table 4.1) and some intermediate conclusions about each if these design features were reached. These conclusions will be used to inform the next prototyping stage (Chapter 5).

Participants considered the one page navigation to be easy and simple. One suggestion was made to provide a more logical ordering with staff videos at the bottom of the page and introductory information and/or welcoming videos at the top.

The location map received positive response from all participants. Practical improvements included clearly identifying key features such as the location of bus stops and local banks.

The virtual tour received most commendation. Participants particularly appreciated the way it took a person all around the building and gave a feel for the place. Suggestions for improvement it included a more user-friendly navigation system, more videos and voice-overs explaining the cultural significance of objects and places and the addition of more 'people videos' to the virtual tour.

Participants agreed that videos are essential for communicating with Aboriginal people online. Many suggestions were made for improved video content, this included such subjects as showing potential students exactly what happens at university, a video of students talking about the level of student support at Wollotuka and a video of the resident community elder welcoming people to the community.

Participants spent time playing the interactive games during the interview session. Although not all participants enjoyed themselves, they were considered appropriate for potential students as they may encourage young Aboriginal people to go to the university in future. One practical suggestion on improving the games was to provide instructions that are more detailed.

The community links received a mixed reaction. The concept was considered necessary but deciding on appropriate links requires further consultation with the community. Suggestions for improvement included providing maps for each of the service locations and a process for strictly monitoring linked-to sites for inappropriate content

The feedback mechanism did not receive a lot of recognition by participants, however one participant appreciation the anonymity shown, since many Aboriginal people do not want to be identified. No suggestions on improvements were offered.

The language used in the prototype received mixed feedback. One considered it too loose for an academic context but others showed appreciation because it was simple. Improvements included aiming for a version of English that was straight forward, simple and conversational.

Traditional art, imagery and ceremony were appreciated by all participants, especially the colours, handwritten font and hand-made Aboriginal dot images. Practical suggestions for improvement included improving the contrast of images, adding more Aboriginal art, explaining each of the community graphics in detail, adding pictures of local animals and having a better gender balance of images on the site.

The responses to the Indigenous Wiki were sceptical. Participants liked the concept but generally concluded that academics are too busy to spend sufficient time to ensure that the information provided is accurate.

In the opinion of the researcher, using one-on-one interviews in participants day-to-day work environment empower participants, who may have otherwise been intimidated by the thought of contributing to a technical process. While no feedback was required from participants regarding the design process at this stage, the first round of one-on-one interviews were completed without any noticeable incident.

Chapter 5 - Iteration Two

5.1 Introduction

This chapter describes the development and evaluation of a second prototype. This prototype was the main outcome from this second, and final, iteration of the iterative design process. The steps followed in this second iteration were similar to those followed in the first iteration (Figure 5.1). One key difference was the information used in the designing step. In the first iteration, the design features were informed by the literature review and focus group discussion. For this second iteration, the design features were a refinement of the first prototype. These refinements were directly based on feedback from the one-on-one interviews of community members.

Figure 5.1: The Process of Iteration Two.
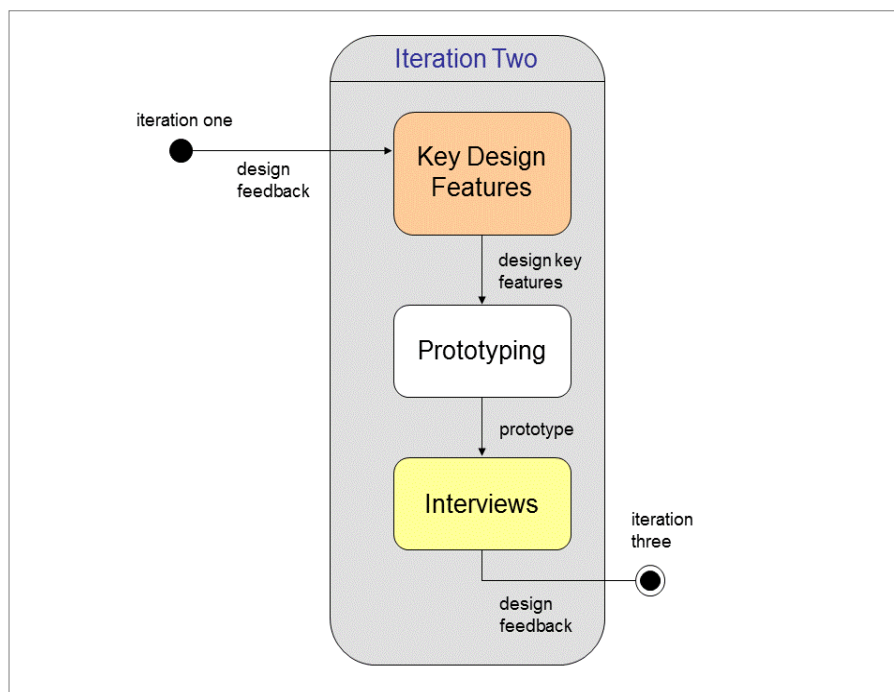
5.2 Refining Key Design Features

To commence the second iteration of the iterative design phase the primary researcher again met with supervisors. Each of the prototyped design features was discussed in light of the community feedback from the interviews. Apart from the wiki, all of the key design features in the first prototype had been well received. Many precise suggestions were made about the actual content of the videos and images and about how to refine the content. As the intention of this work was to not to produce a fully functional website many of these content suggestions were simply recorded and a decision was made to focus on the design features themselves.

The most consistent and enthusiastic feedback from the first prototype was for the virtual tour. For the second prototype, it was decided to encapsulate as many of the other key design features as possible inside the virtual tour itself (Figure 5.3). The intention was that the virtual tour would now become the website interface. Users would navigate about the Wollotuka building and surroundings and interact more directly with objects in the tour. This design direction satisfied a number of important Aboriginal cultural requirements that had been reported in the literature and reaffirmed in both the focus group and one-on-one interviews. These requirements are summarised in Table 5.1.

During the development of the second iteration, some constraints were found when attempting to transfer some of the design elements into the virtual tour. While technically feasible the project resources did not allow the programming of interactive games, community links or a feedback mechanism into the virtual tour.

These design features had received general support from the community and we would expect to include them in a final deployment of the website. Although it was recognised that the interactive games need to be refined by adding further instructions and adding additional game play. The community links should be expanded in content and also linked to location maps. The feedback mechanism is a mechanism that allows for broader community feedback to be gathered over time. However, this feedback feature has received only mixed support in the one-on-one interviews and so would need to be monitored to see how frequently it was actually used.

Table 5.1: Cultural Principles Satisfied by using the Virtual Tour Interface.

Principle	Reference
Natural knowledge processes	Take advantage of people's knowledge of the world around them by using metaphors to convey concepts and features of your application. (Apple Computer Inc. 1992, p.4).
Landscape	The geographical land is the foundation of Indigenous thinking (Auld 2007).
Country	If the culture sees its knowledge's as embedded in the land, recreate the land in order to provide a more appropriate cultural storehouse and place to tell their own stories, landscapes are not the parcels and lots of the Western view, the country is like a living breathing entity (Indigenous Communities Project 2006, p. 95).
Spatial aspects	Spatial aspects like location are especially significant to Aboriginal people (Turk & Trees 1998).
Effective for non-tribal Aboriginal people	Even among non-tribal Aboriginals there exists a deep emotional relationship with the bush country (Lewis 1976, p. 254)
Multimedia	Provide multimedia rich environments rather than texts based ones and incorporate a range of audio and visual techniques to encourage usage. (Fischer 1995; Buchtmann 2000).
Navigate by images	Navigation by images is preferred over navigation linked to words (Williams 2002).
Focus group	The focus group participants made significant references to the local landscape.
One-on-one interviews	Participants of the one-one interviews particularly appreciated the way the virtual tour took a person all around the building and gave them a feel for the place.

Apart from these three features, the following key design features were incorporated into a new prototype of the virtual tour:

- Simple structure and navigation.
- Location map.
- Virtual tour.
- Multimedia (video and sound).
- Traditional art, imagery and ceremony.

Once again the virtual tour in this prototype (Prototype2 2012) was situated around the Birabahn building and the surrounds. These key design features of the tour are now discussed in more detail.

5.2.1 Simple Structure and Navigation

As with prototype one, a simple navigation system was developed for the virtual tour (Figure 5.5) using handmade icons in traditional aboriginal colours (Figure 5.4). It was anticipated that participants would have some initial difficulty moving throughout the building using their mouse to drag across the screen. To reduce any confusion a splash screen message automatically displayed itself for 10 seconds on first entrance, providing instructions on how to navigate around the tour (Figure 5.3). Graphical buttons with handwritten text provided simple instruction about moving from section to section in the tour (Figure 5.2).

Figure 5.2: Handwritten Images used for Navigate.

Figure 5.3: Virtual Tour Splash Screen Providing Navigation Instructions.

Figure 5.4: Visual Menu for Navigating Virtual Tour.

Figure 5.5: Virtual Tour Navigation by Map, Buttons and Text Images.

5.2.2 Location Map

The location map of prototype one was well received. While the suggested integration of bus stop and local bank were not incorporated, it was technically possible to include a Google™ map. However, due to the technical restrictions within the virtual tour, the map was integrated as a slide-out option. See figure 5.5 and 5.6. Visitors were required to click on the 'click for map' button to access the map.

Figure 5.6: Slide-out Location Map.
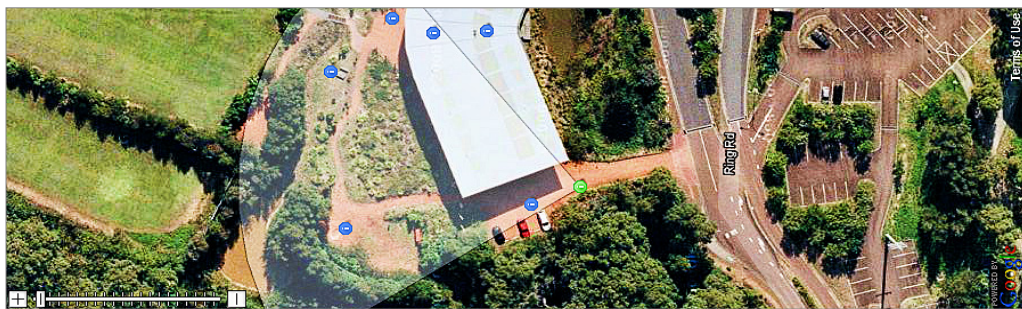
(*Source:* Google™ et al. 2011)

5.2.3 Virtual Tour

As previously discussed, the virtual tour itself became the interface of prototype two (Figure 5.7). Where possible, suggested improvement made by interview participants were integrated into the virtual tour. This included a more user-friendly navigation system, additional videos and voice-overs explaining the cultural significance of objects and places at the Wollotuka Institute. More people were also included into the virtual tour with the use of videos and images.

Figure 5.7: The Virtual Tour.

5.2.4 Multimedia (Video and Sound)

A didgeridoo sound file was added, playing for approximately 20 seconds upon first visiting the site. Demonstration sound files were also added to tell the story of the 'Kangaroo that Lives inside Nobbys' and an Awabakal story about 'When the Moon Cried and Formed Belmont Lagoon' (Figure 5.8).

Figure 5.8: Audio of Traditional Awabakal Story Embedded in Virtual Tour.
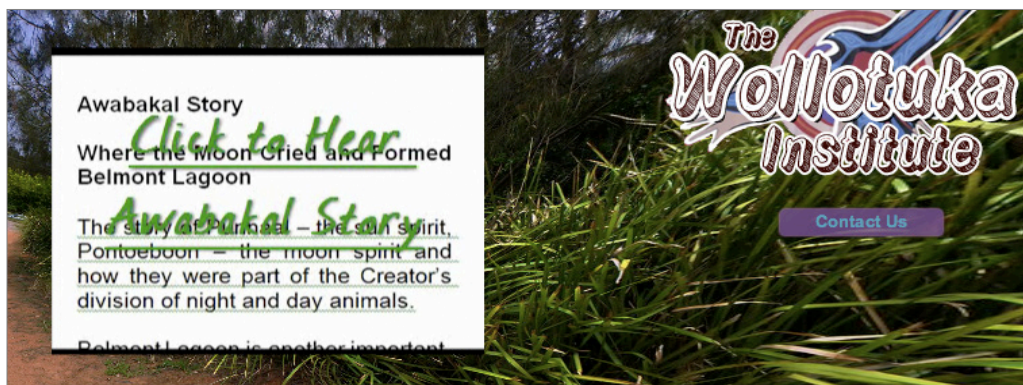
Participants in the interviews wanted to see videos; they regarded them as essential for communicating with Aboriginal people online. The content of the videos were not the focus at

this stage, the focus was on whether placing videos within the virtual tour was technical possible and if so, were they reliable and usable. Once it was discovered that videos worked fine within the virtual tour environment, mock-ups of videos were created, including one of the local resident elder introducing the Pambalong clan of the Awabakal nation (Figure 5.9). The content of Aboriginal Web videos would be an interesting focus of further study as many suggestions were made during the focus group and one-on-one interviews.

Figure 5.9: Video Embedded into the Virtual Tour.

5.2.5 Traditional Art, Imagery and Ceremony

The second iteration also included a more extensive use of custom-made Aboriginal art. All text was replaced with graphics, videos and sound files. Some culturally significant design features identified in the interviews were also added. These included: both Aboriginal and Torres Strait Islander flags in the logo, images of Aboriginal art (Figure 5.10), pictures of local wildlife (Figure 5.11), virtual tour of the traditional Bar-B-Q area (Figure 5.12), and the Wollotuka totem of the Eaglehawk (Figure 5.13).

Figure 5.10: Aboriginal Art Displayed within the Virtual Tour.

Figure 5.11: Imagery of Local Animals.

Figure 5.12: Traditional Aboriginal Bush Bar-B-Q Area.

Figure 5.13: Images of Flags and Traditional Eaglehawk Floor Mural.
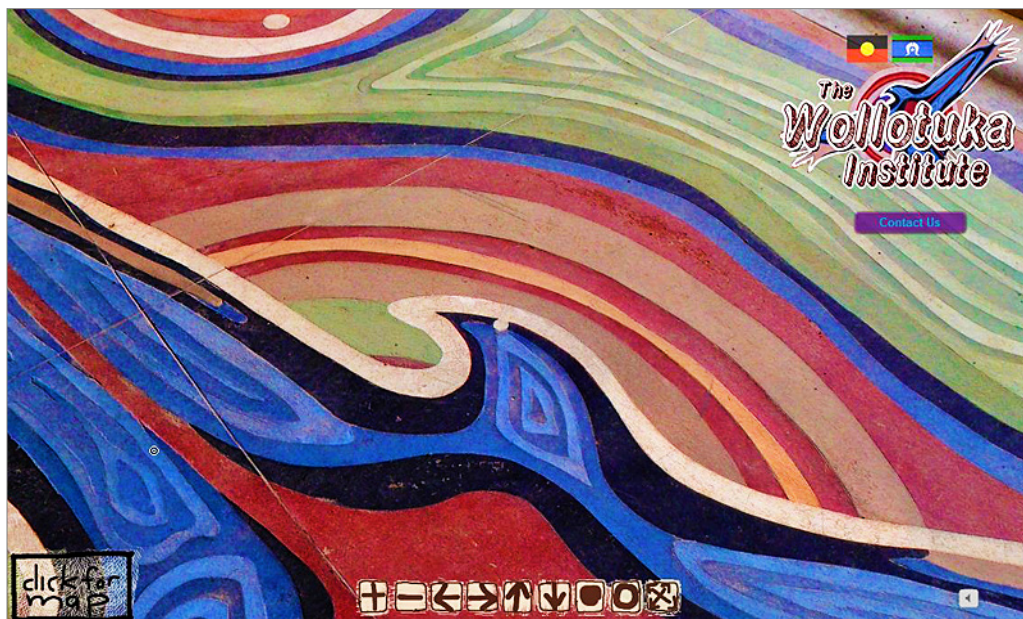
5.3 Evaluation Interviews

After developing the second iteration of the prototype, it was used as a prop for interviewing the participants in the community. The one-on-one evaluation interviews for the second iteration followed a similar procedure as those in the first iteration. Again, the primary researcher met with participants for approximately two hours. The participants began by

browsing and navigating the virtual tour before being interviewed. One difference in this series of interviews was the addition of more structure (Appendix 5), in order to direct more feedback towards the key design features, rather than content, for example. To gain some insight into the process itself, open questions about the cultural appropriateness of the design process were also included.

The participants who were initially involved in the focus group discussion were not all available for the first round of one-on-one interviews. However, ten of these participants were available for the second round of interviews, resulting in every member of the original focus group being interviewed in either the first or second round of interviews.

5.3.1 Interview 1

The first participant thought that the starting point of the tour was ideal because '…all of the offline tours start at the same point.' It is also a unique area of the building. The participant had no issues with the navigation, and thought that it was easy to navigate around the website. They thought the map was also very useful and suggested providing more map features giving directions to 'student services.'

No suggestion was given for improving the site. In general, the participant was enthusiastic about the concept; however, the participant recalled that prototype one (Prototype1 2012) included games, whereas prototype two had no games. They suggested that the website would be better if it contained the games from the first prototype.

The participant thought that the site appeared to be fun and that it reflected the Birabahn environment effectively. The animal pictures were appreciated and also the story telling audio. They were of the opinion that '…the website represented Indigenous knowledge well because of the colours and the interactivity.' The virtual tour was likened to a virtual walkabout (walkabout refers to the aboriginal custom where one breaks from the daily routine and travels through the bush) and this suited the Indigenous learning ways better.

With respect to the design process, the focus group discussion received favourable comments from the participant. Although a non-Indigenous person had facilitated the focus group, they believed this was acceptable. The one-on-one interviews were also considered a '…culturally acceptable way to show respect to the members of the community.' By asking the individual community members what they thought about the website and then by incorporating some of

this feedback into the site, it generated community approval. This community approval was considered a much-needed aspect for the project's success. It is also of particular note that the participant failed to point out any culturally inappropriate incident in the focus group discussion or in the one-on-one interviews.

5.3.2 Interview 2

This participant had conducted several offline tours of the Birabahn building so was in a unique position to comment on the virtual tour. They thought that '…since all of the offline tours started in the common room, and then it would be appropriate to start the virtual tour in the common room as well.' The participant suggested starting the tour with the focus on the floor of the common room, highlighting the mural of the Birabahn eagle. They pointed out that the mural was also the starting focus of the offline tour.

The participant wanted the resident elder to introduce the Birabahn nation, the Pambalong people and the Birabahn building as soon as the tour commences. They thought that an introduction like this was preferred rather than the opening didgeridoo music. This change was thought to be important by the participant. The participant found the didgeridoo music annoying after hearing it once and actually turned it off. However, there overall opinion of the participant was that the site is a bit of fun.

In terms of navigation, one practical suggestion offered was to '…add a homepage link to the site.' They suggested '…a link on the Wollotuka logo [in the top right hand corner] of the homepage.' Another suggestion was that '…the graphical navigation buttons should have instructions pop up when the mouse hovers over them.' She did not understand what the navigation buttons were for. She also suggested having a 'close map' button as well as an 'open map' button.

Regarding the offline tour of Birabahn, the participant had the following comments to apply to the virtual tour.

1. The offline tour starts in the common area with an introduction to the local Awabakal nation and the Birabahn building.
2. The tour then proceeds down the hallway to the Aboriginal artefacts where some of the traditional objects are explained.

3. The tour will then proceed to the large Aboriginal wall-map where the Awabakal nation is put into the context of the wider Aboriginal nations.

4. It then proceeds upstairs to discuss the Aboriginal artwork.

5. Then it goes outside to the bush food garden that was created by local Aboriginal workers.

6. The tour concludes with the display of the big old log that had been used to carve out a dugout canoe.

The participant was also currently in charge of managing the Wollotuka website. They were convinced that the university website policy was in conformity with its corporate image and so it was highly unlikely that the university would allow any of its departments to stray outside its strict guidelines.

To overcome these restrictions the participant had the following practical suggestions on how to include the virtual tour in the current Wollotuka website:

1. The virtual tour could be modified to fit in the centre column of the present university site.

2. A thumbnail image of the tour with a link to an external site might be put in the right hand column of the existing site.

Overall, the participant wanted the virtual tour to be part of the current Wollotuka website, expressing appreciation for the traditional art, colours and site structure.

5.3.3 Interview 3

This participant initially had a lot of difficulty working out how to navigate around the virtual tour. They did not know how to drag their mouse across the page to navigate around the room and they failed to realize that the navigation arrows were for navigation. However, the participant became familiar with the virtual tour navigation very quickly after a brief explanation.

The first suggestion they made was to provide clearer instructions on how to navigate around the site. They specifically requested '…clear instructions about how to drag the mouse across the screen.' In general, the participant thought the site was fun.

One suggestion from this participant was to '…include the reception area in the virtual tour, and to include a video of the three reception staff introducing themselves.' The participant thought that this site better reflected the Indigenous learning experience; '…it was more like a walkabout.' It was thought to be more interactive also. However, they did not think that the site could replace the current Wollotuka website because the website needed to have more academic content. They recommended adding the virtual tour as an addition to the current website but not to replace it.

Participant expressed appreciation for the inclusion of the Aboriginal and Torres Strait Islander flags and also the Birabahn eagle.

While the participant was in attendance during the focus group, they did not recall the focus group discussion and therefore could not comment on its cultural appropriateness. They could not recall any inappropriate incidents in the one-on-one interviews. However, they were also confident that if there was anything unacceptable to the community, then the researcher would have definitely been informed. They also pointed out that if there was anything inappropriate, the researcher would have been put in his place by the community members.

The participant thought that this design process might not necessarily work if it is applied to another Aboriginal community. The participant pointed out that '…it is always best to firstly consult the elders in the community.' She said that, '…it is appropriate to speak with all the members in a group setting, to ask permission before conducting the one-on-one interviews because the politics of each community is often unique.'

5.3.4 Interview 4

This participant suggested adding YouTube™ videos to the site to enhance the cultural experience. Some appropriate examples were offered; '…videos of a corroboree, the video of 'Zorba the Greek' by the Tiwi dancers or videos explaining facets of aboriginal culture.' He pointed out that no special permission is going to be required from the Aboriginal performers before incorporating the videos into the site, as they are freely available on YouTube™.

The participant was responsible for running the current online courses involving students from overseas who are not physically present in Australia. He pointed out that '…for such students it would be very beneficial to have a virtual tour online so that they could get a feel for the local Wollotuka environment and experience the culture through online videos.'

Much appreciation was expressed towards the researchers attempt to represent Aboriginal and Torres Strait Islander culture on the Web. The hand written navigation buttons and graphics were appreciated; he also commented that '…the use of videos and sound files make it easier to learn about the Wollotuka environment.'

5.3.5 Interview 5

The participant first needed an explanation about how to move around the building in the virtual tour. When asked whether any additions would be needed in the virtual tour, the participant suggested that '…there could be videos of the administrative staff, which could outline their specific role at Wollotuka and talk about what it means to be a student there.' He suggested that this requirement is similar to the Indigenous cultural need for a conversation with someone, to create a more personal connection.

Providing an example, he said '…for an indigenous person entering a computer website it is nicer if they can still speak to people rather than only coming across photos and written texts.' Explaining further, he said '…ideally below each person would be some brief textual summary so that a visitor could easily choose which person to listen to. This structure might be followed by longer written text that the user could print for later use.' The participant pointed out that '…the real importance of an oral communication background is that it has been the traditional form of information delivery in the Indigenous communities.'

The use of the virtual tour was considered by this participant, to be appropriate for Aboriginal communities. While the navigation was not initially intuitive, the participant appreciated the virtual tour approach to representing the Wollotuka institute. The inclusion of Aboriginal art, videos of people and sound files of local Aboriginal stories, were considered essential to connect with Aboriginal people online.

The participant was then informed that other designers might use the same design process used in the Wollotuka project, to approach other Indigenous community. The participant thought that the designer would have to protect himself in the case of the process they developed. In their previous experience, they had been asked to write a users' guide describing a process for an Indigenous community in detail. The participant had replied that '…they had no idea what an Indigenous community is and that things changed in the

twinkling of an eye. Therefore, it is nearly impossible to prepare anyone beforehand for an upcoming life with a particular Indigenous community.'

When asked to comment on having a non-Indigenous moderator for the focus group discussion, the participant remarked that '…it was all fine because one would have to take such things on board eventually.

They further advised that the design process used in this project might be used as '…a rough guide for future projects but people will have to go through the same protocols.' They cautioned that '…care should always be taken to ensure that one works in a culturally appropriate and sensitive manner. Any designer will have to follow the protocols for that community by the letter. That requires solid knowledge of that community and their peculiarities. If that is not ensured, the effort will not have any credibility.'

The participant noticed that in the Wollotuka project the primary researcher talked first to the head of the Wollotuka Institute. By doing this, the researcher gained permission to talk to other staff members because the protocol had been observed to the letter. By going through the head of the school first, one was then introduced or allowed to introduce themselves, to the community at large.

The participant also made it known that they had worked on an earlier website prototype 'Healing Our Way' (UON 1999) between 1997-98. The concept behind the project had been the diffusion of doctors, nurses and medical students who had never had any contact with the Aboriginal peoples. There was the understanding that many health professionals back then and even today, go into Aboriginal communities unprepared. They often have little knowledge about Aboriginal people, their culture and their various problems related to health. The purpose behind the site was to prepare such people before they went into an Aboriginal community. The participant and a small team had conducted extended interviews with communities for 48 hours or more. The result of those interviews had been the information basis for the website which was only made available on CDs.

The participant pointed out that '…in the case of the AMS [Aboriginal Medical Service], one only needed to speak to the CEO and then everything opened up as one's connection and credibility was established.' The advice the participant gives to others is that '…one cannot simply arrive in an Aboriginal community, even if one is an Aboriginal person. Even an Aboriginal person cannot simply show up in an Aboriginal community and expect to be accepted just because one is an Aboriginal. Each person entering a community must spend

time with the people, listening to the people and of course delivering back something to the community.'

5.3.6 Interview 6

The participant was asked about his first intuitive reaction to the virtual tour. The response was '…to look around and click on something.' Then the participant was informed that a message box pops up at the beginning of the virtual tour with instructions about how to navigate. This participant, like a number of others, missed this message. They were therefore shown how the mouse could be dragged around the page to navigate. This additional instruction about basic navigation greatly assisted the participant. Despite this initial problem, the participant also found the site to be fun.

Like some other participants, they commented about some of the content from prototype one, namely the local community links and videos that were not included in this prototype. The participant wanted to verify whether they would be included in the final design. The participant was informed that a final design would depend mostly on the analysis of the interview feedback and some constraints imposed by technical and resource limitations.

They suggested that '…the virtual tour should go into each of the staff offices with a video of every staff member in their office with a link underneath to where further information on that particular person could be found.' They suggested that '…the virtual tour should have many more videos, including videos of classrooms in progress.'

The participant liked the virtual tour. He thought that '…more written text could also be incorporated', for instance, '…one might look for further information about what Wollotuka does as a teaching space.' However, in general, the participant thought the tour of the building was excellent and their overall impression was that prototype two (Prototype2 2012) was wonderful.

Appreciation was expressed for the minimal use of straight lines, preferring the use of handwritten labels and text. Participant thought that '…this was more appropriate for representing holistic thinkers.'

The participant was then asked whether the prototype would suit Wollotuka website better than the current one. The response was that the university is very strict. The participant

particularly mentioned the corporate image of the university as the most important hurdle in any effort to replace the current site. What the participant liked to see was to have the virtual tour integrated into the current site.

Then the participant was asked whether the new website represents Indigenous knowledge more accurately than the existing Wollotuka website. The response of the participant was affirmative. The main reason was the broad use of storytelling. The participant pointed out that '…the idea of storytelling is really an important feature of Indigenous understanding. Storytelling is viewed as an integral part of that shared relationship. Therefore, when one visits a black household to have a cup of coffee and listens to stories, it creates a social element, like catching up with friends. That should be borne in mind even while conducting interviews.' It is noted repeatedly that Indigenous people easily relate to the notion of storytelling. Thus, the participant thought the website connected with people easily through the use of storytelling and videos.

The participant did not recall any culturally inappropriate incident in either the focus group discussion or in the one-on-one interviewing. When asked if it they thought proper to use a non-Indigenous person as a moderator in the focus group discussions, the participant said that '…he was happy with it.' The participant and others had the realization that the moderator was actually acting on behalf of the researcher. They knew that they had been invited because of their expertise. They felt it was good that the moderator had also followed the protocol correctly and carefully.

5.3.7 Interview 7

The participant first remarked that he would like the virtual tour '…saved on USB sticks so they could take it with them when they spoke to Aboriginal children considering a university education.' When asked about the first intuitive thing they wanted to do when the site opened up, the participant said that they '…wanted to look for someone to talk to.' One suggestion was to '…place Aunt Sandra [the Elder in residence] in the middle of the page and make her give an introduction.' The next intuitive thing they wanted to do was to '…go down the corridor.' From there, they wanted to '…go up to the second level and then to turn around and look out through the big doors.'

When the participant was asked whether they had realized they could drag the mouse and move around the building, the participant recalled that they knew. One improvement suggested by the participant was to '…include a lot more photos of people.'

The participant particularly appreciated the colours of the virtual tour, both inside and outside the building, including the navigation buttons, links and font colours. '…The natural landscape colours are something that Aboriginal people can easily relate to', he commented.

Another practical suggestion was that the virtual tour should take visitors to all the places in the building. For instance, '…one could go to each of the staff offices and up the hallway and the reception area, part of a lecture might be filmed so that a visitor will be able to listen to a lecture for five minutes or so.' Another suggestion was to '…have a video demo of students doing a 5-minute workshop and then interacting among themselves. Student interactions in the student room could also be included.' It was also suggested that '…a video of the computer room would also be beneficial.'

The participant thought that '…there could be the facility to click on a photo or a painting to get the story behind that. A viewer may also want to access a staff member in his or her office. For instance, one could go to an Indigenous Tutorial Assistance Scheme [ITAS] video and they could talk about how ITAS helped each student. Thus, viewers would get the feeling that they had already seen everyone before actually coming to know them.' This it was suggested, '…would give the users a vague idea of each person's role at Wollotuka and about the services available. The participant pointed out '…additional social interaction might somehow be included into the virtual tour to make it more acceptable.'

To include the virtual tour on the current University website the participant suggested '…putting it right in the middle column of the first page. Otherwise, it could be moved to the right hand column with a link and picture saying, 'click here for an interactive website.'' This participant thought that '…it was unlikely that the current site could be totally replaced by this new one; however, it would be an excellent enhancement.'

The participant agreed that site appeared to be fun and very different too. They suggested that '…if more people could be included in the virtual tour, then it would be improved further.' One suggestion along these lines was to '…include local Aboriginal dancers and Thursday Island dancers that are currently enrolled at the Wollotuka institute.' Another practical suggestion was to '…invite ex-students to come in and relate their experiences about the

school and what they have done since completing their studies.' He thought that these suggestions might make the prototype a lot more useful, effective and friendly.

5.3.8 Interview 8

The participant was already familiar with navigating these types of interfaces so they found the virtual tour was easy to navigate. They liked the traditional artwork but did not know that the Google™ map was there until shown. They thought the virtual tour was a good way to experience what it is like to be at the Wollotuka Institute.

They particularly appreciated the pictures that explained the destination of each link. The Aboriginal artwork used in the navigation bar was also appreciated. They commented that '…the mural of the Birabahn eagle, on the common room floor was exceptional and was a natural highlight of the virtual tour.' They also noticed the colour of the red gravel around the building.

To improve the site, the participant wanted '…multimedia to highlight more people in the tour.' They explained that '…when one goes to an offline location, after looking around, the next thing a person wants is to meet somebody.' They suggested having '…videos of more people' and including '…more traditional videos of people dancing, telling stories and jokes.' They suggested '…videos of local artists painting or videos showing the work done at the school.'

The participant definitely thought that the website represented Indigenous knowledge practices more fully. This was due to being able to get a '…feel for the place' and '…making a connection with the environment, by providing a spatial way of thinking that suits Indigenous culture.'

The participant said '…it would be a challenge to include academic information in the virtual tour. The current Wollotuka website is structured as an information website; it is designed so that people can find information. To integrate the entire academic information into the virtual tour so that it could be easily accessed, would be a challenge.'

The storytelling methods used in the focus group were appreciated, in particular, '…you came and asked the community what they wanted in a website, which made a big difference. Most

of the time Aboriginal communities are left out-of-the-loop and their design ideas are overlooked.'

5.3.9 Interview 9

The participant liked the simple navigation and location map as they presented the spatial landscape. They appreciated the videos and sound files because '…it was a way to have a conversation with someone online; it is the Indigenous way of having that personal connection, to get across to the person.' They thought the virtual tour '…was like already visiting Wollotuka before physically coming in here, having a brief understanding of what Wollotuka is like.'

The participant thought that '…the virtual tour had the potential to advertise everything that goes on within the building.' However, they pointed out that '…there are not enough people in the building and it makes the tour look like an empty building.' They suggested having '…more people to click on to talk, to make the place seem more homely by having personalities in the videos. You could have a little list under each person, they could talk about each subject individually and you could choose which subject to listen to. You can also back it up with written information that you can then print.'

They also suggested including the admin area as this was probably the first place that most people would see when coming into the building. Another suggestion was a video outside where touch football is played, to include the social aspects in the tour as well.

5.3.10 Interview 10

The participant said that they initially did not find the navigation to be intuitive and admitted missing the splash screen providing navigation instructions. A short demonstration of how to navigate was required.

The participant wanted to know if the information from Prototype1 was going to be included into the virtual tour, including the community links and introductory videos. They thought that these elements were important. They also wanted to see a video of a classroom in progress included into the virtual tour.

The participant commented that '…the virtual tour was wonderful because it takes users on an adventure and allows them to explore the environment.' The participant commented that

'…the virtual tour would be useful for students, particularly on career days and other times when Wollotuka staff promote the school at local high schools, using it as an item that students could play.' He made the point that, '…if students are attending a careers day and they see a stall that has iPads™ with the virtual tour loaded, they are going to want to play with them and this will implant Wollotuka in their memory. Later, when you ask the children what was good about the careers day, they will say Wollotuka had iPads™ with virtual tours of the school.' They thought that this is a great tool because '…it is a visual tool and visuals work well with Aboriginal students in particular.'

The participant commented that '…mature users would not want to play with the tour but simply go to the website to get the Wollotuka phone number or community links.' They wanted to see some more academic text included, providing information about what the school offers to students, as a teaching space.

When commenting on the virtual tours ability to represent Indigenous knowledge more fully, the participant confidently said 'yes'. They said that he had been reading that '…blackfellas and whitefellas are saying that there is no clear pedagogy [the learning styles and understandings of Aboriginal peoples).' However, he thought that '…narratives and storytelling is a very important feature. Storytelling is not just me telling you a story about what has happened. It is about me giving you something about my life and my history. I remember as little kids at school, if a blackfella came up to you and told you a story they would always get someone to back them up. They would start telling a story and then they would go to their mate "wasn't that right". So he is automatically getting that backup so he is academically sound (laughter) using all of those other referencing points. It is not just about having a joke and a laugh either; it is about a story having meaning and weight. That relationship with others is always connected to storytelling.'

5.4 Discussion of Outcomes

All participants were enthusiastic about the virtual tour concept. They agreed that the landscape metaphor was fun and different, reflecting the Birabahn environment. In the opinion of participants, this website represented Aboriginal knowledge more fully. This was due to:

1. The colours and the interactivity.
2. The tour provided a virtual 'walkabout'.

3. The use of storytelling in videos and sound files.

Participants made suggestions that applied to the flow of the virtual tour, one suggestion was to conform it more to the flow of the offline tour, with the start of the tour focusing on the floor of the common room, highlighting the mural of the Birabahn eagle. Other suggestions include adding every part of the building and surrounding bushland to the virtual tour and in particular allowing visitors to meet people in each of the staff offices.

Some participants had no issues with the navigation while others had a lot of difficulty, often failing to realize that the navigation arrows were for navigation. However, all the participants became familiar with the navigation after only a brief explanation. Suggestions included adding popup instructions over the navigation buttons and clearer instructions about how to drag the mouse across the screen.

The location map received little recognition from participants who were more interested in exploring different areas of the virtual tour. This may be because all participants were already familiar with the location of the building.

All participants appreciated the videos, prompting many practical suggestions for the further development of video content and a general request to provide more video content. Participants were enthusiastic about the prospects of further development in this direction, particularly videos targeting the assistance of Aboriginal students. In general, participants pointed out that more social aspect needed be included into the virtual tour to make it more community orientated. The inclusion of more community-orientated video content appeared to be the solution to this requirement.

The story telling audios were appreciated, as was the general 'storytelling' approach of providing information. One participant found the didgeridoo music annoying after hearing it once and actually turned it off.

A further suggestion was to include more photos of people and the ability to click on a photo or a painting to get the actual story behind it. This highlighted the significance of Aboriginal paintings within the tour. Minor issues included adding a homepage link to the site from the Wollotuka logo and incorporating more written text for printing and reading later. We were also given some reminders to include the games from prototype one, the local community links and the staff introductory videos in the final design. The use of handwritten and Aboriginal art style, navigation buttons received no comments.

Participants wanted to see the website online but were disappointed that an Aboriginal land metaphor would probably not be permitted to replace the current corporate design prescribed by the university.

With respect to the design process, the participants provided no unfavourable comments. As one participant affirmed, this was unlikely to be a result of politeness, as any culturally inappropriate behaviour or content would have been singled out quickly. It was confirmed, that involving individual community members and incorporating community ideas into the site could achieve community approval. It was also felt that this is critical in the success of such design projects involved Aboriginal groups. It was confirmed that the user-centred, prototyping approach used in this project is at least one design process that allows for this critical type of community interaction.

The importance of our ethnographic approach was also highlighted at this stage. For example, one participant warned that things change very quickly in an Aboriginal community. Hence, care should be taken to ensure that one always works in an appropriate and sensitive manner. To do this requires a close understanding of the cultural sensitivities of the group. Indeed any designer or researcher must follow the protocols for the target community by the letter and this requires a solid knowledge of that community and their politics. If this is not ensured, no amount of effort on outcomes will provide the required credibility of the community. This is not simply governed by racial differences as even an Aboriginal person cannot simply show up in an Aboriginal community and expect to be accepted. Rather each person must spend time with the people, listen to the people and deliver something back to the community.

5.5 Conclusion

If there were no resource constraints on the Wollotuka project, the results from iteration two would have provided design direction for iteration three. However, at this stage most of the further work involved providing the suggested content rather than major design changes. There was considerable effort required to develop the suggested videos and expanded walkthroughs as well as interactive photos. As the project had already succeeded in isolating a number of key design features, and was not intended to develop the final deployed version of the website, it was decided to stop the iterative design phases at this point and focus on an objective analysis of these key design features (chapter 6).

Chapter 6 – Design Evaluation Using Hofstede's Cultural Dimensions

6.1 Introduction

The ethnographic design approach described in the preceding three chapters, while considered essential to the Wollotuka project, is no doubt time-consuming. A contrasting approach for considering cultural requirements in the design process is to first try to characterise the target group based on some well-defined 'cultural' dimensions and then choose appropriate design features based on these cultural dimensions.

In terms of website design a number of studies (Callahan 2005, Dormann and Chisalita 2003) have tried to correlate design features with the well known cultural dimensions suggested by the Dutch anthropologist Hofstede. In this chapter, these previous studies are used to further analyse the outcomes from the Wollotuka project. In particular we examine the similarities and differences between the design features found in the Wollotuka project with the 'expected' structural and aesthetic website design features reported for the cultural dimensions matching our Aboriginal community.

Hofstede's cultural model was originally derived from a survey of work-related values. The survey was completed by staff working for subsidiaries of IBM across 50 different countries between 1967 and 1973 (Hofstede 2005). An improved version of the value survey was made generally available in 1982 and many of the studies using Hofstede's work relate to this original survey. In 1994, when the Hofstede model was extended to include the long-term orientation dimension the values survey was also extended to include questions that measured values related to this new dimension. Even though later studies were carried out using this survey, data is not always available for some countries along the fifth dimension. A detailed discussion of Hofstede's cultural dimensions can be found in section 2.7.2.

The values survey was again revised in 2008 and questions related to two further dimensions were included for research purposes (Hofstede et. al. 2008). These two new values were related to self-effacement and indulgence. The 2008 version of the values survey was used in this study.

It includes 28 questions; four for each of the seven dimensions and a further six questions that provide demographic information. Since the latest two dimensions are yet to be correlated in the model and little data exists in terms of web design, we will not consider them further in the study.

6.2 Method

The Hofstede analysis was employed after the website had been developed so the results from the Hofstede analysis had no influence on the final design. After using the ethnographic action research methodology to identify culture specific website elements, we were confident that the design was effective, based on community feedback. The use of Hofstede's cultural dimensions was to identify if the theoretical framework was relevant to the Wollotuka project, it was not used to validate if the website design was appropriate.

After completing the prototypes, the 12 subjects directly involved in the study, along with nine additional subjects that work at Wollotuka completed the 2008 version of the Hofstede values survey (Hofstede et. al. 2008). Having completed Hofstede values survey, the dimensions were calculated using the described approach for the 2008 values survey (Hofstede et. al. 2008).

Hofstede's five dimensions of culture rely upon a 28-item questionnaire, using a five-point scale (1, 2, 3, 4, 5) to score each question. The scores are computed based on four questions per dimension. The VSM 08 (Hofstede et al. 2008) measures seven dimensions, but this thesis will focus on only five of them: Power Distance (large vs. small), Individualism vs. Collectivism, Masculinity vs. Femininity, Uncertainty Avoidance (strong vs. weak) and Long-term vs. Short-term Orientation. The extra two dimensions, Indulgence vs. Restraint, and Monumentalism vs. Self-Effacement, were added to the survey based on the work of Minkov (2007) and are included in the VSM 08 for experimentation.

The Power distance (PDI) is calculated using the formula:

$$PDI = 35(m07 - m02) + 25(m23 - m26) + C(pd)$$

Where m07 is the mean score for Question 7, m02 is the mean score for Question 2, m23 is the mean score for Question 23, and m26 is the mean score for Question 26.
The Individualism (IDV) is calculated using the formula:

$$\textbf{IDV} = \textbf{35(m04 – m01) + 35(m09 – m06) + C(ic)}$$

Where m04 is the mean score for Question 4, m01 is the mean score for Question 1, m09 is the mean score for Question 9, and m06 is the mean score for Question 6.

The Masculinity (MAS) is calculated using the formula:

$$\textbf{MAS} = \textbf{35(m05 – m03) + 35(m08 – m10) + C(mf)}$$

Where m05 is the mean score for Question 5, m03 is the mean score for Question 3, m08 is the mean score for Question 8, and m10 is the mean score for Question 10.

The Uncertainty Avoidance (UAI) is calculated using the formula:

$$\textbf{UAI} = \textbf{40(m20 - m16) + 25(m24 – m27) + C(ua)}$$

Where m20 is the mean score for Question 20, m016 is the mean score for Question 16, m24 is the mean score for Question 24, and m27 is the mean score for Question 27.

The Long Term Orientation (LTO) is calculated using the formula:

$$\textbf{LTO} = \textbf{40(m18 – m15) + 25(m28 – m25) + C(ls)}$$

Where m18 is the mean score for Question 18, m15 is the mean score for Question 15, m28 is the mean score for Question 28, and m25 is the mean score for Question 25.

Applying this formula resulted in low scores on all five of the Hofstede cultural dimensions. These calculated scores are shown in Table 6.1 along with scores previously measured or estimated for other national cultures. Note that scores are typically scaled to fall between 0-100, although lower and higher values are sometimes used when these dimensions are estimated. We have also chosen not to apply any scaling and thus negative values are shown for two of the dimensions for Wollotuka.

We note that the sample size of 21 is at the bottom limit of the recommend sample size for the value survey. It is also noted that this survey is intended to measure national cultural variations rather than cultural differences between smaller groups. Ideally, results would only be compared against similar schools from a university population rather than comparing against results obtained from a different employment sector, namely IBM employees. As a result, some caution must be applied in interpreting the results in too quantitative a fashion. To address this, a well-defined metric is not assumed when comparing scores. Rather cultural dimensions are treated in

broad categories ranging from low to high. The Wollotuka group fall into the low category for all five dimensions (see Table 6.2).

Table 6.1: Hofstede Dimensions for a Selection of Countries.

Cultural Group	Cultural Dimensions				
	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Long-term Orientation
Wollotuka	15	15	-5	18	-33
Australian (Indigenous)	80	89	22	128	-10
Australia (western)	36	90	61	51	31
Austria	11	55	79	70	
China	80	20	66	30	118
Denmark	18	74	16	23	
Ecuador	78	8	63	67	
Finland	33	63	26	59	
Greece	60	35	57	112	
India	77	48	56	40	61
Japan	54	46	95	92	80
Malaysia	104	26	50	36	
Netherlands	38	80	14	53	44
South Korea	60	18	39	85	75
Sweden	31	71	5	29	33
United Kingdom	35	89	66	35	25
United States	40	91	62	46	29

(*Adapted from:* Hofstede 2005)

Having placed the group in each of the five Hofstede dimensions, a comparison was then made between the key design features found in this project with the results expected for a group with low measures in each of the dimensions. To make this comparison previous studies were used that delineate the expected design features for cultures with either low or high scores in the power index, individualism, masculinity, uncertainty avoidance and long-term orientation dimensions.

Table 6.2 shows a selected group of low and high cultures for each of the Hofstede dimensions. These countries were selected as they feature in the previous studies looking at the design of websites (Callahan 2005, Dormann and Chisalita 2003). Table 6.2 also includes Australia as a whole (Green), a previously estimated value for an Indigenous group in Cape York, Queensland (Blue) and the results from the Wollotuka survey (Red).

Table 6.2: A List of Low and High Countries as Measured on the Hofstede Cultural Dimensions.

Score on Hofstede's Dimensions				
Low High				
≤ 20	[20,40)	[40,60)	[60,80)	≥ 80
Power Distance				
Wollotuka Austria Denmark	Australia Netherlands Sweden	Japan USA	Ecuador Greece India	Indigenous Malaysia
Individualism				
Wollotuka Ecuador	Greece Malaysia	Austria India Japan	Denmark Sweden	Indigenous Australia Netherlands USA
Masculinity				
Wollotuka Denmark Netherlands Sweden	Indigenous	India Greece Malaysia	Australia Austria Ecuador USA	Japan
Uncertainty Avoidance				
Wollotuka	Denmark Malaysia Sweden	India Australia Netherlands USA	Austria Ecuador	Indigenous Greece Japan
Long Term Orientation				
Wollotuka Indigenous	USA Australia Sweden	Netherlands	India	Japan

6.3 Discussion

A number of previous studies have used Hofstede's dimensions to examine cultural variations in web site design. For example, a series of structural and linguistic guidelines for each of the cultural dimensions have been suggested (Marcus & Gould 2000). Using frequency counts a set of design features for each of the Hofstede's dimensions was identified in a study of 500 commercial web sites across several cultures (Robbins and Stylianou 2002, Robbins and Stylianou 2010).

Hofstede's model has also been explicitly used in the study of university websites across cultures. A study of university web sites found correlations between feminine values and the masculinity index in the low masculinity country of Netherlands and the high masculinity culture of Austria (Dormann and Chisalita 2003). When Indian and American university websites were compared differences in the design were measured in the three dimensions of uncertainty avoidance, individualism and long-term orientation (Rajkumar 2003 in Callahan 2005).

These studies indicated that cultures with similar cultural dimensions demonstrated a tendency to develop websites in a similar way. For example, websites in feminine cultures might promote more communication and support, rather than mastery or calling attention to achievements. Marcus ads '… Poetry and unifying values, natural images, and traditional arts used to generate emotional or aesthetic appeal, might play a more important role than practical, strictly goal-oriented organization, navigation, and use of graphics' (2001, p. 504).

The most thorough study in this area examined the similarities and differences between university websites from eight different countries (Austria, Denmark, Ecuador, Greece, Japan, Malaysia, Sweden, USA). (Callahan 2005). Callahan's study examined home pages of 20 universities from each of the eight countries. These countries were selected to represent low and high values on each of the four cultural dimensions. The study looked for correlations between the way specific design elements were used and the four original Hofstede dimensions.

If we compare Hofstede's cultural dimensions (Table 6.2) for Wollotuka and the Indigenous Australian group in Cape York, Queensland (Simonsen 1999; Hofstede 2005), we note that Wollotuka has a significantly lower Power Distance, Uncertainty Avoidance and Individualism score, however they have similar Low Masculinity and Low Long-term Orientation scores. Of course we emphasize that these measures are for a regional group in Queensland and that cultural values for our indigenous target group may well be different. This could further be explained by the degree to which the mainstream Australian culture influences each community. We must remember that, Aboriginal culture is not monolithic, as much diversity exists between different Aboriginal communities, rather than having a single set of common cultural values.

In the following sections a summary of outcomes from each of these previous studies is shown in five tables; 6.3, 6.4, 6.5, 6.6 and 6.7. These five tables each relate to a single Hofstede cultural dimension and show the expected design features for low and high values on each of these dimensions. The following sections also discuss the key design features that were identified in the Wollotuka project in terms of these previous 'expected' results. Green text is

used in the tables to indicate a correlation with the results from previous studies while red text is used to indicates were our results are contrary to these previous studies.

6.3.1 Power Distance Dimension

There are a number of good matches between the key design features and the expectations of cultures with a low power index measure (table 6.3). These include the unstructured and shallow navigation hierarchy of the prototype designs. The less formal, authoritarian approach to layout and content is also as expected and contrasts with the existing official homepage.

Table 6.3: Key Design Features Expected for Low and High Values in Hofstede's Power Distance Dimension.

Score on Hofstede's Dimensions	
Low ←—————————————→ High	
Power Distance	
Green text indicates a correlation with the design requirements for the Wollotuka project, red text indicates results were contrary to the design requirements of the Wollotuka project.	
Less structured access to information & shallow hierarchies. Less focus on expertise, authority, and official logos. Fewer access barriers. Photos of students. Images of both genders. (Marcus and Gould 2000)	Significant emphasis on social and national order in symbols. Access restrictions. Photos of faculty. Photographs of leaders and monumental buildings (Marcus and Gould 2000)
	Images of monuments (Ackerman 2002)
Images of public spaces and everyday activities. Informal speech, less structured data with relevancy. (Ackerman 2002)	Symmetrically designed sites (Callahan 2005)

The types of images requested for the Wollotuka project, focus on public spaces and include both genders. There was a request to try to balance the use of both faculty and student images and this contradicts the expectations for the preferred use of student images. This might be explained by the intention of the site to introduce staff members to prospective students. This is accomplished through videos of staff.

Another contradiction to previous results is related to the desire to emphasise Indigenous symbols, by use of the Indigenous flag and recognised aesthetics related to colour and abstract dot paintings, being direct identities of Aboriginal culture. This might reflect political aims that are not necessarily consistent with cultural expectations.

6.3.2 Individualism

There were some good matches between the Wollotuka project design features and the expectations of cultures with a low individualism measure (Table 6.4). The emphasis on highly contextual, traditional representations and ceremony in the design was confirmed. There was also a request to include as many community-based photos as possible, although there was no strong preference for younger or older people but rather that cross-generational images are equally represented. Community orientation was seen as critical to the success of the new design.

Table 6.4: Key Design Features Expected for Low and High Values in Hofstede's Individualism Dimension.

Score on Hofstede's Dimensions	
Low ←————————————————→ High	
Individualism	
Green text indicates a correlation with the design requirements for the Wollotuka project, red text indicates results were contrary to the design requirements of the Wollotuka project.	
Include socio-political achievements Emphasize history and tradition. Emphasis on state of being. (Marcus and Gould 2000)	Frequent images of success. Personal information. Emphasis on action. (Marcus and Gould 2000)
Use of formal speech. (Rajkumar 2003 in Callahan 2005)	Frequent pictures of individuals. Direct address. Expression of private opinion. Individual success stories. (Rajkumar 2003 in Callahan 2005)
Images of groups and older people. (Callahan 2005)	Images of individuals & young. (Callahan 2005)
Relationship-oriented, role-oriented, group-oriented, high context. (Ackerman 2002)	

The provision of personal information about the individual faculty members was part of the task requirements of the site and the intention was that these be a less formal more real world interaction. Although this provision of personal information contradicts with previous studies, it was intended to help relationship building and this relationship orientation has been reported for low scores on this dimension.

Individual success stories, another part of our design was included with the very clear intent of providing role models for younger people. Again, this finding runs contrary to previous studies.

The largest disagreement between the Wollotuka design and previous studies was the use of informal language on the web site. However, this one design feature received much debate during the design process. In the end, the intention was to use this to make the web site more generally accessible to the community and less authoritarian. The trade-off from using tis informal language was that some of the community thought it provided a poorer 'image of academic quality.

6.3.3 Masculinity

One match between the Wollotuka project design features and the expectations of cultures with a low masculinity measure was the emphasis on simple aesthetics, namely the layout, earthy colours and simple font. The overall emphasis on community relationship building, family orientation and inclusive features such as the feedback are also predicted by previous studies. There was also a request to include images of group activities, especially depicting fun activities.

However, there are also a number of design features in this project that have been associated with high rather than low masculinity cultures. These include navigation oriented toward exploration, images of buildings, an emphasis on tradition and interactive elements like games and walkthroughs. The reason for including computer games in the site was to appeal to a younger generation and project an image of fun. The disparity with the other features relate to fundamental ideas of Indigenous knowledge representation. This involves the exploration of things in the context of places, including landscapes and buildings in this case. Aboriginal culture is also sports orientated with certain requests to use Aboriginal sporting personalities as role models and including images of Aboriginal sporting events.

Table 6.5: Key Design Features Expected for Low and High Values in Hofstede's Masculinity Dimension.

Score on Hofstede's Dimensions	
Low ⟵⟶ High	
Masculinity	
Green text indicates a correlation with the design requirements for the Wollotuka project, red text indicates results were contrary to the design requirements of the Wollotuka project.	
Emphasis on visual aesthetics. Support cooperation and exchange of information. (Marcus and Gould 2000)	Focus on task efficiency. Navigation oriented toward exploration and control. Utilitarian graphics. Interactive elements like games and animations. (Marcus and Gould 2000)
Images of people, laughing, talking or studying together. (Dormann and Chisalita 2002)	Emphasis on tradition & authority. Frequent images of buildings. (Dormann and Chisalita 2002)
Multiple choices. Orientated toward relationships. Family-oriented, co-operation-oriented; team oriented. (Ackerman 2002)	Limited choices. Orientation toward goals. (Ackerman 2002)
Figurative images. Black & white (two tone) images. Pictures of women. (Callahan 2005)	Highly saturated colour images. Animated pictures. (Callahan 2005)
	Sports-oriented, game-oriented. (Ackerman 2002)

6.3.4 Uncertainty Avoidance

The Wollotuka project featured a single long page with scrolling. This matches well with previous expectations for cultures with a low uncertainty measure. Other features such as the vertical page layout the use of abstract images and the inclusion of community pictures involving students also match findings from previous studies.

However, a few expected design features are at odds with a low uncertainty avoidance culture. For example, one might expect a more complex design with a large variety of choices. By contrast, the simple, clear metaphors used in our design have been suggested as more appropriate for cultures that score high on this dimension.

Table 6.6: Key Design Features Expected for Low and High Values in Hofstede's Uncertainty Avoidance Dimension.

Score on Hofstede's Dimensions	
Low ⟵⟶ High	
Uncertainty Avoidance	
Green text indicates a correlation with the design requirements for the Wollotuka project, red text indicates results were contrary to the design requirements of the Wollotuka project.	
More complex designs. Variety of choices. Long pages with scrolling. (Marcus and Gould 2000)	Simple with clear metaphors. Restricted amounts of data (Marcus and Gould 2000)
Abstract images. (Ackerman 2002)	Formal organization charts, rules, regulations, extensive legalese. (Rajkumar 2003 in Callahan 2005)
Fewer links. Vertical page layout. Abstract images. Pictures of students & people. (Callahan 2005)	References to daily life. (Ackerman 2002)
	Horizontal page layout. More pictures of buildings. (Callahan 2005)

6.3.5 Long Term Orientation

Long Term orientation is the least studied of the Hofstede dimensions and it was also the dimensions where we found most contradictions with previous work. Indeed there were no good matches between the identified design features in the Wollotuka project and the expectations of cultures with a low score on this dimension.

It is suggested that websites for low scoring cultures will focus on fast efficient task execution. However, our web site promotes a slower explorative navigation by way of the interactive media. Contrary to other findings there was also a strong preference in our design to focus and highlight traditional practices that focus on Aboriginal knowledge practices. Likewise, love/devotion, social coherence and support through community, along with a more personal style of communication were all aspects of the design that were identified as important for inclusion in the Wollotuka website. These types of features have been associated with high rather than low measures on the long-term orientation dimension.

Table 6.7: Key Design Features Expected for Low and High Values in Hofstede's Long Term Orientation Dimension.

Score on Hofstede's Dimensions	
Low ⬅━━━━━━━━━━➡ High	
Long Term Orientation	
Green text indicates a correlation with the design requirements for the Wollotuka project, red text indicates results were contrary to the design requirements of the Wollotuka project.	
Emphasis on allowing the user to accomplish tasks quickly. (Marcus and Gould 2000)	Emphasis on tradition and history. Provide archives of early photos & images of founders. Make frequent references to the distant future. (Rajkumar 2003 in Callahan 2005)
Few references to tradition. Emphasis on current events. Present clear strategic plans. (Rajkumar 2003 in Callahan 2005)	
	Love/devotion; social coherence, responsibility, support, preference for face-to-face communication, flags, pictures of groups inviting participation. (Ackerman 2002)
Anonymous messages tolerated. (Ackerman 2002)	

6.4 Conclusion

Hofstede's dimensions have previously been used a number of times to analyse the impact of culture on web design. In all these cases, the websites were evaluated blindly, with no specific knowledge about how culture actually impacted on the design decisions. The Wollotuka project is therefore unique in that the design features were first identified using a protracted ethnographic process that was intended to capture elements that best represented the culture of the group.

At the conclusion of the Wollotuka project measurements were made on the group's cultural position using Hofstede's cultural dimension survey. This allowed us to compare the actual outcomes in terms of the web design features with the expected outcomes as suggested by previous work. The question addressed by this analysis was "For the Wollotuka group, as positioned using Hofstede's cultural dimensions, do the identified design features match with expectations that have been previously reported?"

The answer to this question was mixed. The group measured low on the five Hofstede (2001) dimensions and some of the design features correlated well with expected outcomes. The best correlations occurred on the power distance index where the navigation, organisation and image content conformed to expectations. However, a number of contrary results were also found. In

particular the use of informal language with a low individualism score and the focus on tradition with low a long-term orientation. The long-term orientation dimension was the least well correlated with previous studies.

As Ess and Sudweeks (2005) have indicated, while design features associated with the Hofstede (2001) dimensions provide useful input to the cultural design process they do not provide straight forward definitive design solutions. Rather variations in individual groups still need to be catered for in the design process. A benefit of the Wollotuka project was that this extended study provided insight into the choice of design features. For example, we were aware that the choice of simple language in the design was not a clear-cut one and that it had generated some debate and disagreement between participants.

Chapter 7 - Conclusion

7.1 Introduction

The motivation behind the Wollotuka project was to study how best to capture the cultural identity of an Aboriginal community into the design of a website. This was the focus of a three-year extended case study that adopted an ethnographic design process, focusing on community involvement. The process used focus groups, interviews and iterative prototyping to help identify important cultural requirements for the group.

Overall, this project investigated two main questions:

1. What key design features should be incorporated into a website to meet the requirements of an Aboriginal group?
2. What culturally acceptable process can be used to go about capturing website design requirements?

The outcomes from this study include guidelines to support cultural design, and a group of key design features that captured the specific culture of our target group. In this chapter, we will summarise these findings as well as provided a general evaluation and discussion of the design process itself.

7.2 Culturally Appropriate Design Features

To identify the key design features a literature review (See Table 2.4) and focus group (See Table 3.2) were used to identify issues and cultural themes related to the design. These activities helped formulate a set of design features in a prototype. This prototype was used as a prop in one-on-one interviews to evaluate the design features. A second prototype was developed and once again, this was evaluated using interviews with the community members.

When compared with the current website this study produced a new and quite different website design for The Wollotuka Institute. By contrast, this new site was seen by the Wollotuka

community to incorporate essential cultural elements that represented their identity. Each of the key design features will now be discussed in more detail, they include:

1. Simple structure and navigation
2. Location Map
3. Virtual Tour
4. Multimedia (video and sound)
5. Interactive Games
6. Community Links
7. Feedback Mechanism
8. Informal Language and Humour
9. Traditional Imagery and Ceremony
10. Indigenous Wiki

7.2.1 Simple Structure and Navigation

The focus group pointed out the complicated navigation would only dissuade Aboriginal people from visiting the website. Iteration one of the prototype was designed to be a single page website with a very basic layout avoiding too many links. Navigation was intentionally kept simple by using a menu with only six items placed at the top of the page (Figure 7.1). It was intended that content of the page was browsed by scrolling rather than through targeted selection of menu items. The selected layout supports a more holistic style of reasoning, one associated with contextual, experience-based knowledge (Dong and Lee 2008). When interviewed, participants considered the one page navigation to be easy and simple.

Some participants had no issues with the virtual tour navigation (Figure 7.2) while others had difficulty because the splash screen instructions (Figure 7.3) were not noticed. Although confused participants became familiar after only a brief explanation some more work needs to be done to ensure new users notice these virtual tour navigation instructions.

Figure 7.1: Simple Menu, Handwritten Fonts, Dot Art and Informal Language.

Figure 7.2: Visual Menu for Navigating Virtual Tour.

Figure 7.3: Virtual Tour Splash Screen Providing Navigation Instructions.

7.2.2 Location Map

The ease with which someone could find its geographical location was identified as crucial in the success of the institution. A navigable satellite image map was included in the design (Figure 7.4). This design feature intended to reinforce the spatial location of the group, a need that emerged quite strongly from the focus group. Spatial aspects like location have previously been identified as significant in Aboriginal Indigenous culture (Turk & Trees, 1998). The location map received positive response from all participants. In a final deployment of the

website some practical improvements would include identifying key points such as bus stops and local banks.

Figure 7.4: Satellite Image Map.

(Source: Google™ et al. 2011)

7.2.3 Virtual Tour

The focus group made many significant references to the local landscape and local wildlife that needed to be reflected. Once again, this was intended to reinforce the landscape where the community is situated. The tour was intended to encompass both the building itself and the external grounds. Geographical features are said to form the foundation of Indigenous thinking (Auld 2007) and navigation by images is preferred over navigation linked to words (Williams 2002). We note the success of a similar approach in a project called 'Digital Songlines', which represented traditional Indigenous knowledge using a landscape metaphor (Pumpa, Wyeld, and Adkins 2006).

All participants were enthusiastic about the virtual tour concept. They agreed that the landscape metaphor was fun and different, reflecting the Birabahn environment. Participants particularly appreciated the way it took a person all around the building and gave a feel for the place. In the opinion of participants, the website represented Aboriginal knowledge more fully. This was due to: colours and the interactivity, was like a 'virtual walkabout' and the use of storytelling in videos and sound files.

Figure 7.5: Virtual Tour of Birabahn.

Participants made suggestions that applied to the flow of the virtual tour, focussing on more culturally significant parts of the building and surrounds. Other suggestions included the need for more videos and voice-overs explaining the cultural significance of objects and adding more people to the virtual tour. Many practical suggestions were made on video content to help Aboriginal students online. In general, participants pointed out that a more social aspect needed be included into the virtual tour to make it more community orientated.

7.2.4 Multimedia (Video and Sound)

The focus group participants were unanimous in wanting interactive images, "video, things happening, things moving", and not just images. This concurs with more general cultural guidelines that recommend providing multimedia rich environments, rather than text-based ones and including a range of audio and visual media (Buchtmann 2000, Fischer 1995). To achieve this we include a number of interactive elements. In particular, we used video introductions from the academics in the school and a 'contact us' video (Figure 7.6). These were situated within the building to reinforce the connections with the location.

Figure 7.6: Friendly Contact Us Video.

Participants agreed that videos are essential for communicating with Aboriginal people online. Many suggestion were made during interviews for improved video content, this included topics such as showing potential students exactly what happens at university, a video of students talking about the level of student support at Wollotuka and a video of the resident community elder welcoming people to the community.

7.2.5 Interactive Games

To provide further multimedia content, while addressing the requirement that visitors to the website would see the school as a fun place to study; we developed some casual interactive games. Two games were included (Figure 7.7). One was a simple puzzle game based on card matching (Rosenzweig 2011 pp79-117). In this game local wildlife and Indigenous art were incorporated as elements into the game. Players scored points by turning over two cards with matching images. A second, action game, based on the traditional gameplay of "Asteroids" (Rosenzweig 2011 pp. 239-262) was also included. In this game, traditional colours and imagery were combined with informal language and humorous overtones. Instead of avoiding asteroids hitting their space ship, players had to ensure kangaroos did not crash into their utility vehicle.

During interviews, the interactive games were well received by participants. Due to some technical constraints, the games were not included in iteration two, of the prototype and participants requested that they be returned.

Figure 7.7: Two Interactive Games.
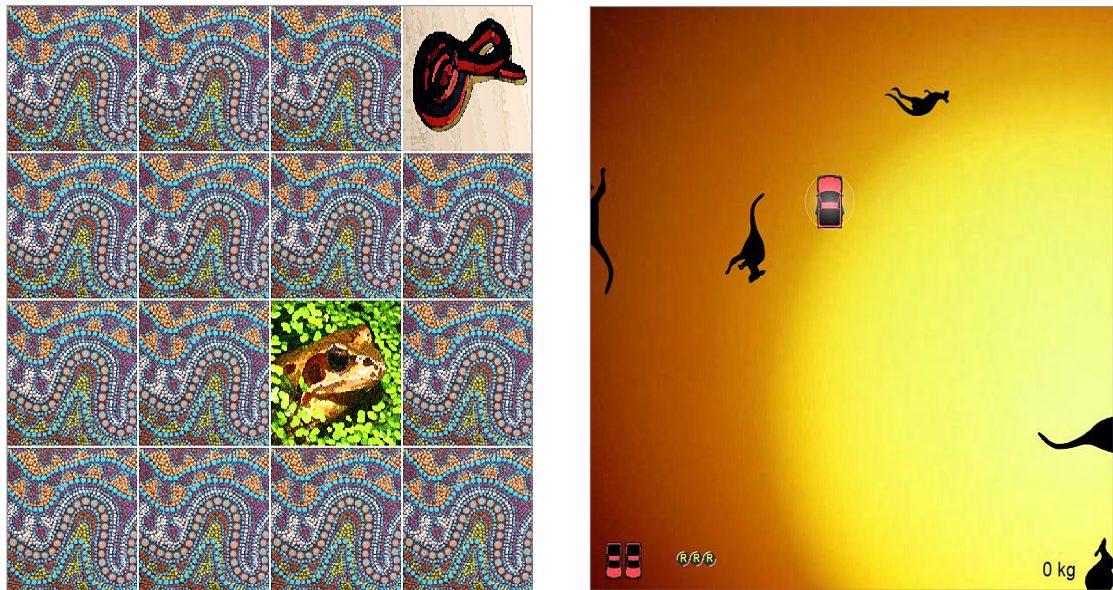
These game elements were intended to provide a strong message about Wollotuka being a "fun" place. There was also a desire within the group to try to appeal to the younger generation of visitors through elements such as interactive games. Once again, the need to provide multimedia rich environments to encourage usage in Indigenous sites has previously been described. (Fischer 1995, Buchtmann 1999)

7.2.6 Community Links

Many of the key design features can also serve to highlight community and kinship. Traditionally, in an Aboriginal community, family life and children always come before individual pursuits (Gibb, 2006). This same theme was identified in the focus group and reinforced by the feedback obtained during prototyping. Explicit links to and for the broader community were also included. These sites contained information of general relevance for the Indigenous community (Figure 7.8). However, we note that many of these links might not be considered relevant for a more traditional university website.

The community links received a mixed reaction from participants. The concept was considered necessary but deciding on appropriate links requires further consultation with the community. Suggestions for improvement included providing maps for each of the community service locations and strictly monitor linked sites for inappropriate content. There was also a strong

request to not only include traditional elders but also other Indigenous role models from sport and music. This met a concern that the site be relevant across multiple generations of visitors.

Figure 7.8: Community Links.
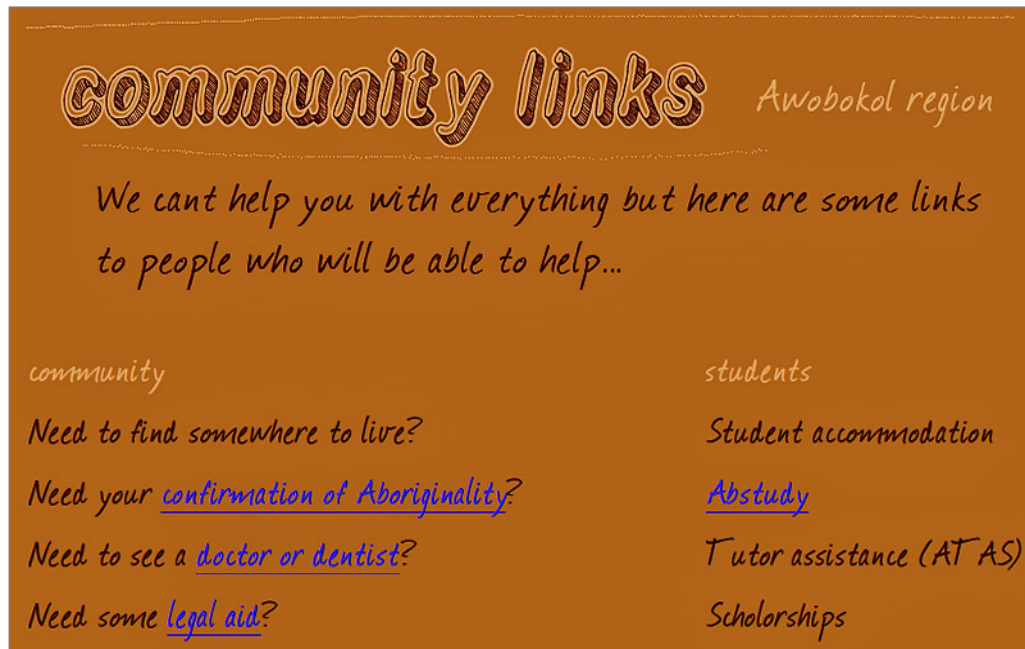
7.2.7 Feedback Mechanism

During the design of the website we focused on a close personal collaboration with group. This approach was seen as essential to the outcomes of the Wollotuka project. We wanted to ensure this sense of collaboration continued to occur and was extended to all users of the website. Thus we incorporated a feedback mechanism into the website (Figure 7.9).

Even though this is a common element on many websites, we need to emphasize that it was considered of special significance in this design. Consultation with an Indigenous community has been recognized as a continuous two-way process (AIATSIS 2000) and so a feedback system was an important way to encourage the sharing of ideas among the extended website community.

The feedback mechanism did not receive a lot of recognition by participants, however one participant appreciated the anonymity shown, since many Aboriginal people do not want to be identified.

Figure 7.9: Feedback Mechanism.

7.2.8 Informal Language and Humour

The importance of adapting language to local styles is suggested for localization (Amara and Portaneri 1996, Callahan 2005). In particular, Aboriginal students are said to often prefer simple, "straight to the point" and easy to read English (Gibb 2006). However, our choice of informal language and humour (Figure 7.1, 7.7) is somewhat at odds with the more traditional image projected by university websites. Indeed there were some disagreements within the interviews, some considered it too loose for an academic context but others showed appreciation because it was simple.

However, in general, the sense of informality and fun associated with the school were considered more important than the reinforcement of academic reputation. One participant pointed out that some Aboriginal users considered the formal academic language offensive. Therefore, the intent in the design was always to keep the language simple, straightforward and conversational. This informality was reinforced by the use of a casual, handwritten font. There was no specific demand to use only an Indigenous language.

7.2.9 Traditional Imagery and Ceremony

The design incorporated custom dot images and earthy colours that are strongly identified with traditional Indigenous culture (Figure 7.7). We are aware that simple things, such as colour, can

affect the user's expectations and overall satisfaction (Barber and Badre 1998). Likewise, the focus group wanted to see Aboriginal art on the website as it would immediately identify the site as Indigenous (Figure 7.10). Other traditional elements such as singing and dancing are often used to help teach in the traditional Aboriginal society (Fischer, 1995). The use of familiar images depicting local scenes and people is a recommended technique for reinforcing the concept of community (Williams, 2002).

Figure 7.10: Aboriginal Dot Art in Earthy Colours.

Figure 7.11: Traditional Imagery of Local Animals.

Figure 7.12: Traditional Imagery and Ceremony.

(Source: The Wollotuka Institute)

Participants agreed that colourful Aboriginal art is going to have an immediate positive effect on Aboriginal visitors. Traditional art, imagery and ceremony were appreciated by all participants,

especially the colours, handwritten font and hand-made Aboriginal dot images. Practical suggestions for improvement included improving the contrast of images, adding even more Aboriginal art, explaining each of the community graphics in detail, adding pictures of local animals and having a gender balance of images on the site. Images of the entire cross-section of the community, from students to faculty, both young and old were requested, showing respect for natural diversity among all types of Aboriginal people.

Music, dance and ceremony were spoken of in relation to creating life, community spirit and the sharing of Aboriginal culture. Videos and pictures of these events are considered appropriate.

7.3 Culturally Acceptable Design Process

It was recognised that culture impacts not only on what is designed but also on how it is designed and how it needs to be designed. The Wollotuka project tried to consider whether pervading Western methods of capturing and evaluating user requirements were still the most effective in a non-Western context.

We adopted a modified usability approach that involved the users in an iterative design process. Users situated within the community where required to test the design for its cultural appropriateness and suggest possible design solutions. Aboriginal persons were given key decision making roles in the project and the primary researcher was not only Aboriginal but also had a long-term (10 year) association with the community. These factors helped to satisfy the cultural requirement of fully involving the community members in the process (Fleer 1989).

The process itself employed a focus group, one-on-one contextual interviews and iterative prototyping. Previous findings (Bourges-Waldegg & Scrivener 1998) support this ethnographic and user-centred approach to development as a culturally acceptable process for an Aboriginal community. Furthermore, fully involving the Aboriginal community in all design stages has been borne out in other studies (Johnston 2001; Dyson 2003; Truna 2006; Fernandez 2000).

In the following section we discuss some key insights about the design process used in this project and how they might help underpin other projects that consider culture as a factor in way designs are created. This evaluation is informed by both the ethnographic perspective of the primary researcher as well as the outcomes from the final round of interviews with participants.

7.3.1 Focus Group

The main intention of the focus group was to capture significant cultural design requirements that would form the basis of the initial prototype design and also the focus allow for close involvement of the community in the project. The focus group used a 'storytelling' process to explore what members of the Aboriginal audience were seeking in a website.

Cultural protocol required asking permission from the senior Aboriginal community members before research could begin. This meeting involved an open discussion about the intended research method, including permission to invite participants to be involved in the focus group discussion and one-on-one interviews. The most senior community member also met the non-Aboriginal focus group facilitator before the focus group discussion was organized. These steps were critical in the success of the methodology, demonstrating respect for cultural protocol and providing transparency to the research (AIATSIS 1999). It is highly advisable to seek permission from senior Aboriginal members before beginning research procedures.

The ethnographic research method employed by the focus group, emphasized the uniqueness of the Aboriginal context. The qualitative storytelling method (Somerville et al., 2010) took advantage of the existing intelligence possessed by the focus group participants.

From a technical perspective, storytelling allowed complex ideas to be analyzed for possible design direction. From a social perspective, the focus group process also satisfied Aboriginal cultural requirements. This included the need for community involvement in the design process (Fleer 1989) and the need for the design process to be seen as a social process, as well as technical (Turk & Trees 1998).

The discussions in the focus group were lively because of the sustained humour; humour being one highlight of Aboriginal communication processes (Kleinert & Neale 2006; Pumpa, Wyeld & Adkins 2006). Very often, the group laughed loudly as the members gave expression to their natural reactions and responses. The moderator, familiar with Aboriginal culture purposely allowed this to continue, thereby showing respect for the community, which was later appreciated by community members.

In terms of Aboriginal research, this ethnographic approach to interface design enhanced the focus on Aboriginal knowledge traditions, which are radically separate ontologically and epistemologically from Eurocentric knowledge traditions (Pumpa & Wyeld 2006). Similarly, the

ethnographic approach served to reduce the influence of Western analytical thinking that tends to dominate many Information Technology development methods.

There were some criticisms during the early phase of the focus group that it did not seem to be focusing on the website design. This indirect ethnography approach tries to capture the relevant behaviours of stakeholders. The approach may require some trust but it was also well suited to traditional Indigenous knowledge sharing practices. Concerns about the directness of the approach disappeared as the focus group continued.

There was a general acceptance by the Wollotuka community for employing specialized non-Indigenous professionals, but this may not be the case in other Aboriginal communities. To improve the focus group methodology for Indigenous communities, an Indigenous person could facilitate the focus group. Although, this is not essential if the principal researcher has established mutual trust with the community (NHMRC 2003).

7.3.2 Iterative Prototyping and Interviews

While the focus group was very effective in gathering community design ideas, the one-on-one interviews were essential for understanding individual's perspectives. Regardless of the time consuming nature of this approach, there does not appear to be any substitute for one-on-one time spent in front of a computer screen, gathering user's thoughts on the evolving interface solutions.

For Aboriginal people too, there is a positive preference for real-time communication, face-to-face contact and one-to-one or small group meetings (Clemens 2002). In addition to the focus group discussion, the use of one-on-one interviews with community members allowed them to understand the design problems and generate possible design solutions, resulting in a 'community design' solution, satisfying both the cultural and technical requirements of the project further.

From a design perspective, the high fidelity prototypes, though not fully complete websites, allowed each of the key design features to be scrutinised. Each participant viewed the prototypes in detail and focused on certain key aspects of the website. Since they were not compelled to answer a series of set questions, they freely commented on various factors related to the site. They were also free to give any suggestions about any aspect of the website. Thus, a very comprehensive feedback on the prototypes emerged.

The iterative process allowed participants to express their design preferences and dislikes on multiple occasions. This allowed long term design preferences to emerge, establishing definite design preferences for each participant. Where multiple participants consistently agreed or disagreed on design choices, it was possible to make design decisions for the succeeding iteration. This process not only satisfied the project's design requirements, it also provided participants with tangible evidence that their design ideas were being incorporated into successive iterations.

Involving individual community members and incorporating community ideas into the site built community approval. The participants were asked explicitly during interviews if they had noticed any culturally inappropriate incident in the focus group or interview activities. No issues were identified, participants pointing out that the community members would definitely have reported anything inappropriate.

The prototyping and interviewing phases worked well although they were time consuming. In general, it is difficult to judge how many phases of this iterative design work are required to reach a final design and time constraints can play a role in this decision. It was also found the technology constraints of certain tools impacted on the prototype functionality of key design features such as the wiki and virtual tour.

One problem encountered during the first phase of semi-structured interviews was that feedback had a tendency to focus on smaller issues such as spelling or incorrect labels. Many suggestions for specific video or pictures were also made. While these were important to capture for the final functioning website they did not necessarily provide feedback about the key design concerns. This was addressed in the second round of interviews by including some more structured sections explicitly directed to the key design features. It is anticipated, that as the design evolves into a more precise solution, more time will need to be allocated to each design element and the interview questions will need to become more specific.

7.3.3 General Considerations

The expansion of HCI into new contexts means that the portability of methodologies cannot be taken for granted (Williams and Irani 2010). The Wollotuka project highlighted the improvisations necessary to enable the design process to work. Within an Aboriginal culture, a context generally unfamiliar to HCI, the need for improvisation was unavoidable.

The process used in the Wollotuka project provides a guide, however each activity will need to adapt to a culturally appropriate and sensitive manner for each community. Approaching new Aboriginal communities with research proposals requires caution on the part of any researcher, Aboriginal and non-Aboriginal. For many Indigenous peoples, researchers are often associated with other forms of colonisation and injustice (Tuhiwia-Smith 1999). Additionally, the politics and culture of each Indigenous community is often unique and can change very quickly, requiring a sensitive knowledge of community protocol and established lines of communication with senior community members (NHMRC 2003). The protocols for each community need to be followed by the letter. The importance of a thorough understanding of the target community cannot be overemphasised.

While the Western practice is to assign activities to a set chronological interval, a more flexible understanding of time governs the pace of Aboriginal community life (Bateson 1936). For example, the time required by the principle researcher to establish essential relationships with Wollotuka community members, was not primarily motivated by a desire to complete the current research project. The relationships between the researcher and community members sprang out of the natural desire to cultivate sincere friendships, with no time restrictions being placed on this process. Furthermore, the Wollotuka project evolved as a result of these relationships, not the other way around. While this notion of 'taking-your-time to cultivate relationships with community members' may not appear in the methodology, this project would simply not have existed without it.

In terms of possible pitfalls in such a project, there were particular dangers of adopting a Eurocentric perspective and trying to make Indigenous knowledge match the existing academic categories of Western knowledge. Often representations of Indigenous society come from ill-informed cultural stereotypes that are spread throughout society and propagated throughout the education systems (Donovan 2009). It is, therefore, important not to make assumptions about what is culturally appropriate in other cultural groups as these assumptions are often based on incorrect perceptions.

7.4 Future Work

The whole question of how to represent and evolve knowledge in an "Indigenous" versus "Western" way proved a complex question that still requires more investigation. The idea is that the user should be able to 'perform knowledge'. That is, to actively participate in knowledge

construction, rather than merely accessing and manipulating what is provided (Pumpa and Wyeld 2006). We had identified a similar requirement from our focus group. While the wiki approach used in the first prototype was thought to be a good idea, the text-based interaction was perceived as complex and difficult for non-technical users. To address this issue, a more visual representation, much like a graphical Multi-User Dungeon (MUD), which focuses on situated visual objects, could provide a solution. A MUD provides an extensible database of people, places and things that users can interact with (Woodruff and Waldorf 1995). In the scope of the Wollotuka project, we did not develop this design feature further.

The development of culturally appropriate interactive Web games could also be a worthwhile research direction. Participants in the current study considered interactive games appropriate for a university website; they portrayed The Wollotuka Institute as a 'fun place to study' and they had the potential of encouraging Aboriginal youth to go to university.

Further case studies focusing on other Aboriginal communities would assist in evaluating the design process. While the ethnographic focus group approach was successful in honing in on website design requirements for the Wollotuka community, the methodology has not been tested on other Aboriginal communities. This also includes using Hofstede's value survey to measure and compare the cultural dimensions of other Aboriginal communities. It would also be interesting to analyse existing Indigenous websites to see if they possess any of the key design features identified in the Wollotuka project.

Any further development on the Wollotuka project should be based on the feedback from iteration two. The participants highlighted the need for more investigation into video content and representing 'community' more fully within the virtual tour. A study on the type of video content appropriate for Aboriginal web audiences would be of benefit to the community. One of the focus group participants pointed out that using a low budget (handheld video camera) production would be adequate for an Aboriginal audience. However, this raises the questions of whether high quality videos might be expected by the university? Furthermore we could investigate what types of low budget web video production is acceptable to Aboriginal communities? As with website design the process of producing community web video in a culturally appropriate way would need to be considered.

After a third and possibly fourth iteration of the Wollotuka project, a finalised website could be deployed onto the Internet. The website could then be tested for user satisfaction and usability. Usability goals, such as the efficiency of an application, may need to be rethought to suit a culture where chronological time efficiency is not the primary goal of users. For example, a fun

or humorous interface might be considered more usable for an Aboriginal community, rather than a fast interface.

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Appendix

Appendix 1 - Participant Screening Phone Script

Following is the telephone script to be used for screening participants:

Hello, my name is Reece George and I am an Indigenous researcher calling about website project I am working on to complete my PhD.

I am a student here at the University of Newcastle and my project is based on developing websites for Aboriginal people. I believe your participation would help to make the project a success. I need your help to better understanding the online needs of Aboriginal people and how websites can be developed to better deal with the cultural needs of Aboriginal people.

If you are willing to participate, I will need you to attend a focus group discussion in the Birabahn Building and I will also need to interview you 1-on-1. These sessions are designed to understand how you think about the websites from an Indigenous perspective. Does this sound like something that you would be interested in?

[If this person does not want to take part, thank them politely for their time and end the call, otherwise continue.]

In order to participate in the project I need to ask you a few questions, it will only take a couple of minutes.

1. Are you of Aboriginal decent?
2. Are you over 18 years of age?
3. [If they answer 'no' to either of these questions politely tell them that they needed to fill these requirements to participate]
4. Are you contemplating studying at the Wollotuka School of Indigenous Studies in the future? (Check to see if they are a Candidate Student)
5. Are you currently enrolled at the Wollotuka School of Indigenous Studies? (Check to see if they are an Enrolled Students)
6. Are you a member of the academic or administrative staff at the Wollotuka School of Indigenous Studies? [Check to see if they are staff members]
7. Are you a member of the local business community?
8. Are you a researcher?

[If they do not answer 'yes' to any of questions 3-7, explain that they needed to fit one of these categories to participate and thank them politely for their time and end the call.]

[Once the questions have been completed, consult the schedule list and establish a date and time for the focus group discussion. I will explain that they will be sent a letter confirming the appointment time, information explaining the purpose of the study, and consent forms.]

Ask for their postal address.

If the person has further questions, tell him or her that I will be happy to answer their questions.

Thank them politely for their time and end the call.

Appendix 2 - Poster

INVITATION

Reece George, an Indigenous research student, invites you to take part in a PhD project about:

Creating Websites For Aboriginal People

This project is being supervised by Professor Patricia Gillard and co-supervised by Professor John Maynard

Requirements: Aboriginal person, 18+ years old, willing to take part in a discussion and an interview.
Time: March & May 2009
Where: Birabahn Building

For further information please contact:
Email: reece.george@studentmail.newcastle.edu.au
Mobile: 0403 399 418

This project has been approved by the University's Human Research Ethics Committee, Approval No. H-2008-0289.

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

Appendix 3 - Information Sheet

You are invited to participate in the research project identified above which is being conducted at the University of Newcastle. The research is part of Reece George's studies at the University of Newcastle, supervised by Prof. Patricia Gillard from the School of Design, Communication and Information Technology and Prof. John Maynard from the Wollotuka School of Indigenous Studies.

The purpose of the research is to discover how to design websites specifically for Aboriginal peoples.

We are seeking Aboriginal and Islander people aged 18-60 to participate in this research. Furthermore, you must belong to one (or more) of the following groups; a potential student, current student, staff member, researcher or member of the local business community.

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you.

If you do decide to participate, you may withdraw from the project at any time without giving a reason and have the option of withdrawing any data, which identifies you.

If you agree to participate, you will be asked to attend a focus group discussion at the Birabahn Building, University Drive, Callaghan on the 30th of March, 2009 at 1pm. The discussion will take approximately 2 hours. During this time you will be asked to explore website design concepts that may better suit Aboriginal people. Prof. Patricia Gillard will facilitate the focus group discussions.

You will also be asked to attend a one-on-one design session where your design ideas will be translated into a working website. The design session will be conducted by a professional website developer who will take your ideas and turn them into a working website. The sessions will also include filling in two short questionnaires. The design session will take approximately 2 hours and will be held at the Birabahn building in the months of May-August 2009. These sessions will be held at a time during the week that is convenient to you.

The focus group discussion will take approximately two hours, which includes light refreshments. It is estimated that the one-on-one design sessions will take a further two hours.

Each of the sessions will be videotaped to provide an inexpensive record, which can be analysed and evaluated at leisure.

There will be no benefits to you in participating in this research but participants in this type of study have found it to be a rewarding experience. I do not anticipate any risks to you in view of the unstructured and impersonal nature of the project.

Any information collected by the researchers which might identify you will be stored securely on encrypted CD's and kept locked in a cupboard. The data will only be accessible by the researchers unless you consent otherwise, except as required by law. Data will be retained for at least 5 years at The Wollotuka School of Indigenous Studies to keep the options open for future uses of the data.

Any part of the data that can identify you, including audio and video recordings, will be securely archived.

The data collected during this research will be used in a thesis for Mr. Reece George's Doctor of Philosophy (Information Technology). It is also anticipated that papers will be produced from this research.

Individual participants will not be identified in any reports arising from the project. You will be able to review the video recording to edit or erase your contribution.

Each participant will be emailed a summary of the results arising from the project.

Please read this Information Statement and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions, contact the researcher.

If you would like to participate, please fill in and sign the accompanying consent forms and bring them with you when we meet. We have scheduled our meeting for [insert date and time of meeting here] at the Birabahn Building, University Drive, Callaghan.
If you would like further information on this project please contact either Prof. Patricia Gillard on +61 2 4985 4515, Prof. John Maynard on +61 2 4921 6386 or Mr. Reece George on 0403 399 418.

Thank you for considering this invitation.

Reece George
Student Researcher

This project has been approved by the University's Human Research Ethics Committee, Approval No. H-2008-0289

Should you have concerns about your rights as a participant in this research, or you have a complaint about the manner in which the research is conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.

Appendix 4 – Procedure for Participatory Design Sessions (Iteration One)

LOCATION:
NAME:
DATE:
TIME:

Welcome to the participatory design sessions!

The project is designed to explore ways to better developing websites for Aboriginal people.

We have chosen you carefully to participate in this study because we believe you represent one of the most important types of potential users of this website. We want to get your feedback and input on the initial design ideas.

During these sessions, you will be seated beside me in front of a computer screen. The computer screen will have a web browser displaying a working prototype of the website. I will ask you to suggest ways that you feel the prototype can be improved; this can be anything from small colour changes to completely new design concepts. I will implement the changes to the prototype as you suggest them. I will be videotaping as well.

You may feel like you are taking a test, and that your performance is being measured. Knowing you are being observed and videotaped is bound to make you feel a bit nervous and under pressure! In fact, however, it is very important that you understand that I am not studying you—I am studying new ways to design websites for Aboriginal people.

As we go through the questions, please feel free to expresses your feelings and opinion. Please give any comments that would help me better understand your answer. Please be candid! Your real reactions will be very helpful to me as I try to refine and improve the website.

As you browse the prototype, I will not interfere or show you how to use it. You may ask questions, as this will help me understand where the user interface is confusing. Please try to figure things out on your own, as if you were really surfing the Internet and no one else was available to help you.

1. Although I only showed you a prototype of the website, based on this experience, please tell me how useful you think the website will be in your work. (Circle the number that best expresses your opinion.)

```
    1               2               3          4
    |_____|_____|_____|
    Not Useful                         Very Useful
```

Comments?

2. Based on your experience with the prototype, how willing would you be to use the website? (Circle the number that best expresses your opinion.)

```
1               2           3           4
|───────────────|───────────|───────────|
Not Willing                     Very Willing
```

Comments?

3. Do you think you would prefer to see more video used on the website?

```
1               2           3           4
|───────────────|───────────|───────────|
Prefer                            Not prefer
```

Are there other ways that video could be used?
What types of videos do you normally like to watch on a website?
Who would be the best person or role model to encourage you to study at university?

4. Would prefer to see the language on the website changed?

```
1               2           3           4
|───────────────|───────────|───────────|
Prefer                            Not prefer
```

Please circle the language you feel most comfortable with. (You can choose more than one)

Welcome to the Wollotuka website. We would like to take this opportunity to encourage you to study at The University of Newcastle

Why don't you study at Uni so you can get yourself a good job?

Now I'm getting paid for what I used to get in trouble for when I was in school – drawing in class.
-- Ben Sargent

5. What changes would you like to see made to:

Graphics:
Colour scheme:
Icons:
Any other part of the website:

6. Can you suggest any possible ways to improve this website for Aboriginal people?
7. Which is your favourite website on the Internet? And why?
8. Identify any part of the website that you feel slightly uncomfortable using.
9. Are you (circle one): Male or Female
10. How old are you?   (circle one)   18–25   26–40   41–55   over 55

11. In the last six months, how frequently have you visited any Indigenous website—that is, for work or recreation? (please tick one)

————— Not at all (in the last six months)
————— Infrequently (more or less monthly)
————— Frequently (more or less weekly)
————— Very frequently (more or less daily)
————— Other (please explain) —————————————————————

Which websites were they?

      T H A N K   Y O U!

Thank you very much for your participation in this study! Your reactions, opinions, and ideas will be invaluable to me as I refine the website. I appreciate your time and trouble, and hope you found your participation to be an interesting and enjoyable experience.

Appendix 5 - Procedure for Participatory Design Sessions (Iteration Two)

Questions on the Website Design

1. Is the current start screen the best place to start the tour or do you think there is a better place to start?
2. What is your impression of the navigation?
3. Can you suggest ways to improve the site?
4. Can you tell me what you didn't like about the site?
5. Was the site fun?
6. The current videos and sound files were only for demonstration purposes. Videos and sound files can be added to explain almost any aspect of the Birabahn environment. Can you suggest specific locations around Birabahn that should be spoken about?
7. Do you think that this type of website is more suited to the representation of Indigenous knowledge?

Questions on the Design Process

Overview of the design process

Step 1: focus group discussion with Wollotuka staff members, led by non-Aboriginal moderator
Step 2: development of prototype from focus group design concepts
Step 3: first 1-on-1 interview with Indigenous researcher/website developer to gather feedback on the design concepts
Step 4: re-development of prototype based on interview feedback
Step 5: second 1-on-1 interviews to gather feedback on website design and design process

1. Can you please comment on the cultural appropriateness of this design process?

2. Can you recall any event that occurred in relation to this project that may not have been culturally appropriate?

3. Do you think that this process would be appropriate to use in another Indigenous community or do you think it would need to be modified, please comment.

Appendix 6 - NVivo Analysis of Focus Group Transcript

Results of NVivo analysis of the focus group transcript

Category	References	Coverage
Artwork	6	2.55%
Community	45	29.49%
Direct design suggestions	23	15.84%
Emotional high points	7	10.75%
Fun place to study	7	9.18%
Humour	35	15.33%
Kinship	5	3.44%
Language	9	9.46%
Multimedia	7	7.66%
Music, dance & ceremony	6	13.37%
Navigation	6	13.37%
Problems identified	11	15.77%
Role models	2	8.64%
Landscape/Building	14	8.82%
User groups	17	9.82%
Visual imagery	13	8.61%

Appendix 7 - Transcript of the Focus Group Discussion

Moderator# I'm going to have to give you a little training; I've never done this with a group of Aboriginal people, I believe this will really suit you but I have no idea if this is true or not.

Reece said that we want ideas from you for a design of the Wollotuka website, his PhD is about 'how do you develop an appropriate design process for an Indigenous website?' To make the design more meaningful for a visually orientated culture and for a culture that communicates differently, is a big challenge, but if Reece and others can do this, it is going to affect websites in general.

For example, the work on kid's television done in the 1980 affected children's programs in general, that's my background, I was working in communication.

In this process, we are going to use your knowledge, we are going to 'get it out of you' in the next hour, hour and a half. But, we are not going to draw on your knowledge of websites; I am going to step back. I am going to find out what you already know about the way that Aboriginal people engage with Wollotuka itself. I want to know how people engage with this place. When I say 'place', please correct me if I am mistaken, 'Wollotuka' is the school of Aboriginal studies. 'Birabahn' is the place. I want to know people engage with Wollotuka and Birabahn.

On good websites, they convey something in the virtual world that represents the real world. This is something that Reece has done a lot of background research on already. In fact, Reece has written some stuff that I don't quite understand, in the nature of knowledge and the Aboriginal representation of things that are real, that are not characteristics on non-Aboriginal thinking. I won't go into that but I do know that we should do it differently when developing Aboriginal people to communicate with Aboriginal people. If we do, I think it will transform the way we build websites in general. I think this is very important research. Reece keeps on being very shy and self-deprecating about what he is doing but his work is very significant and pretty unusual.

Let's launch into what we are going to do today, this is the training round. I would like you to work in two's.

This is really about sharing your knowledge, based on your very own experience; I want you to think of one example, there are probably hundreds each day, but I want you to think of just one example of where another Aboriginal person, it can be another member of staff, engaging with Wollotuka or Birabahn. It can be this place, it can be knowledge, it can be anything. I want you to think of it as a thirty second movie.

On the piece of paper, in the top left hand corner, write the scene where it says 'what/how'. I want you to get the scene in your mind. An Aboriginal person engaging with this place, some content, or anything to do with Wollotuka or Birabahn. It's important that you each get that in your minds. It's a thirty second to a minute grab from your mind.

Then I want you to write down what is happening. Can I please give you an example. Participant#4, I might be using you as the first example.

Participant#4 spontaneously replies: everyone uses me

[Laughter from the group]

After the training round, I am going to ask your name and roles but I just wanted to get this done first.

This morning Participant#4 fell over. If she was doing a little movie of that for three or four seconds.

Participant#4 spontaneously: if it was a little movie it would be sounds of 'agh, ooo, eee, aggh'

Participant#6 also intervenes spontaneously: remember it's in slow motion

Participant#9 continuing the humour: we could find the person that gave you the shove

[Laughter from the group]

Participant#9 again: where was the trip wire

[Laughter from the group]

Moderator speaking to Participant#4, if you had to describe, where did this happen?

Participant#4: up in the top car park

If you had to describe what happened, how would you describe it in a few words?

Participant#9 interrupts and answers for participant#4: I fell ass over head

[Laughter from the group]

Participant#4 answers: I went to the right, I did a twist to the right, then thought 'oh %$#@, here comes the concrete, I don't want to hit my head' So I put my hand down and my elbow down so I didn't hit my head. I don't mind hitting my other body parts but not my head.

To be what we want you have to include something about the car park.

Participant#5 intervenes: I was admiring the dirtiness of the car park

Participant#9 spontaneously intervenes: I was admiring the red dust of the car park

[Hearty laughter from the group]

Participant#4 replies: The school should be doing something about that, sorry we are not going to have a staff meeting during the focus group.

[Laughter from the group]

Moderator writing on the white board and speaking as she writes: I fell on the loose stones, listing to the right, thinking that…

Participant#5 says: thinking that, I shouldn't have had that drink this morning

The story needs a little bit more as it needs to connect with the place. This is about you engaging with something, so you engaged with the concrete or the loose stones in the top car park.

That might be some outline in a movie script; the thing about it is a short description of an activity that also included the way you engaged. Perhaps we can do one, if anyone had one in their mind that we could use to see if I am being clear yet.

Participant#1: the opening of this building, the Birabahn building and the spectacular flight of the Birabahn bird. It was ##### ##### who flew off the roof. 'Eagle Woman' flew off the building (flying fox) into the crowd to celebrate the opening of the building.

Participant#9 spontaneously says: she hasn't flown again since

[Laughter from the group]

Thank you very much, that was great. The reason that example was great is that it was an action. I don't know how long it took but it was an action. And, it's an action that engages with Wollotuka or the Birabahn building.

Participant#1 asking moderator: so I don't have to do another one now?

[Laughter from the group]

You just have to write it down and you get a big tick.

Participant#4: it was a flying fox off an eagle shaped building, which I think is quite interesting

[Laughter from the group]

Participant#9: that's where I am going to come in with my story, because of the confusion over that. We are known as Wollotuka but we have a sign out the front that says Birabahn and every bastard that goes past looking for the place gets lost.

Participant#4 also says: the flags are way back off the road so nobody can see them.

Participant#9: my story is the confusion to Aboriginal people coming here because they all know it as Wollotuka, we do have sign that says Birabahn but there is no mention of Wollotuka on it, which it should have. That's why my story is about #### ###### and ### ######## driving around and around, despite my directions can't find the Wollotuka. They kept driving past the sigh that says Birabahn. It doesn't say Birabahn Building; it just says Birabahn and not Wollotuka. The confusion over the bad signage has caused a lot of confusion.

So, Wollotuka is kind of invisible

Participant#9: everyone knows us as Wollotuka and asks for Wollotuka.

Participant#4: Wollotuka is the most important name but it's not visible. It's important to us but it's not visible.

Participant#9: I think we should have a big sign that goes across the top that has neon flashing lights that says 'Wollyworld is here'.

[Loud sustained laughter from the group]

That's a good idea for a website Reece

Do you call this place 'Wollyworld'?

Participant#9: we call it 'Wolly' for short.

Participant#4: you know how you try to find Wolly?

Participant#5: In Brisbane we dressed up a student every day at the sports and we would say 'where's Wolly' and everyone would say, 'up there'.

Participant#4: we have always been a bunch of Wolly's

Participant#1: I don't like this collective now.

[Laughter from the group]

I think you have got the idea, which is fantastic. Now what I would like you to do is write your story down. I want to hear a couple of them in a minute. Just do one of your own.

Can I have a volunteer to tell me their story?

Participant#2: I had a memory this year of a welcome student's bar-B-Q. Someone put the fire too close to the building and it set the fire alarms off.

That's a good one. This building is extraordinary.

Participant#9: we could probably tell lots of stories but we probably couldn't repeat them here.

[Laughter from the group]

We are going to this one in a slightly more structured way.

Moderator speaking to Participant#2: when did this happen?

Participant#2: in 'O' week

These headings can be answered in any way that you think can be relevant. 'When' might be early in the morning or when might be on the 24th of December.

Participant#5: it was the 'welcome to Wollotuka party'

Participant#2: wasn't it in 'O' week

Participant#3: no

Participant#5: it was on Friday the 13th

Group: oooooooo

Participant#1 interrupts: whose story is this?

[Laughter from the group]

Participant#9: it's a collective story

That's exactly right.

Participant#4 speaking to Participant#1: why aren't you joining in?

Participant#1: because I have done mine

[Hearty laughter from the group]

You're going to have to do a couple of them.

Participant#4: make him work

[Laughter from the group]

Participant#5: we were outside, it used to be outside the kitchen.

Who was there?

Participant#9: ######## was there.

Participant#2: there were students, there were staff, and there was the fire brigade.

Participant#4: did you give them a sausage?

Participant#2: there was the jumping castle guy who put up the jumping castles.

So, it was a festive celebration?

Participant#5: it was the 'welcome to Wollotuka party.

Participant#4: We should have set fire to them

[Laughter from the group]

Participant#9: this is getting worse

[Laughter]

Participant#5: there were also sumo wrestlers

Participant#9: 'Wolly world' sums it up.

Sounds like Disneyland

Participant#1: it's certainly fantasia

[Laughter]

This last column is speculative and you just add your own interpretation, but sometimes it really adds to the understanding.

Is there any reason why the bar-B-Q set fire to the building?

Participant#5: because somebody opened all the doors and windows, somebody put it too close to the building.

It was a combination that was a collective effort as well.

What we have done is started with this event that is really clear, it was an engagement of students and bar-b-q's and buildings. And then, by asking some further questions quite a bit more came out actually.

I had no idea that we had events in the university that were big fun.

Participant#5: that's because you work in a faculty that is not fun

Yeah, you're probably right

[Laughter]

Participant#5: I mean education and arts is quite dull and boring but people do prefer to come here to do those.

Some of the scientists are interesting but they are always off in their labs, kind of a bit cordoned off from the rest of us. We have a nice building over there but there is not enough of this type of amazing activity. Mind you, we do have the fire brigade quite often.

Now what I would like you to do is using the examples in front of you, work in pairs. The person who is listening is trying to clarify the questions. One person listens to the answers until they are clear and they write the answers down. Then you swap places and the other person listens so that the answers are clarified.

[Group works for 10 minutes in pairs]

Can I interrupt you there? I must have been a bit anxious in the beginning as I didn't get you to introduce yourselves. What I would like is just your first name and a sentence or two about the role you have at Wollotuka.

[Some of the following information here is not included as it directly identified individuals]

My name is ####, I'm a healer

[Laughter from the group]

[Some of the following information here is not included as it directly identified individuals]

####, dictator

[Laughter from the group]

Participant#1: here here

[Hearty laughter from the group]

Participant#6: what do we call you for short?

Participant#4: 'dic'

[Sustained hearty laughter from the group]

Participant#4: will you start dictating about the dust then? They won't do anything.

Participant#5: can you put the flags out the front where people can see them?

Participant#9: I think the flashing lights on the building saying 'Wollyworld' with an arrow pointing down is a better way to go.

Participant#5: I would get worried that people will think it is a casino.

Participant#1: we can add a little bit of that too. Would attract people to uni.

[Laughter]

Can we have yours please Participant#6?

Participant#6: what I had was the concert we had as part of the opening celebrations.

Can you tell me what you have written?

[Long pause]

Participant#6: 'concert'

[Hearty laughter from the group]

What you need to do is describe an activity that engages with something here, so you have to actually describe it. It's got to be one instance and not some general concept.

Participant#4: 'big concert'

[Hearty laughter from the group]

Try again.

Participant#6: it was a musical concert as part of the opening festivities at Wollotuka.

But, you haven't told us anything that happened, it has to be an activity.

Participant#6: the singing and dancing

That's still too general.

[Long pause]

We will come back to you.

OK, Participant#3, what have you got?

Participant#4: this one is hilarious

Participant#3: one of the students was going to put in an assignment and she went to use the bundy clock, I was telling her what to use and where it was. Now, next to where the clock was, was this little children's toy. I said to her that 'the bundy clock is over there, it's the grey thing'. So, she picks up the little toy and tries to stamp her assignment

[Long sustained hearty laughter from the group]

Participant#3, what did you write down? What are your words?

Participant#3: the student went to put in her assignment and stamp it with the bundy clock

Participant#9: the student now has a job at Toys-R-Us

[Laughter]

I noticed the bundy clock this morning that is a really good idea

Participant#5: except when you get students saying 'what's the date because I don't know how to change this and where do I stamp my assignment?

When did this happen?

Participant#3: a couple of weeks ago

Participant#3: in the daytime

Where did this happen?

Participant#3: in the front reception area

Who was the student with?

Participant#3: she was by herself

Why did this happen?

Participant#3: Because she wasn't listening to what I was saying or looking to where I was pointing, though that was probably my fault. I was telling her the colour of the thing and she still picked up the duck.

[Laughter from the group]

Was colour was the duck?

Participant#3: It was white with pastel colours.

OK, I think you understand how this goes now.

What I would like you to do now, is there anyone in the group that would like to talk about theirs? Well now I would like you to think of something that happens that is very much part of communications, the other ones were about the building and the building helps define who you are and you use the building to do that. Now if we bring our focus, just on this round, on communication, because that's what a website has to do. I don't mean we are going to the website. If you have an example of engaging and speak about it in pairs.

This is the way that we are going to do this, the person with the piece of paper asks what the example is, and just keeps talking until you have a clear idea, just like I did while I was standing up.

One person will be asking questions and the other person will be writing it down and clarifying the story. Once you have done that, you will swap roles. Its really a listening, asking questions and writing exercise.

This needs to be a concrete example. Of interaction and because it happens here, or in relation to here, but it's not just the physical space now, it's got to do with communication, it could be tutorial work, it could be something happening at reception, it could be someone ringing up. It could even be something that happens at a meeting. It doesn't have to be here; it could be something about Wollotuka that you have seen somewhere else. It must have some content to do with Wollotuka, that's the only thing.

Participant#7: Just one thing before we get too far, you started off this meeting saying that this was an Aboriginal perception and ways of doing things but everything you have done so far has not been any different and I am not following it.

I don't think that is necessarily true as I only just started it. I will tell you some things I have gotten out of this already.

One of them is that some of your ways of defining Wollotuka, the 'Wolly and casino' talk for example was really significant for design ideas for Reece. What I am hearing from you is that you are talking about yourselves all the way through. I am not going to say much more than that because we need to do it rather than talk about it.

The second half of this is when Reece asks some direct questions about this.

My main role here is listening to the interaction between you during common events. That actually reveals the nature of Wollotuka and some of the issues you have too, we have already talked about two of them.

What we get out of this and what Reece gets out of this is not necessarily obvious. Mind you, you will get to see the report and you can see what you make of it. If you don't mind me saying, 'don't worry about that, just enter into it'. The work I want from you is to give your perspective,.

Participant#7: but what is going on here is not my perspective.

But your stories will be your perspective. If you enter into it rather than think about it, I am certainly happy to have that talk to you but not using the time of this group. It is a really legitimate question but it's not one that I want to take the time of this meeting, except to re-

assure you that I have used this with a lot of different cultures and groups and it is amazing what comes out.

This is not easy for academics to do because they are not used to talking in the abstract about things.

You've got to trust me on this….

You are very free to go if you think it's a waste of time.

Participant#7: no, I just think it's not an Indigenous way to approach the plan.

This is the very first time we have tried to use this approach in this way and in a sense, so we are trying to define the Wollotuka community to start with.

So let's keep going.

[Group works in pair together for an extended period of time]

OK, let's hear what you have written down.

[Group continues to talk]

Can I have your attention please?

Participant#5: this is another student assignment thing but it's not as funny as Partipant#3's. There was a group of about 11 students who came into the front reception area last year. Understandably, it was about the middle of the year. The first one comes to the counter and says 'what do I do with my assignment?'. We have a sign that's says to fill out a date stamp sheet, date stamp it and stick it in the lecturers box, to the left, along the wall. You know, it's pretty well set out. We have it all set out and spent a lot of time putting it all together because we get really peeved off. So the first kid comes to the counter and says, 'what do I do with the assignment?', I said, 'did you read this, you stamp it and put it in your tutors box.' The second student comes and asks the same thing. By the fourth one, I turned around and said 'excuse me, this is what you need to do with your assignments' but still the silly idiots come and ask us one after the other what they need to with their assignments. So this was a case about students asking us what to do with their assignments here in the reception area, it involved a few staff members at the front counter and students that couldn't be bothered paying any attention even after we pulled them aside and even spoke to the group. But, they still kept coming one after the other to the counter.

Can we take you through the things [points to the white board] When did this happen? What time of year?

Participant#5: last year, it would have been Wednesday, Thursday or Friday, it was Augusty.

Where? It was out in reception.

Who?

Participant#5: It was me, ###### and education students. They were all together, they just had to hand in their assignments and they have come down after class.

Did they come down in a wave?

Participant#5: no, they all come down in their little clicky group

Why then, why did they behave like that?

Participant#5: they didn't bother to listen and they automatically think that you are going to do it for them. And, if you don't do it for them, they keep asking you the same question.

Was this the first time they came into the building?

Participant #5: no, they were our students; they had classes every Wednesday, Thursday and Friday. They had just finished class, they had to hand their assignments in, they all come down in their little bunch, and they couldn't be bothered paying attention to the fact that we had setup the date stamp with instructions. It's a hassle to us because it takes time away from other things that we need to do, it's repetitive, saying the same things over and over.

Participant#4: maybe you need to make a polling booth

Participant#9: maybe a talking mannequin

Participant#5: we put the instruction up but nobody pays attention

So one of the most crucial ways they engage with Wollotuka is to hand in their assignments.

Perhaps we can have you Participant#9

Participant#9: Right, yeah. Alice Springs writer's festival, talking about the personal journey of education, the importance of Wollotuka, the place is certainly not like a school; it was my personal experience so it was a personal family unit connection. When, last week. Where, Alice Springs. Who, me. Who with, a national and international audience, Aboriginal, non-Aboriginal. Why, personal story telling and again, that sense of belonging and pride in Wollotuka.

[Pause]

Do you report back to the group when you come back?

Participant#9: uuum, I haven't.

Participant#4: he should

Participant#9: recently I haven't spent much time here at all

Participant#7: there was once [pause] no, no, sorry I am wrong

[Laughter]

Tell me a bit more about this pride in Wollotuka

Participant#9: it's hard to define but when you have been here for a long time like some of us have, it is very much like a family unit. Sometimes we are criticized for that, from both within and from outside. But, the reality is that that is the close connection of the place. I would say that outside my own family, there are people in here that if I was in strife or in trouble, that I know they would be there. I think most people feel the same, that's just the way it is. We have shared a lot of experiences a lot of good times.

Participant#4: there is a special sense of community

Participant#4: [directing comments at Participant#9] do didn't write down about the axolotl you silly bastard.

Participant#9: [loudly] that's your story

[Loud laughter]

Participant#9: [directing comments at Participant#4] you tell it

Participant#6: it is one of the greatest stories ever told

Could you tell it?

[Loud laughter from the group]

Participant#9: he featured prominently in it

Participant#5: I think they still have the outline on the building over there where you went to sleep standing up.

This sounds like a very good story, we must have it.

Participant#9: The axolotl story was a great day and night; there were a few sour moments.

Who's going to volunteer to tell us, as we really need to hear this one.

Participant#4: I'm not going to tell it

Participant#6: I think Participant#9 should tell it

Participant#9: OK, ###### organized it. ######, for whatever reason had a very good relationship with the fella from Xerox, who offered us a box at the football. He was besotted with ###### and he gave us a box at the rugby union. So, we had our own box.

You mean you were in a box, watching the rugby union?

Participant#9: We had our own corporate box at the rugby union, here in Newcastle. It wasn't a corporate box, it had its own little thing, it was open to all the weather. We had access to Eskys of food and drink and alcohol. Copious amounts of alcohol.

Real corporate stuff.

Participant#4: big mistake

Participant#9: ## and I, on behalf of the rest of the group requested that they keep filling them up and bringing us more Esky's.

Participant#4: I don't usually drink a lot of piss

Participant#9: Anyway, we spent the afternoon at the football consuming Esky after Esky.

When did this happen?

Participant#9: Jees, it was a long time ago.

Participant#4: it was winter, 10 years ago, 12 years ago.

Participant#9: Where, international sports centre. Who, there was me and ##, ######, ######, ######, were you there participant#8?

Participant#8: no, I wasn't here yet

The axolotl hasn't happened yet.

Participant#9: Participant#4 had an axolotl that she murdered.

Participant#4: it was my daughters

Participant#6: it was self-feeding, it was bulimic

Particpant#4: it was eating itself

Participant#6: it was bulimic

Participant#9: it was feeding on itself, it was devouring itself, and all that was left was its lips.

[Loud laughter from the group]

Participant#9: me and ## were just falling over with laughter while she was telling the story. It ended up that nobody was watching the football but were watching us in the box; it was far more entertaining in the box.

[Loud laughter from the group]

Particpant#6: the axolotl was eating its tail and she thought it was dead

It was going through a transformation process

Particpant#4: it was sick

Participant#6: it was eating itself and it was getting really crook, so it was eating itself, it was vomiting all the time, it was bulimic. So she thought she would flush it down the toilet.

Particpant#4: to kill it

Participant#9: but it wouldn't go

[Laughter]

Particpant#6: so she is lying in bed and she could hear

Particpant#4: [making a noise like a small crying animal]

[Laughter]

Particpant#4: I needed a shovel

Particpant#9: from there we went to the Darby hotel where ### got to know a group of netball players, but ###### hunted off all the netball players which upset ### no end.

Particpant#4: it was our turn to play pool and someone knocked off all the money from the pool table, remember that?

Particpant#9: then ### met the South African princess who was guarded by the two minders.

Particpant#4: that wasn't that night

Participant#9: yes it was

Do you have these kinds of mythical events often?

Participant#6: there is no myth in this

[Loud laughter from the group]

It does sound mythical though because you have the animal devouring itself and it's got this sort of fairy story associated with it.

[Laughter]

Particopant#6: it didn't die

Participant#5: it's still going

Participant#9: we have had many events like this, one day we will write a book about them and it will be a best seller.

Participant#4: no, we won't, not until we are all dead.

Can I come back to the community idea because that's what you are describing to me?

Participant#4: it's a piss-pots community

No, it's not a piss-pots community because you do a lot of other things. What you keep talking about is the nature of Wollotuka which is fantastic because that's exactly what Reece needs to know so that he can somehow represent it on a website. Is there anything else you can tell us, does anyone have another one on their sheet in front of them that sort of says something about community? Because this doesn't happen, let me tell you, this doesn't happen in other faculties.

Participant#9: yes, we know that

[Laughter]

Participant#2: I have a story about when I used to work at UPUG and we introduced peer mentoring lunches, where we would involve the students eating, sitting and yarning together. And, we would do it every lunchtime out here in the Birabahn meeting area. The reason we did it was to instil a sense of community into the UPUG students, a lot of them had not been involved in the community so it was to give them a sense of what community was like, but also to get the students to help each other and support each other, to help them learn that Wollotuka is a great place to eat, meet and get educated, all in one, as a community place. As opposed to just a building where you go to study.

So that process, those meetings, was enacting the things you were teaching about. So, what was the acronym you used?

Participant#2: that's our enabling program for Aboriginal students from 17 to it doesn't matter how old you are. You can come in and do UPUG specific programs or open foundation programs. It was originally an introduction to medical students to the university but now it has developed into something more than that.

Is it only for Aboriginal medical students?

Participant#2: yes, it's only for Aboriginal students

Participant#9: I think it is infectious too. Going back a while, in the old days we used to have a big mob of people who would go up the Great Northern Hotel, every fortnight on a Thursday night. There would be law people, economics lecturers, our students, our staff, we would play pool, have a feed, have a drink. And, those people really wanted to be a part of this place and what we were doing. Then there was the Northern Star, which we would go to on Friday nights. But, we are getting a little bit older now.

Participant#4: there is another story like Participant#2's story. I had two tutors up in my office where I was trying to get them online and trying to get them paid, which is an absolutely painful lengthy process. So they missed out on lunch and they had to quickly eat and go back to class. So I said to ########, can these two eat so that they can go? They weren't Aboriginal tutors that got stuck in this shit system so they had to get paid. So I said, why don't you eat? It happens a lot.

Why? [Pointing to the questions on the whiteboard]

Participant#4: because the university has got this system where they need to get paid and it takes forever to get them on the system.

Participant#2: it shows we are not exclusive or inclusive, or whatever. It's about sharing our culture and community with others as well, it's not just being a bunch of Aboriginal people in a building it's also about inviting others. A classic example is a student camp we had a few weeks ago up at Barrington. We had Torres Strait Islander dancers come on the first night and people from all around the campsite heard it and started popping their heads in. On the second night, we decided to invite all the people in the campsite to come and see the Aboriginal dancers who were coming on the second night. And, they did. So, it was not like we shut our door and say 'it's just for us' but we open it up to everyone to enjoy our culture.

Where were you up at the Barrington Tops?

Participant#2: we were at Riverwood Downs; it's got cabins and camping.

Is it difficult to sustain this within the university, obviously it's not but with a web environment, the university has these templates and it's quite a constraint. It's interesting because when you go into an online world, it expresses something about the real world, sometimes even more clearly. So when you look at our website [the university website] from my point of view, it has dulled down a lot of things, there are no eccentric things there anymore and research groups have to figure something else out. How has that effected the communication with your community?

Participant#4: I've got one example, #### ###### and I worked on an ad to employ, to do an expression of interest for new tutors. The university was adamant that it had to be done their way; we wanted it to be written or way, advertised our way, with our content, and with what we wanted in it, and we got it. You can get what you want if you push for it. But, if you don't ask for what you want then you won't even get to first base.

Participant#1: its inclusive cultures. I mean it's like women in management. If we want to attract women into management and we want to turn them into 'blokes', then we have wasted it. If the university wants Indigenous people to be part of the university then the university itself needs to change to be inclusive.

Participant#9: I think the website, as you have heard from the discussion here, this place is different, we are different, and our website should reflect that difference. That's with anything you see, an Indigenous website needs to reflect that personal family connection. Most importantly, it needs to speak, rather than using written text. What you want is interaction, being able to walk through the place and interact with people. Once again, the CD, that was 12 years ago, what we were doing then on a CD, you could do now with a website. You could have the Birabahn building with the flashing neon lights, and you could walk through the door and meet the person at the front counter and be told that 'that's not a duck' over there.

Participant#6: that's not a duck, this is a duck

[Loud laughter from the group]

Participant#9: you could get that personal interaction, you could walk in through the door and you could be directed to the lecturers. You could interact with people, which would be far more user friendly for the community to interact with some of that. That's what we got to reflect, that's my personal opinion of what we have to look for and what an Indigenous website should be, totally different.

Participant#4: it shouldn't be boring

Participant#2: it's difficult. I have just taken over the Indigenous employment part of the website so I had to go to the CMS2 training which bored the hell out of me. But, just the way you have got to do it. You are not allowed to go out of the boxes, and it is totally inappropriate for what we want to convey.

How would you like to imagine it, let's just imagine it.

Participant#2: I envisage, if you just take the Indigenous employment artwork that we had done many years ago, it would be good to put that as the background and then information. Just making it more Indigenous friendly. If you open it up and you see Indigenous art, then you are immediately going to have a different reaction than if you open it up and see a corporate website with writing about Indigenous people and nothing that identifies Indigenous people.

This art I gather, is not in little boxes.

Participant#2: it's a context thing

Participant#4: could you have footprints leading off?

Participant#9: you could have axolotl footprints leading off

[Loud laughter and lot of loud talking about possible design ideas, was too many people talking and could not identify any single idea]

Participant#9: it has to have interaction with the building, not just images but interactive images, video, things happening, things moving.

Participant#4: colourful, not dull. If you look at the university website, I hate the bastard, then you go onto the next page and you have got to read, and read, and read, and out of these 500 things that you have to find computer accounts. It's got to be simple, click on something that you want to see. It's got to be kept to a minimum, it's too complicated.

Participant#5: and when it says that something is in a spot and you click into it, its got to be there, instead of having to click into 3 or 4 things.

Participant#4: simplicity will make it work.

You [speaking to Participant#2] were saying things about pathways that was really good, could you please tell us again.

Participant#2: I was envisioning the Indigenous employment part of the website and there are the different pathways or strategies, having that visually, you can see what you want to do. But it's absolutely impossible to do with the universities corporate way that they are doing their website to actually have anything that graphically donates what you want to have.

So some of the work you are doing where you are getting student to be a part of community, one way of learning about community, you want to do on a website so that people will step into an environment. That is communicating about who you are. And then, the interaction within the environment does that too. And, the simplicity of it takes people through to where they want to go.

Participant#4: they don't want to open ten doors to go to where they are going because they will say 'stuff this, I can't be bothered' and they will give up and we have lost them.

If we are going to do that, we have to know quite a bit about whom the main different people are who are coming to the website; this is the stuff that I am really interested in. If you don't mind Reece, I am going to take 5 minutes to jot them down. What I want to get from you is

whom you think. If you want people to come in, you already know who they are, that's how I express it anyway. When they come onto your website it's as if you are ready for them.

Participant#4: students

Are there different types of students who would use the website differently? I agree with what you are saying, it needs to be designed into the website, we need to have a knowledge of the different people who are coming to the website and what they are like.

Participant#4: you have to base it on a database, I haven't designed a website but I would say that it would have to have; who they are, what they need, and stuff like that, and you would design the database on how you do your parts.

That's what you put behind it, Reece will be doing all that. Let's not get into that too much, what I am asking you is 'who are the main who's?'

Participant#4: students

But, are all students the same?

Participant#4: no, there are international

Participant#9: there are Indigenous, non-Indigenous, international American

Participant#2: any Indigenous

Participant#4: we have got TAFE students, we have other university students who might want to see what we are offering if they are doing distance. We have got school kids and year 12's that might want to tap in and access the system. We have parents and mature age students that might want to access the system to see what their kids or what they can study.

Participant#5: we get a lot of people calling because they have been told to search our website or ring us for information on things like where they can find housing and how they can pay their bills.

So, these are non-Indigenous or Indigenous?

Participant#5: they are Indigenous, they might have a cousin or a student in here and they have been told to talk to us 'have a look on their website or talk to us because we will find them a house'.

Is that appropriate?

Participant#5: I get maybe 2 phone calls a day saying, 'I have been told to call you because you know how I can go about doing this, a good one is 'confirmation of Aboriginality. 'I have been told to call you to get my confirmation of Aboriginality. '

Is that appropriate?

Participant#5: we don't do that

Participant#8: it is 'kind' of appropriate as we are part of the community link and we might be able to say 'we can't do that but you can go here, or they will be able to help you'.

Participant#4: it's the same with the housing, ISSP student support has to take that on even though it is not a university matter, if they can't find somewhere to live then they can't study. ITAS, scholarships, AECG.

What I think is that you need to follow these up Reece, to get more information. Because this is an enormous, different client group that you're dealing with.

Participant#4: we are dealing with heaps and heaps of different people and we have to wear hundreds of different hats.

Some of this can be built into a website that can be useful. There could be links to these different places, where it would be appropriate. People will still probably contact you but you can still let them know that some of the detailed information they can get from the website.

Participant#4: name and direct phone numbers

Perhaps some of these people, who are referring people to you, can gradually be taught, in an ideal world, to refer to the information on the website first before talking to you on the telephone.

Participant#4: that's why the front page needs to be concentrated on here first and then have the links on other pages.

Participant#7: I would like to say one thing before I go out and feed my nicotine habit, most of the people who work here or come here are accidents by birth, they are not responsible for their race or colour but I think the theme that Reece may consider is a respect for the diversity and having it come through the website.

Yes, the website needs to show that respect and also address those differences.

Participant#5: we get a lot of high school teachers ringing up wanting information about where they can find information on where they can find bush tucker, who they can contact to get someone to do performances or someone they can talk to, to tell stories. It would be good to have community link ups to Yulita, Yamalong and places like that .

Participant#4: Awabakal, the doctor, the dentist.

Participant#3: legal aid

Participant#2: the department of housing

Participant#4: the hostel, where uni students can stay and get accommodation

Is this because, contrary to what we were saying, that Wollotuka is very visible, like it really is a centre.

Participant#2: it's well known throughout the Aboriginal community so it like a port of call.

Participant#4: put it this way, if you went over to HUBS to put your assignment in late, and you put your special consideration form in, they would go 'yeah, terrific, thanks, piss off'. We would go, 'why is this late?', 'what difficulties are you having?', 'how can we help you?' and we wouldn't let them go out that door if we knew they were under financial stress, academic stress, tress at home. If they are showing physical signs by either not turning up to lectures or getting assignments in late, that's the first sign that there is trouble.

It's interesting you say that because that's what good academics do.

Participant#2: [coughing] I was just thinking about some academics who have been, not here, because I studied elsewhere in the university.

Participant#4: we set a precedent here, and I think that other people could learn from us.

Participant#2: it's called being human

Participant#3: it's because we are so friendly

Participant#4: no, I think we go out of our way to find out what isn't working and what can work. I don't think that other people on this campus are inclined to do that or they are not allowed to do that.

Sorry, I can in with my own stuff there. What changed in the university for me was that if there is something going on with your student you no longer see them, except in class.

Participant#4: where does your duty of care come into it then? So, you have left yourself wide open for litigation, its wrong.

In a sense, the university has divorced itself from its responsibility.

Participant#2: you don't go to your lecturer if you have a problem with an assignment.

That's right, we don't even mark them

Participant#2: this doesn't happen in mainstream, we a completely unique society over here

For the academics, that was completely taken away from us, so we were divorced from any first-call issue or knowing whether there is anything wrong, and even if people are grievously ill, we only ever find out after a couple weeks by email with a medical statement attached to it.

Participant#4: but you could change that system from within your teaching.

Participant#2: but they are not allowed to

Participant#4: but you could work outside the box

Of course, you can, and we do but the whole system takes away the first contact. What we do is create more talking in class. But, that's hard when there are huge numbers. But, this not my stuff and I am very naughty intruding. But, I really admire that; it's the way the university should work. I think that when students do the introduction, I think they call it 'Newstart' or something, that's when they learn about what to do. But, this caring, this community is what every person needs. And, you have a particular formula here, which is.

Participant#4: but they are always going on about their retention rates, why can't they bloody do something about it to get the retention rate fixed? They don't do anything to change anything.

Participant#2: it's all about economics; it's all got to be economically viable.

Can we please come back to the website? These are frustrations that I do share with you from an academic perspective and I can understand the lack of people working together. This has been a sudden explosion of all of the people who are using Wollotuka and the ways that you are using your time to deal with them. And, all of these other agencies that you need to refer people to, your kind of a swinging door, but it's more personal.

Participant#4: we are like the centre link, that's why they call it Ceterlink, because we are in the centre. But, it's not like the other Centerlink because you never get anywhere when you call them, here you do.

They have a surveillance function, which you don't have. Do you have surveillance functions where you report on students?

Participant#2 yes we do – DUA, we have to report to the DBC

About individual students?

Participant#2: I suppose.

Participant#4: accountability, I think we have more accountability

Which is why you need more knowledge of the students in order to be able to do that.

Participant#4: here is an example, ITAS people come in to tutor our students one-on-one. They have to put in a time sheet. Our tutors are the only ones who have to hand in a blue time sheet to me and I have to put it on the file and record it in a database. Every other person who teaches on campus can go online and record their hours with absolutely no time sheet involved. There is one example of extra work that we have to do because we have to grovel for the funding and it get up my nose.

Now Reece, you have got some questions.

Yes, I know I haven't given you a break at all.

Does anyone else want a bit more cake?

Participant#3: no, I think I have had enough cake

[Laughter]

My questions are pretty dry and straightforward. It's actually more to do with the website design. I identified about five groups of people but up here, [pointing to the whiteboard] there are obviously a lot, lot more. But I wanted to ask you a bit more about the five groups that I identified and to get you opinion on some things. Just generally speaking, when you go onto the Internet and you are looking at websites, and you see websites you like and websites that you don't like. If you had to design a website for Aboriginal people, could you describe how it might be?

We are picking up on where we were with the imaginative stuff.

Participant#4: it would have a didge playing, straight up.

So it would have sound.

Participant#4: something that we can relate to

Participant#4: something really down to earth, footprints, designs, real colourful

Participant#5: at the moment, we have to pretty well stick to what the university tell us, with the white background

I mean if you could design the site without any restrictions.

Participant#5: colourful and visual, it could have a changing background and different Aboriginal artworks.

Participant#3: if you are going to do an Aboriginal one, wherever the community is that you are doing, you should have different faces of people who belong to the community rolling through as you have got your didge, or whatever happening.

Participant#8: having the community involved, not someone who is not involved with that society or has no real connection with the community. Not a non-Aboriginal person trying to sell a product. Pictures showing actual community

Participant#5: every week you could have a theme week. The medical centre could sponsor the page. For a week we could have newsletters of stories of things that are happening at the medical centre, next week it could be something happening further up the coast. Something different each week you could have a different group.

The use of videos on websites, I think it's great. I've read some stuff where the use of videos is much better suited to an Aboriginal audience, it's easier for us to learn in that way. I just wanted to ask you in what ways do you think we could use videos on the website; we could use videos of anything really. What sort of videos could you use on an Indigenous website?

Participant#5: football games

Participant#5: we get a lot of people who come in cannot fill out paperwork and they cannot read or write properly. So you could have someone speaking the information as well as having it written. Because otherwise you are going to have some old people who are not going to be able to read it because their eyes are going to need glasses. And then there are the people who do not have that education.

Participant#4: they can tap into all of that, vision impaired people and hearing impaired people can actually tap into that, can't they?

Participant#5: there are going to be people who cannot read or write so they are not going to be able to read the things written there. It could be a point out, there could be someone saying 'if you are finding it hard to read, click on this area', or if you are finding it hard to hear, click on here and you can read it'.

Participant#4: what are your ideas?

My ideas. You know how the website is now; you have got everyone names, their phone numbers and their email address. I reckon you have a video introducing yourself 'hi there, I'm Reece, this is what I do here, give me a call if you need help with this or that.' You know, it's just friendlier.

Participant#8: you could say something like, this is my family, this is my community, if it said something like, my name is ####### ####### my family is from the ####### region and the ######## nation. People hear that and they go 'Oh, I am related to that,' they can see the face and can relate to that community. They are not only getting the relationship but also a relationship to the organization as well. They not only associate with the person but also with the organization. I agree with you with the use of video, it's a wonderful thing. Speed and size is always an issue. It's got to be really short and really concise. The presentation has got to be really clear, I know gifs are a lot quicker, I know you can't do an introduction that way but you can use them as a visual tool to connect people because it is eye catching as well. I think the content needs to be animated, maybe only a small tool to grab hold of things [grab people's attention].

Do you think it would be acceptable to just grab a small handheld video recorder, come into your office and do a short 30 second introduction and put that online or do you think that we need to employ professional video producers to make the videos?

Participant#8: I think it is more real using a small camera and just coming in the office. I have no problem with that. If you had a picture of yourself sitting behind your desk, someone has seen that, had a connection and then come into the building, knocked on your door, looked in there. They would think that they had seen that and they would have connected with that space already, they are right there, that is something familiar.

One area that no one has mentioned is business people contacting Wollotuka, the local Aboriginal business community. I am just wondering what type of business people contact the centre here and what sort of information do we put on the site to help them?

Participant#2: community business or individual businesses, I am just not sure what you mean, are you talking about Aboriginal businesses?

Yes, I think they look to the University for Information.

Participant#7: I don't think they actually contact Wollotuka itself; they would contact individuals within Wollotuka. They look at individuals and groups associated with Wollotuka and actually bypass Wollotuka.

Participant#2: I think because a lot of Aboriginal businesses and community organizations know who to go to already so they wouldn't necessarily use us in the way that other community members do.

Do they get you to do research for them?

Participant#7: they do sometimes, I get a few emails from the Awabakal co-op and things like that telling me what is happening but it comes down to a matter of confidentiality too. If they are talking about a matter with you as an individual do, they then expect you to take their information and put it on a webpage?

Participant#2: if someone contacted me, I would send them straight to Mandura, which is the Indigenous local business chamber. Certain people would ring here to talk to me because they know what I am involved in but I don't think we have a lot to do with the business community.

Particpant#7: some things are broad spectrum, there were three old boxers having a dinner at the Cardiff Panthers the other day, old Mundine, Lionel Rose, and Patrick Thompson. Those sorts of things would be generic and it goes out to the whole community, other things are more specific.

Particpant#2: the enquiries we do get from local businesses is when they want students to want to go and work for them, such as students that are about to graduate. So, we do get enquiries about that. We have just had, in the whole universities careers page; we have an Indigenous page where we put Indigenous jobs on the community onto the page so that people can look at them. We get a lot of those types of calls but not general business enquiries.

Participant#4: this is a lot bigger than you thought

Yes, but I feel I am running out of time so I wanted to lastly ask you about your students.

Participant#6: it would be a good job without them

[Laughter]

Participant#4: they are our wages, they are our honey pot.

I don't know whether you have kids or not but who besides you guys as parents, who do your kids look up to as role models? Do they look up to the old people, the elders still?

Participant#5: we have some students who are very community and culturally minded but there are also a lot of students who don't come from here so we don't know about them. But the ones we do have here who try to help out in the community as much as they can but some don't so we don't always really know who they look up to.

Participant#6: there are a lot of students and we don't really know them that well and they are not all from Newcastle so we don't know where they are, so we don't know what involvement they have in the communities or who they look up to, you know. The way things are today, kids today have lack of respect across the board, that's why we have problems. It's hard to say who they are looking up to because we don't know them that well.

My little cousin looks up to band members.

Participant#6: sport

Participant#4: American idol

Yes, they like the black Americans

Participant#4: they have all the chains and shit coming out

Yes, that is the reality of it.

Participant#6: I would say that less and less kids are looking up to elders with respect

Who do you think they are looking up to? Doing the wrong things but people like media icons.

Participant#4: here is a biggie, there is a motorcycle club, and we now have bikie gangs in Sydney who don't have bikes

Participant#6: I don't think Aboriginal kids are looking up to bikies

Participant#7: the other thing Reece is that the leaders of today are not like the leaders of 20 years ago. The people who are running the show these days are a different school of fish. In the old days, they would all put in $20 and drive to a demonstration.

Participant#6: they are the old people now and they are forgotten.

Participant#7: and there is no respect

If there were no restrictions on the design of the website, how would you feel about having a band member on the website saying something like 'you should go to university', would something like that be appropriate?

Participant#2: what about ####, he had a whole generation of young people looking up to him. He has a good job, he is culturally sound and he gives out a good message at the same time.

Participant#4: sport

Participant#6: sport is a good one, sports is huge, I've got a little nephew, he is a little arse hole but he thinks he is Matty Bowen, he says, 'I'm Matty Bowen', you know

[Laughter]

Participant#4: I have a little nephew as well and he is learning to play football and he is really passionate about it, so sports are the window to use.

Participant#8: we also have students who are still gaining an understanding of their culture as well as their community so the establishment of those models is important. Sometimes it may be older kids, sometimes it is sports personalities, you might have community elders as a draw point and it's great that they are a well-known community figure and it is good for a part of the community because it is a very local part of the community, you can't say. If we put

community members in there, it will engage some people but other people may be a fairer skinned Aboriginal woman.

Participant#6: if you use any of the community elders it is only going to be a very small minority of young people that know them and will be able to connect with them, that's the problem.

Participant#8: if you used Matty Bowen, who is not a great example, but if you used his face, it would be much better known.

Participant#7: one ploy NITV uses quite effectively is that they put one black face and one white face on at the same time, one fairer skinned and one dark face, two of them as a tandem.

Participant#8: I am not saying 'don't put up fair skinned fellas' because they are part of the community.

Participant#7: it's respecting the diversity, black, white or brindle.

Listening to you, it sounds like you could use some of these icons in a way that the media promotes itself, you know. I didn't realize there were so many different Aboriginal communities out there and that a lot of them don't know one another. If you add some of the elders and do both of those things at the same time, so that engages as many of the students as possible from the different communities that they come from as well as some of the icons that go across all the communities. So, you use this in a way that subtly undermines the celebrity culture and brings people in to contact with real people. Because there is a danger, a little bit, if we try to bas it on what the media is doing because they do it based on assumptions that are very, very presumptuous. So, it is very difficult to be able to communicate with the young people in that community, absolutely, well and truly, and at the same time help them to figure out who they are. This is more in tune with your past and community respect. In doing a website, you are creating media and therefore you can re-create media in a way that you want it to be.

Participant#7: you need diversity

[End]

Appendix 8 - Stories Written by Participants but Not Discussed During the Focus Group

A student was hostile because he had received a 'fail' for one of his subjects. The location was in the Wollotuka office and involved one lecturer and one student. The student was very strange.

The unique symbolism of clap sticks echoing from the Birabahn building as though the building had a life and was engaged in the ceremony. This happened early in the buildings life out at the male ceremony area near the Birabahn building. It included male Aboriginal dancers, community members, students, staff and broader university staff. The design of the building created a unique communication and gave symbolic life to the building.

The talk around the history and the background of the building and its cultural significance. This is done when individuals or groups visit the Birabahn building for the first time. This is normally done in the meeting area and involves a tour of the building. It explains in a symbolic way our concept of place in a contemporary cultural environment.

A student was crying loudly in the blue lounges upstairs in the Birabahn building. The student was with one of their friends and they were panicking about studying. The staff member assured them that everything would be OK and that everyone initially feels overwhelmed to start but you will feel better later.

One story recited the return of an old staff member with her high school students to talk about working with Aboriginal students. The story recalls laughing and embracing old staff members. This happened in the common area, this was a like an old friend coming home.

One story was about a Kookaburra watching a black snake chasing a skink lizard. This happened in daylight near the waterhole and was observed by more than one staff member.

Graduation time was spoken about; this was held in May and held in the Birabahn common area and included students, parents, kids and academics.