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# Technology Skill Sharing in Torres Strait

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**Technology Skill Sharing In Torres Strait**

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## Abstract

*The increasing deployment of technology is changing the way services are delivered. New technologies require people to learn new procedures to do the same things they were doing previously as well as to learn to use entirely new services. Business has made little accommodation for the diversity of users and their situations as the use of technology increases and the human interface with its clients' decreases.*

*This study looks at how Indigenous people in a remote area access Internet banking services. Internet banking is a discrete technological skill that has been effectively acquired without outside assistance or direction: this makes it a useful lens to view the process of technology skill acquisition.*

### Keywords

Internet banking, Indigenous learning styles, Workplace learning

## INTRODUCTION

This is a study of how Indigenous people in a remote community have taught themselves to use Internet banking. I give a brief literature review to situate the theories I am using to discuss my findings. I establish this project as effective learning and then focus on the characteristics of the learners, the training method and the context of learning. Some very strong themes are apparent: the importance of personal networks; the central position of the workplace as the location as well as the facilitator of learning; and the place of personal agency to take up opportunities to learn.

The project is presented as an exploratory project to see how such a situation aligns with existing theories on adult learning, Indigenous learning and workplace learning

## METHODOLOGY

This study is conducted as an ethnographic case study and includes some quantitative data analysis. The data collection follows a multiple method approach: including initial exploratory observation, interview and informal conversations. A questionnaire was used as a supportive technique for the qualitative findings. The participant sample was representative of the active Internet bank users; it does not include those people who enlisted others to do their Internet banking for them.

The research was conducted on site.

## LITERATURE REVIEW

There are a range of theories that offer partial explanations for the situation of this project.

Knowles developed a concept of adult learning distinguishing between how children and adults learn. He called this "Andragogy" and argued that the life experiences of adults are a rich resource for self-directed problem solving groups (1985). His work underpins a range of work-based learning theories which make the further distinction between how workers learn and how people learn in institutions. Mitchell and Young (2001) outlining the derivation of work-based learning theories, identify key researchers in this field as Mezirow (1981); Kolb (1984); Marsick (1987); Boud (1997); Garrick (1998). Adult learning theory is also used in work on Aboriginal learning (ANTA 2004).

Activity Theory, or more properly the cultural-historical theory of activity, is a general learning theory. It works on the relationship between human agents and objects of environment as mediated by cultural means, tools and signs. The founders of this theory were Lev Vygotsky, A N Leont'ev, and A R Luria in the 1920's and 30's. This theory provides structure for a socio-cultural work-based learning approach. Mitchell and Young, (2001) include Billet (1993, 1994); Lave and Wenger (1991); Vygotsky (1978); Wenger and Snyder (2000) in the main researchers using this approach. In this article I draw on Stephen Billet's work. Billet challenges the distinction between institutional or formal learning and workplace or informal learning.

Aboriginal learning styles is another approach, whose primary source in Australia is Stephen Harris in *Culture and Learning: Tradition and Education in Northeast Arnhem Land* published in 1980. Harris identified five areas characteristic of Indigenous learning: learning by observation; learning from life experiences; learning by trial and error; focus on skills for specific tasks; emphasis on people and relationships. Harris' work was particularly influential in raising awareness of the importance of a contextualized system and style of learning. Other researchers in this field include, Nichol and Robinson, (1999); Nichol, (2002); Malin, (1990). Hughes and More (1997) provide an international perspective.

Whilst theorists of Indigenous learning agree that Indigenous people are culturally and linguistically very diverse within Australia, as well as differing from rural to urban settings (Nichol and Robinson, 1999; Nichol, 2002; Nakata, 2000; Gelade and Stehlik 2004; Robertson 2004) they claim an essential Indigenous learning style or at least sufficient common factors to make it useful to talk about one (Hughes & More 1997).

Substantial work has been done under social justice auspices to develop resources and curriculum for teachers of Indigenous students. These contain practical strategies based on learning styles theory as well as Aboriginal learning styles and adult learning principles, (Robertson 2004, ANTA 2004). This work is supported by reports that critically look at the impact of context and location on Indigenous learning outcomes. (Gelade and Stehlik 2004).


## BACKGROUND

The project takes place on a small remote island with a population around 120 who continue to speak their own language on a day-to-day basis and practice many aspects of their culture, while also acquiring modern technology and conveniences that are useful to them as individuals and as a community. Radio, television, video, and stereo ownership is nearly universal. Every household has or has had a telephone. Private computer ownership is limited, so although satellite and dialup Internet access is available, fast and reliable, few households can access it. The school and the council are the only workplaces with Internet access, and only one other workplace has a computer. There is limited availability of newspapers and there is no library.

Neighbouring island communities are at a similar technological level but neighbouring villages in Papua New Guinea have little technological development.

There is a primary school on the island, however children must go away to boarding school for secondary education. The post-school training available on the island is generally work related.

The banking services are limited to telephone banking, EFTPOS, Internet banking and credit card. Money transfers may be done at businesses on the island at a cost of between $11 and $30 per transaction.

**Internet Banking Sites.**

Participants in the project used a number of different banks; however there are general features of their Internet web sites. Though the "log on" section may be hyperlinked to a tutorial, (only one bank has an interactive test drive tutorial) or troubleshooting area, it always has a local call telephone number for assistance. Different banks "Help" are not interactive but they may be hyperlinked to a text glossary. Financial awareness training is included on the bank sites; however it is primarily designed for school children. The sites also offer some 'tools' to calculate such things as time and cost of loans or savings plans; information about other bank services and may also have finance-related news updates and newsletters.

## RESULTS

All project participants are currently employed. 29% of participants are currently enrolled in job-related training courses; 57% have completed a post compulsory education award. 86% of participants identified work as one of the places where they learnt computer skills; the other main location was at school, 71%; 57% identified learning at a training course on the island; and 57% identified learning their technology skills off island training also.

All participants had computer skills prior to using Internet banking, and 71% owned their own computer. However, at the time of writing, 57% stated that their computer was not working.

17.5% of the island population regularly use computers, this exceeds the 2001 census figures of 4.5% of Indigenous population in the Torres Strait region using computers (Arthur 2003). This percentage compares with an Australia wide rate of 17.3% for Torres Strait Islanders who use computers (including Torres Strait Islanders who live on the mainland), although it is well below the non-Indigenous Australia wide rate of computer usage of 44% (Arthur 2003).

Participants came to know of Internet banking from a variety of sources: 57% heard about it through their personal network (the questionnaire did not ask the location of this person); 14% read bank advertising; 29% were introduced to it in a professional development activity; and 14% saw it being done.

Once they were aware of Internet banking 86% went to the web site to read about it; 14% asked other people; and 14% telephoned the bank. (Participants could indicate more than one source of information).

Participants demonstrated a combination of strategies to learn Internet banking. 29% learnt from a friend; 14% did the online tutorial; 43% just went in and started to work through the process on the live web site; and 14% observed someone else doing it. In all 71% were independently learning.

## EFFECTIVE LEARNING

It is important for the scope of this project to establish that this process represents effective learning. I have used Kirkpatrick's (1994) four level model for assessing training effectiveness to evaluate this project. This model includes evaluation of the impact of the project on the surrounding community, and it has been effective for evaluating online training and Information Technology projects. Specific questions were included in the questionnaire for this purpose.

Level 1 Reaction to the training process.
71% found Internet banking easy to use. 29% took some time to work it out but now find it easy. They said they liked it because it was easy.

Level 2 Amount learnt.
Participants identified the following things they had learnt to do in Internet banking: check account balance, check statement, and transfer to other peoples account: all 100%. Paying bills and transferring between own accounts:

71%. 14% used the scheduling of transactions facility, the search for bank fees facility, other bank services, money management information, viruses and security, and how to minimize transaction fees.

To access the online banking program participants had already used a diverse range of skills, such as: information seeking; problem solving; navigating, that is making associative or referential links; comprehension to sort information for relevance; and processing knowledge from both graphical and textual information. (McKavanagh et al 1999).

Level 3 Transfer, or amount of material learnt that participants actually use.
This is established use: 43% report using Internet banking every week; 29% every fortnight and 29% every month. Participants' responses show that they are very focused on Internet banking primarily for checking their accounts and transferring funds on an ad hoc basis. Very low to zero ranking was given to doing banking tutorials or accessing other information about bank services. 57% report setting up their own additional banks accounts for Internet banking.

Level 4 Value to the community
The ability to Internet bank has been of benefit to more than just the individuals concerned. The participants have helped with and taught others the process. 29% reported helping more than 10 other people to do Internet banking. Those who help, report that they spend more time doing banking for other people than on their own. The people they help may be on the same island or family members on other islands; they may be older and not want to deal with technology or find it difficult to access technology. This sharing of skills has been reported as a learning "multiplier effect" in other communities. (Gelade & Stehlik 2004)

All participants report that Internet banking saves them money in fees. 86% report being able to send money to family and 43% report access off-island shopping as advantages of Internet banking. 57% report that Internet banking enables them to manage their money better. Participants comment that it gives them choice and the potential to do more shopping off island. Better money management could be considered an aspect of community capacity building.

Evaluating from these four perspectives indicates this to be effective "training".

# DISCUSSION

The project has elements of workplace learning, Indigenous learning styles, and adult learning theory. Between them these theories address the characteristics of the learner, the training methods and content, as well as the context of delivery.

**Characteristics of the learner.**

The participant profiles show this group is not representative of the community as a whole. They are all employed people, which means they are daily working out technical and administrative problems. They have completed or are in training so they are experienced learners developing skills over time using a variety of training sources. As government employees they are used to dealing with European culture and English language so language is not a barrier to learning that other remote indigenous students may face (Gelade & Stehlik 2004).

The adult learning approach states that: adults are autonomous and self directed; goal oriented, relevancy oriented; they need to know why they are learning something; practical problem solvers; and have accumulated life experiences. (Blackmore, 1996). The study confirms the participants are showing these characteristics and that this online learning suited them.

Aboriginal learning theorists add insight and contradictions. Traditionally skills were learned by observation, imitation, and real life practice and from oral tradition linking song, site, skin and ceremony. (Nichol & Robinson, 1999). The historical model indicates the importance of learning in context and of personal links with information.

Nichol, summarizes characteristics of Aboriginal learners now as "holistic, imaginal, (through observation and imitation rather than verbalisation), kinaesthetic, cooperative, contextual and person oriented" (2002, p7).

This project exemplifies aspects of all of these learning styles.  However, while participants were reliant on personal links for the concept of Internet banking there was a strong preference toward independent learning and privacy. Where successful learning has occurred we can see adult learning and Indigenous learning styles evident. However, what makes learners choose to take up, or to make opportunities to learn this particular skill?  Motivation is important: a "lack of clear goals" has been offered as a reason for poor learning outcomes in training programs (Bowman 2004, Gelade & Stehlik 2004).  In this project participants identified saving money in transaction fees and having choice and control of their finances as benefits of Internet banking.  In interview they reported that their reason for learning Internet banking was because it was easy.  The choice to learn is complex and not entirely conscious.  Billet describes it as a person's agency and within that, active agency.  Agency determines their engagement with the social world, as each person's world view is shaped by their history and experiences, values and beliefs, and from this individuals will decide whether they will engage with workplace learning opportunities. (Billet 2001).  Individual choice to learn is internal and learners have a learning style preference, but the nature of the training and the context of the training are also fundamental considerations in making that choice.

**Training Methods**

The bank site and banking tutorial for connecting to Internet banking are consistent with Just In Time (JIT) learning. This approach is used to deliver training to workers as they are working rather than in traditional classroom training. Workers use online tutorials, interactive CD-ROMs and other tools to access the information they need to solve the particular problem they have at the time.   Features of this approach are learner control; time and place independence; and functional use of information.  It is a constructivist model where learners actively construct knowledge by integrating new information and experiences in to their existing knowledge.

This approach aligns with adult learning principles and this mode has been identified as a way to make training more culturally appropriate for Indigenous people (Roberston 2004, Gelade & Stehlik 2004), as it provides information in context and allows learners to apply their new skills to a real life task.

Participants in the study have responded very positively to the bank web sites and their learning experience. No problems or suggestions for improvement have been made either in interview or questionnaire.

Critics of JIT argue that these models transform learners and consumers into individuals who understand what they need and where to find it and how to use it (Riel 2001) thus while JIT suits some learners it may further disadvantage those who have less developed analytical or critical skills.  Riel argues that this form of learning actually increases the need for teachers.  In this study we see participants selectively accessing information and learning particular skills.  The results show that they took what they already knew, a service that they had previously used in different form, but did not explore far beyond it even though they were in an information rich environment relevant to their banking interests.

Riel (2001) argues that the enormous amount of information on the Internet ultimately increases our dependence on each other.  This study shows the importance of a personal link to information: most people found out about it from a friend, which in such an isolated region is a significant finding.

The bank site design presupposes users will already be familiar with the Internet, the procedures and terms of banking, and be motivated to persevere with the process through their need to access their accounts.

**Context of Learning**

The two aspects of extreme remoteness and very small population are important in this project.  The community is too small to support specialist staff for services, the few staff employed must be generalists; and the community is too isolated for easy sharing of skills and training.  Location is recognised as a determining factor for opportunities

and choices for education (Gelade & Stehlik 2004). It affects the literacy, language, attendance, health and self esteem of the learners (NLLIA 1996), and the availability of teachers and trainers.

The workplace in this project is both the site of learning and the place where the technology is accessed. Billet explores ways of understanding workplace participation as learning experience (Billet 2002). In this project the workplace provides a nexus of the learner, site and participation.

Billet uses a range of conceptual bases; however they all focus on relations between individual cognition and the social sources of knowledge and contribution to learning. He argues that workplaces are sites of social practice and identifies three factors that affect learning: Inter-psychological processes, between individual and social partners, artefacts, symbols and the physical environment; workplace affordance; and the agency of the learner. He describes learning as co-participative, that is both how the workplace affords participation and how individuals elect to engage with the work practice and therefore learn (Billet 2001b).

Billet argues that opportunities for learning are distributed by "factors such as workplace cliques, affiliations, gender, race, language or employment standing and status" (2001a p89) and that individuals engagement with the workplace is a "product of their personal history or ontogeny, which is shaped by their social experiences" (2001b p99). In this study the ability to do Internet banking is closely tied to opportunity to access the computer in the office. Council employees have access to their work computers but some "outsiders" access the computers also. These "outsiders" may have access on the basis of family or personal links, but there is also a sort of professional network operating in that some employees from other organisations may access the computers.

Billet gives examples of the affordance a workplace offers as access to other workers, time to practice and learn, inclusion in knowledge sharing, discussion groups, access to knowledge, implementation of training programs, encouragement, attitude and skills of co-workers and opportunity to practice (2001, p98). Affordance may be more or less active.

This workplace is shown to have active affordance in that non-work related learning and use of computers by staff is openly encouraged in the understanding that the skills people learn on the computer in non-work activity will be transferable to the work situation. There is also an established pattern of skill sharing and even some degree of competition in learning new skills with software.


**FUTURE STUDY**

This exploratory study has shown the value of using a range of perspectives. Future work would look at a framework, such as activity theory, to tie the perspectives together. The workplace is a significant factor in this situation and future work should include a more detailed study of aspects of Billet's workplace learning approach in relation to it.


**CONCLUSION**

This project has looked briefly at characteristics of learners, the training program and the context in which it occurs. Each area has provided insight and reinforces the idea that learning can not be studied apart from the context in which it occurs.

Some very strong themes are apparent: personal networks were the impetus for people to start the process; the workplace was important for access to both equipment and to willing and skilled support; and the place of personal agency to choose to take up this learning opportunity.

Workplaces in remote areas are very important for information, ICT skills and knowledge acquisition, opportunities for ad-hoc learning, English language practice, a reliable computer system, and the opportunity to attend training on and off the island.

Studies of this nature are important to trace the impact of increasing use of ICT on different sectors of society.  This study has indicated some of the issues faced by people in a remote area to develop skills and gain access to IT equipment.   ICT enabled bank services have allowed the bank to transfer the major cost and responsibility of providing the banking service to the community thus leaving people in remote areas vulnerable to exploitation. People in this community are fortunate in that they have a workplace which offers active affordance for learning technology and active, altruistic family and community members to perform bank services for them.   This has enabled them to acquire technology skills and to access useful services such as Internet banking while remaining on their remote island, practising their culture and speaking their language.

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