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Healing through ICT: Enhancing wellbeing in an Aboriginal community

Dianna Madden
James Cook University
Townsville, Australia

Yvonne Cadet-James
James Cook University
Townsville, Australia

Felecia Watkin-Lui
James Cook University
Cairns, Australia

Ian Atkinson
James Cook University
Townsville, Australia

Abstract

Many Aboriginal Australians report a diminished sense of wellbeing in their everyday activities due to racism and separation from their traditional lands and culture. Our research sought to discover whether access and use of culturally appropriate Information and Communication Technology's (ICTs), could have an ameliorative benefit, enhancing participants' sense of support and engagement with their culture. While multiple studies have shown that access and use of ICTs can provide real benefits in regards to empowerment, few studies have focused specifically on the well-being aspects. The research in this project was a Participatory Action Research (PAR) study with women and girls of the Gugu Badhun (an Aboriginal Australian language group) to explore ways to better support their familial and cultural activities associated with identity and group sustainability. The research was divided into three action-research cycles: group interviews and focus groups, use of a technology probe, and feedback from the participants. The technology probe was a web-based application with access limited to the women in the study. Use of the probe enabled the participants to mentally revisit scenes that had been highly significant to them and to reframe these incidents in ways that enhanced their feelings of wellbeing. The probe site allowed the women a platform to discuss concepts intrinsic to their lives, and how these ideas interlink and enmesh with each other, such as the importance of connection to country, and offline activities surrounding identity and sustainability as a group thereby enhancing their wellbeing.

Keywords: wellbeing, ICT, Aboriginal women, community, family, spirituality, connection to country

Introduction

Many Aboriginal Australians report a diminished sense of wellbeing in their everyday activities due to the after effects of colonisation (Zubrick et al., 2010). Racism and separation from their traditional lands and culture fuel this situation.

Significant social and health issues impact on Aboriginal Australians to a much greater extent than those experienced by non-Indigenous Australians. As a result life expectancy for Aboriginal and Torres Strait Island people is estimated to be 11.5 years for males and 9.7 years for females less than for other Australians, an issue now well recognised in the Close the Gap agenda (AHMAC, 2008). However, for Aboriginal people, health and well-being often consists of much more than the standard physical health and economic outcomes.

The purpose of our research was to discover whether access to, and use of culturally appropriate ICTs can have an ameliorative benefit, enhancing Aboriginal participants' individual and community wellbeing. Using a collaborative, Participatory Action Research (PAR) approach, we worked with women and girls of the Gugu Badhun (an Aboriginal Australian language group) to explore and trial ways that ICT can be designed to better support their familial and cultural activities. This study continued previous research endeavours initiated by the Gugu Badhun (Hardy et al., 2007, 2008).

Wellbeing as a concept

The overriding research question for this study was to explore how culturally appropriate ICTs could be used to enhance wellbeing. Many of the descriptions of wellbeing approach the situation solely from a Western epistemology. Research with Aboriginal and Torres Strait Islander people shows that for them, wellbeing is a holistic concept. For Aboriginal and Torres Strait Islander people, social and emotional wellbeing are supported by connection to land, culture, spirituality, ancestry, family and community (Social Health Reference Group, 2004).

Participants

Purposive sampling was used to establish a small cohort of Aboriginal women (10) who identify as Gugu Badhun. The sampling in this study provided the opportunity to access specialised cultural knowledge held by this group of women (Mason, 1996; Silverman, 2010). A primary criterion used for selecting participants was based on gender and ethnicity, i.e. each person self-identified as a Gugu Badhun woman. The choice of using only female participants was made for two reasons: (1) to avoid any cultural difficulties surrounding gender issues such as what information was acceptable for me to hear as a female researcher (Mead, 1986; Bernard, 2005) and (2) there currently is a dearth of literature surrounding Aboriginal women's opinions regarding the use of ICT.

Seven women participated in the focus groups, and five additional women were added in the later phases of the project. There were 11 focus group meetings which took place over two years. A 'snowball' approach was used to select additional participants for the study (Gray, 2004) where the members of the first group of Gugu Badhun women suggested additional people to recruit. In this case, all of the women added were either sisters or daughters of the women who participated in the previous group interviews. All of the new participants lived at a distance from Townsville, which made it too difficult for them to engage in the group activities conducted in the first part of the project. It should be noted that rather than having different people at each focus group, this study used multiple focus groups with the same participants. This longitudinal approach to the research enabled us to develop mutual trust and respect.

Anonymity

There are often complex reasons behind Aboriginal people choosing whether or not to have their names used in studies. In research where actual names are not used, errors in understanding the context of a given statement may go unchallenged and then become the basis of policies that are not in the best interests of the research participants (Svalstog & Erikson, 2010). Although it is common practice in qualitative research to anonymise the names of the participants in order to maintain their privacy, the Gugu Badhun participants requested that their names be listed when discussing our research.

Method

The research activities occurred in three action research cycles (see Figure 1 below). The first cycle was composed of focus groups that explored ideas about using ICT to improve community wellbeing. In the second cycle we used a technology probe (in this case a secured, private, custom developed website designed in collaboration with the participants) to facilitate the sharing of stories and reminiscences about their culture and family history. In the third cycle we held concluding focus groups to reflect on our experiences during the study and how they applied to wellbeing.

Over the last decade, various types of ICT probes have been used to explore design ideas with people. Bill Gaver and a group of designers initially developed the idea of a cultural probe to explore the design space for the elderly (Gaver et al. 1999). In this research the group provided people with a physical 'probe pack' containing activities for the participants to complete at their leisure, asking questions about their home environment. These packs were then returned to the research team at a later date. The purpose of the research was to help inspire future design in ICT and engage the participants at an early stage in the design process. The concept of technology probes developed out of the extension of the probe method from physical materials to the digital realm.

Technology probe

Technology probes are low fidelity technology applications (i.e. requiring very little resources) that are designed with the role of collecting information regarding ICT use, usability and environment of the participants. Theoretically this information should inspire design of new technology. Although the technology probe (see Figure 2 below) was used during the second cycle of the PAR project in this study, in effect the concept of it was present in each part of the study. In Cycle 1, we as a research team decided what functionality aspects would be the most helpful in enhancing wellbeing in the group. In Cycle 2, the probe was deployed and used by the participants albeit with some on-the-spot adaptations to ease usability. In Cycle 3, the team evaluated the benefits and liabilities of this particular design with a view to understanding how it fitted in their lives and what modifications would be required to make it sustainable in their environment.

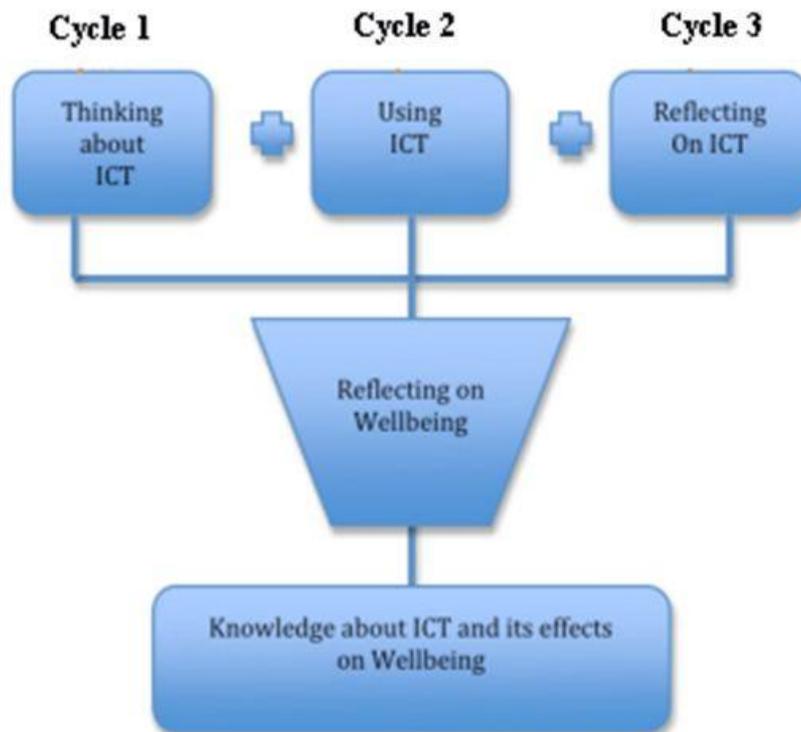


Figure 1 - Participatory action research cycles in the study

Data analysis

Each focus group or meeting was audio recorded and then a transcript was produced from the recording. This information, along with notes from a field notebook, were entered into a computer-aided qualitative data analysis software (caqdas) which was used to append descriptive codes to particular segments of the transcript following an open-coding process (Silverman, 2010). The same process was used with the content added to the probe site, with the addition of using Google Analytics to produce usage statistics and patterns. The final step of the analysis was to combine the information gathered from the in-person focus groups and online interaction with the concluding design requests gathered during the recap interviews at the end of the research project.

Ethical concerns

One of the ethics issues in this project concerned the recording or uploading of culturally sensitive information into an internet accessible data repository (website). Participants were able to set access permissions to the data to define precisely what parties have access to this material. The participants made decisions on what information was made available to groups within the Gugu Badhun people (e.g. significant sites; men's/women's business) and also what information was to be made available to others. During our first meetings we asked if the women preferred their responses to be kept as anonymous, and as a group they decided that they wished their names to be given.

This research was conducted with the approval of the James Cook University Human Research Ethics committee (H2738) in accordance with the National Health and Medical Research Council's 'Values and ethics: guidelines for ethical conduct in Aboriginal and Torres Strait Islander health research' (2003).

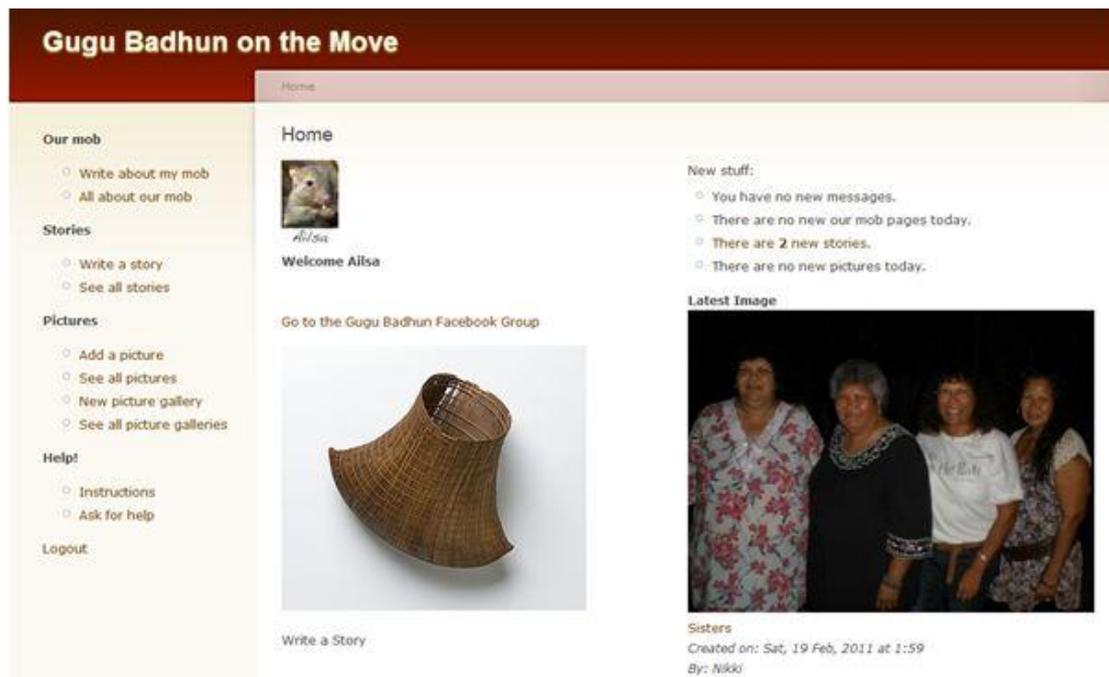


Figure 2 - Home page of technology probe website

Findings from the study

The focus of the research for this study has been to examine 'how can access to, and use of culturally appropriate ICT enhance Aboriginal people's sense of wellbeing'? Embedded within this question is the assumption that ICT can improve wellbeing. In this section we describe our findings in this project. These findings relate to: (a) emotional healing and (b) enhancing connection to family and country.

Emotional healing through storytelling

Storytelling was a primary activity engaged in by the participants, both in the in-person meetings and with the technology probe. A consistent theme throughout the telling of stories was that the incidents that were related had powerful emotional significance for the family members (Garvey, 2008). The retelling of each story allowed them to share in these emotions and to reaffirm their connections as family members and as Gugu Badhun. A few of the women stated that telling stories via the technology probe felt 'healing' to them.

There appear to be multiple aspects to this. First Yvonne raised the issue of healing.

Yvonne:

For me it was sort of a healing thing, sort of like memories.

Ailsa:

Yeah, you know, things come back into your mind a lot more. Like you could see Granny lighting the bloody pipe up, talking to the old people at the singing tree at the old people's graveyard . . . It was like you got to go through the right protocol before you go down there.

For Ailsa, the healing aspect of storytelling on the probe was remembering the details of the events in the stories. Of all the participants, she is the only one who grew up on their traditional lands and therefore had a strong grounding in the customs and obligations this required via training from her grandparents. However Yvonne's further comments suggested that storytelling allowed her a sense of closure which felt healing.

Yvonne:

I think sometimes that things happen over a period of time and you don't really take the time to you know, deconstruct that . . . I don't know, remembering and having some closure. I think this is what it did for me, was to have a bit more closure to a lot of things . . . Because I think when people die, you actually go through a different grieving processes. It's not a nice one, but later on, right now, you can do it in a more...

Ailsa:

Happier things, you remember happier things.

Researcher:

More nostalgic than sorrowful?

Both women:

Yeah.

Additionally some of the women mentioned that the storytelling on the probe took on an emotional aspect for them, often moving them to tears or laughter.

Yvonne:

Yeah, I mean that was the embarrassing thing sometimes actually opening it up at work [the probe] and I don't know about you guys but I'd be sitting there laughing away by myself.

Roz:

Or crying.

Yvonne:

Yeah true, tears for some of the stuff as well.

Ailsa:

After you wrote about the plum pudding, I got the recipe out the other day that your dad wrote, and I just burst into tears.

Storytelling via the probe enabled the women to revisit scenes of previous significance (both good and bad) and reframe them in ways that enhanced their feelings of wellbeing (Paradies, 2006). These comments show that storytelling not only serves as a medium for transferring information, it also helps frame a story in a way that is helpful for the teller of the tale and her audience.



Figure 3 - Storytelling at the cultural camp - image uploaded to probe

Enhancing connection to family and country

Storytelling is a common social activity for Aboriginal people (Fredericks, 2006), and proved to be of importance in his study as well. At each meeting with the participants, the first half hour was usually taken up with a “catchup” about their families. These conversations often started “so, did you hear about . . .”, and proceeded to describe the current activities of their husbands, children and grandchildren (Williams et al., 2003). Rather than being mere family gossip, these narratives served to keep the women up to date regarding potential areas of concern regarding members of the group (Ailsa and Yvonne, personal communication). Some of this type of storytelling occurred on the probe site, but was limited to those stories which could be told without embarrassing anyone unduly, or that would not break a confidence. For example, information regarding a medical procedure was shared between a few of the older women, but these details were not deemed appropriate to place on the probe site.

A second type of storytelling, associated with both teaching and learning, occurred in both the in-person meetings and on the probe site (Esler, 2008). These included historical stories about their youth as well as creation stories that conveyed information about their country. The following creation story was uploaded to the probe site by one of the Elders.

In the Dreamtime the Rainbow Serpent (Yamanie) lived around the Valley of Lagoons. One day he ate a young Aboriginal boy. The Aboriginal People chased him all the way up the river but he went underground. They saw his dust in the distance and crept up and waited until he was asleep then they speared him. Yamanie woke up and he was very angry and his tail thrashed around and knocked down all the trees except for a few. To this day only a few trees grow in the area.

The Aboriginal people killed the Yamanie and cut him open and took the young boy and put him on an ant bed for the ants to eat all the stuff from Yamanie's stomach which was on the body. When he was clean he woke up and was revived. That is the story of how part of the landscape was formed on Gugu Badhun country. – Yamanie story from probe, by Yvonne

Younger members requested details to be added to stories they had been told, and women corrected each other's stories, thereby reinforcing their familial connections via their shared history. The women reported that they felt the probe site provided a way to keep in contact with each other and requested that the site be expanded to include all of the members of their group, not just the few participants in the study.

Val:

Things that happen every day and that there, they are important too, and I think yeah it is a way of actually having people keeping in touch with just everyday stories.

Roz:

I was just wondering if in the future it might be Gugu Badhun Women on the Move (the name of the website) can become just Gugu Badhun you know so everyone actually looks at it.

Storytelling both in-person and in digital mediums performed an important role for this group (Benebed, 2009). While the women often told stories about family events and occurrences in the workshops and interviews, the technology probe allowed the participants to engage in storytelling to a much larger degree, and with people they did not often see on a regular basis. The participants in the Northern Territory were particularly interested in reading and posting on the probe as a way of staying in contact with their distant relatives (Williams et al., 2008).

Roz:

The same as everybody else, actually I felt it was an excellent thing for us to be able to have [the probe site], particularly because up here in the Northern Territory we don't really keep in contact as much as I would like to with them outside of Darwin, so for me it was a great way to sort of like be talking to other people without physically needing to see other people, say family and such so it was great to be able to look at the photos, and a lot of the photos on there I have no idea, we're in touch to be able to find some of the family connections just through the photos.

Ah for me, I found it to be a really good thing to be able to have at the same time it would be great for others to be able to come on and be a part of that.

A significant number of the stories told both in person, and on the probe site (over 75%) related to incidents that happened to their ancestors. These stories

had been relayed to them by their parents and were being passed on to their children. The generation gap between grandparents and grandchildren and the geographic distance between some family members make in-person storytelling difficult. The participants noted that although the grandchildren are not very interested currently in the old stories, by the time they become old enough to seek them out, the older people may be gone, resulting in additional loss of their traditional knowledge. The digital format of the probe site ensures that these stories can be retained for the future.

Ailsa:

Yeah it's such a pity we didn't get so much more off those old people. I'm sure our grandkids and whatever to down the track will be very grateful for [recording] all that sort of stuff, otherwise you lose it. Gosh we must have been that far away from losing it. This sort of stuff keeps it alive, it's there, and um yeah, people have access to it.

People of all cultures use storytelling to affirm and maintain family and cultural bonds, tying the members together in a way that connects them in a web of shared culture. Groups that traditionally did not use written language to convey these stories are often at risk of losing these ties when the family structure is disturbed, as was the case with the colonization of Australia by Europeans, and more recently due to the 'Stolen Generations' era (Reynolds, 1999; Smith, 1999; Zubrick et al., 2010). Instruction methods rely on the teacher to choose the appropriate 'teachable moment' to pass on a bit of knowledge. However, when the student has been removed from the community this opportunity is lost, and the knowledge cannot be transmitted. The women in the study reported that although much of their traditional cultural knowledge has been lost, it is vitally important to ensure that what is left is saved for their children and community.

Several of the interactions on the probe site were associated with the annual week-long cultural camp that the Gugu Badhun hold each year on their traditional country. The site was used to coordinate planning activities for the camp, and later to report descriptions of activities that occurred at the camp. Many of the images that were uploaded to the site were associated with cultural camps over a three year period. Additionally, stories were posted that described camping trips to other areas of their country. In this way, members all participated in discussions regarding the camps without having to leave home.

The asynchronous nature of the website meant that users could communicate where and when they felt the urge, rather than having to arrange their schedules around such meetings (Ng, 2005). The members discussed the happiness that this ability gave them, and at least one participant mentioned feeling sad when there were no new postings to read.

Increasing confidence in the use of ICTs

The women in the study described varying levels of computer proficiency and comfort with the use of ICTs at the beginning of the project. In the excerpt below and mother (Yvonne) and her daughter (Diane) discuss their confidence levels in dealing with ICT.

Yvonne:

Well, I use them (ICTs) all the time for work I actually sometimes have to look around for a pen because I seldom write. The whole of my work is done by computing.

Diane:

My dad actually gave me a computer when I was studying to help me, but I just used it for word processing and I was frightened a bit to go exploring here and there on it . . . I feel a bit of a reject you know with this and when I went back for work, every job they ask for it, and so I felt a bit um, well like it was a hindrance because I didn't really know . . . So in the end I just stick to the basics. But I get frustrated and feel like you know; you need to use it in this day and age.

While Diane reports the feeling that being computer-literate is an important goal, she expressed dissatisfaction with the options available to her regarding learning new technologies. An ongoing concern was the necessity to continually relearn how to do basic day-to-day activities such as making phone calls on a mobile phone or downloading photos from a digital camera.

Diane:

I have a basic mobile phone, it doesn't take photos, it doesn't do much at all, turns itself off and on regularly. But you know, I don't want to take it in because they're gonna say 'ah well, this is how it evolved' and it's just going to go over my head.

One of the women who described computer-based activities she undertook at work indicative of basic ICT competency stated that she was not 'good' with computers.

Tracey:

I do it at work but that's all.

Diane:

But you can download music and all that kind of stuff.

Tracey:

I can do that, but that's about it. When I was at work, I just read the emails that the principal used to send out, all the data the teachers used to send me, that's about it. Yeah, I'm not very good on computers at all.

The frustration that the women reported in attempting new tasks reinforced a feeling of inadequacy in their abilities to use ICTs. However, by the end of the study some of the women who had previously been apprehensive about using computers showed increased confidence, based on participating in the study. Ailsa, a retiree who lived some distance from the rest of the women had never used a computer prior to the project.

Ailsa:

Well I'd say I wish I'd done it a long time ago. You know, sort of like it was always the bitey sitting on the desk, it's going to bite me. Simply because you don't know, you've never had anything to do with it, or if you have, it's always looking over someone's shoulder while they're doing stuff... I feel quite comfortable with it now, but you know there's still things I'd like to learn.

Several of the other participants reported similar feelings regarding computers and technology in general.

Discussion

During the course of the research the Gugu Badhun women described having difficulty staying in contact with members of their group because of issues associated with distance and the fast-paced nature of life in modern Australia. Additionally they discussed issues associated with the need to record cultural knowledge and family history in a manner that fitted in with their lifestyles. Although they had conducted previous projects in recording this knowledge, once these projects ended, the knowledge recording ceased as well. A final issue surrounded the need to combine all of this knowledge with that stored digitally in other locations such as state and federal archives, and place it on their own digital repository. This complex situation was having significant wellbeing impacts upon their group as they felt time slipping away from them, potentially leading to even greater loss of cultural identity. The women had attempted to harness ICT to manage these issues, however their primary communication tools, i.e. telephone and email proved inadequate for this task.

At the conclusion of this research, the Gugu Badhun women now have a website that can be used to handle many of the issues listed above. The members helped co-design the site themselves, and have used it for over a year. The site is backed up on a periodic basis, and the data from the research period has been copied onto an external storage device. The women reported an increase in their sense of connection to each other and to their culture, as well as an increase in their confidence in using ICTs. The probe site allowed the women to use storytelling to reaffirm their connections to their group and to their country in a way that was not previously possible and which was culturally appropriate.

The use of the probe site offered a number of solutions to issues the women discussed. A primary benefit was the sense of empowerment the women reported in their increased knowledge regarding ICTS. Although the participants used the probe in different ways, most of the women with the highest level of reported stress with using ICTs developed new skills in using them. The support for kinship ties was an important outcome of the research. Through the process of doing the project a number of cultural and family stories were recorded that will be able to be accessed by other members of their community. A final but not unimportant outcome was the development of a safe place for the members to communicate.

While the development of the probe site was able to address many issues, there still remains much work to be done as far as meeting the complete ICT needs for the group. A major area of concern is to keep the teenagers of the

group connected with their culture and family. Whether or not this can be achieved using a similar site remains to be seen. Younger members of the project team were much less likely to post entries on the website, although they did read the site from time to time. The project participants discussed the idea of creating a separate section of the site for the youth, so that they could communicate freely, but due to time constraints this has not been implemented as yet.

In addition the group has much data that still needs to be recorded and stored in a safe location. During the project a second Gugu Badhun website was established by the larger community, however at the moment it has not yet been populated with data. While Yvonne's grandson Tristan has agreed to take on responsibility for managing this new site, the collection of all of the varied records and data is a large job. There are many projects that the women would like to implement such as a recording of a cultural heritage walk with the elders back on their country, and making other recordings of their family history. While the creation of the Women on the Move site resolved a number of issues, it was successful in documenting another large group of ideas for further work.

Implications for research with Aboriginal and Torres Strait Islander peoples

The research in this study has had beneficial outcomes for the participants in regards to wellbeing. Some of these benefits can be generalised to the Aboriginal and Torres Strait Islander peoples as well. Often research that is conducted with Aboriginal and Torres Strait Islander people is approached from a deficit attitude, i.e. with the idea that the people are lacking something that the Western researcher can provide. This is a continuation of the colonisation process, by placing the researcher in the one-up position over the community being researched (Grievess, 2010). A common symptom of this attitude is found in the situation where the researcher expects the Aboriginal and Torres Strait Islander people to bare their souls, but the information flow is only one way. Fredericks (2007) describes these sorts of researchers as leeches that keep taking but never giving.

In this study, the participants expressed appreciation for hearing stories about Madden's family and life in America. Comments such as 'it's good to learn about you', showed the women's appreciation for this two-way sharing of stories. This is particularly important for the wellbeing of women who bond through the sharing of details in each other's lives (Tannen, 1991).

The research in this study showed that self-determination and independence can be increased through the use of an online medium such as the probe that was used in this project. Through the increased connection that was facilitated by the site, the participants supported each other in their daily lives. The families were able to draw closer together through the act of telling stories and discussing them on the site. The sustainability implications of this are that the group as a whole is strengthened. These positive effects were obtained through the use of PAR and co-designing a technology probe suitable for the group not just use of the website alone.

The findings of this study imply that this sort of research can have benefits for those Aboriginal and Torres Strait Islander members outside of this research group. Indigenous peoples have certain generalisable issues due to the aftereffects of colonisation (Smith, 1999; Nakata, 2002). Culturally supportive

ICTs can provide a nurturing environment that can be self-managed by the people themselves.

Recommendations for future work

The research from this study has shown that participation in the design and implementation of a secure, culturally respectful website increased the members' sense of wellbeing. Two primary areas this research emphasised were enhancing connection between people separated by distance and a mechanism to record cultural history. The following recommendations address how this research could be used to supplement wellbeing in other Aboriginal and Torres Strait Islander peoples.

Use with people residing at a distance from family. Many Aboriginal and Torres Strait Islander peoples live away from their extended family. Study and employment often require long-term separation. The provision of a method of connection with family members without outside intervention has the potential to raise wellbeing.

Use with marginalised groups addressing sensitive issues. Online forums have been used with success to provide a caring, support mechanism for those people addressing difficult situations (Fingeld, 2000; White & Dorman, 2001; Barak et al., 2008). The need for this with groups dealing with highly sensitive issues could be considerable. It is recommended that such a system be trialed with people undergoing stressful events to see if it can ameliorate their wellbeing. The healing benefits of storytelling as revealed in this project appear to have significance here.

Use with groups wishing to record cultural history. One of the most highly regarded benefits of using the probe site as reported by the women was to record their cultural and family history. It is not a stretch to suggest that it could be of similar value to other Aboriginal and Torres Strait Islander people. The recording of cultural history is an activity of considerable importance for many of these groups.

Conclusion

Community research presents issues very differently to that encountered in general business orientated ICT development (Huyer, 2005). The locus of authority is not based in a manager or other decision-maker but is spread out among multiple stakeholders. When doing research that requires the navigation of cross-cultural boundaries, communication issues can become problematic. Assumptions made on both sides can lead to difficulties in translation. For instance, in this study many of the participants held beliefs that ICT work was very complex and required a high level of intelligence to comprehend. They doubted their ability to make decisions regarding the development of ICT without expert assistance. This made it difficult to reduce the perceived power structures between researcher and research team. From the other perspective, I sometimes did not understand social situations that I observed and their importance to the study.

The foundational research question for this study was 'how can wellbeing in an Aboriginal community be enhanced through the culturally appropriate use of ICT'. This research explored this question through the use of an ICT targeted to the participants' needs and requirements. The research showed that the women engaged in activities central to maintaining their family and group identity and sustainability. These actions included staying in contact with distant family members and maintaining ties with their ancestors and country which are central to supporting wellbeing in their group. Due to the distance separating family members and the busyness of modern life, opportunities to connect and share their lives and culture are growing increasingly rare. Significant cultural work is done by the women to stay connected to each other and to their country. These activities are not currently supported by the ICT commonly used in the group such as email and telephone.

Previous use of technology probes with Indigenous participants has focused on examining a particular facet of community life. Storytelling via the online probe site revealed a method of not only conveying information but also in healing. Situations were reframed in a way to bring healing to both the teller and the listener.

This study contributes to an understanding of the importance of connection and social cohesion in Aboriginal and Torres Strait Islander communities. While these concepts are well documented, their application in ICT research is not common. This research contributes to the documentation and implementation of culturally appropriate research methods with Aboriginal people. The development of a collaborative understanding of best practices for ICT design in this type of community setting is crucial in order to ensure that Aboriginal and Torres Strait Islander people have access to applications that do not discriminate based on Westernized metaphors and worldviews.

After a decade, Nakata's (2002) vision of the future of Indigenous ICT endeavours still rings true.

What the future Indigenous information context What the future Indigenous information context will look like is speculative. What can be certain is that the intersections of different Knowledges, systems, concerns and priorities will converge to inform and develop new practices in this area. As

this unfolds, I would hope that the information profession would be mindful of just how complex the underlying issues are and just how much is at stake for us when the remnants of our knowledge, for some of us all that we have left to us, are the focus of so much external interest (p. 291).

The research in this study has demonstrated that the development and use of culturally appropriate ICTs through respectful collaboration between Aboriginal and nonAboriginal people that takes into consideration past histories of conflict, present understandings of the differences in ontologies and epistemologies and which strives to level power imbalances between researchers and participants has the potential to improve wellbeing in Aboriginal communities.

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