



The Australian Journal of **INDIGENOUS EDUCATION**

This article was originally published in printed form. The journal began in 1973 and was titled *The Aboriginal Child at School*. In 1996 the journal was transformed to an internationally peer-reviewed publication and renamed *The Australian Journal of Indigenous Education*.

In 2022 *The Australian Journal of Indigenous Education* transitioned to fully Open Access and this article is available for use under the license conditions below.



This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

Technological Communities of Learning: A Model for the Use of New Information Technologies by Indigenous Students¹

Nicola Yelland

*Queensland University of Technology
Brisbane*

Keith Gilbert

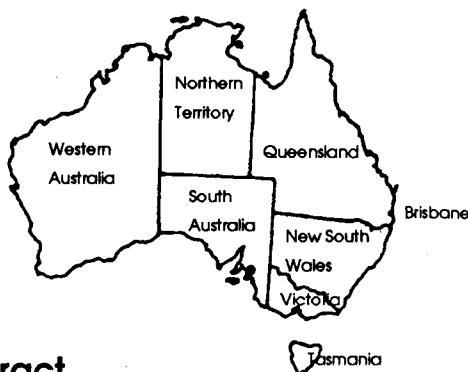
*Queensland University of Technology
Brisbane*

Nereda White

*Australian Catholic University
Brisbane*

Jacki Smith

*Queensland University of Technology
Brisbane*



Abstract

This project was designed to enhance the academic success and profiles of Aboriginal and Torres Strait Islander students at the Queensland University of Technology (QUT) through increased proficiency and awareness of computer technology. The program attempted to establish a community of practice with technology, that focused on **teaching** and **mentoring** Aboriginal and Torres Strait Islander students by supporting their use of computer technology. Prior to this project, there was no sound base of support for encouraging the use of technology with this group of students in the university and thus they were reluctant and apprehensive about its use in their studies.

Initially, we focused on the development of the students' proficiency in word processing so that they could apply their newly learned skills directly to their coursework and assessment in the specific degree that they were studying. Secondly, we introduced the students to the Internet and finally we assisted them with the location of information in the Library and from other sources. Consequently, the key notions of the project related primarily to improving the students' skills in **writing, communications, and searching and accessing information.**

Introduction

Anecdotal information from lecturers and discussions with staff in the Oodgeroo Unit at QUT indicated that Aboriginal and Torres Strait Islander students generally tend not to submit assessment items using word processors, and have difficulty searching and accessing relevant literature and information using technology. Talking with the students revealed two important reasons for this situation. Firstly, many had not had the opportunity to use technology before they came to university and secondly, training courses that were offered for students were not sensitive to the needs and interests of this group of students. The Remote Area Teacher Education Project (RATEP) revealed that once Aboriginal and Torres Strait Islander students overcame their initial state of fear of using the technology they became successful in mastering interactive programs and word

¹ This research was supported by a Faculty of Education Equity Grant

processing packages at an appropriate level. Unfortunately, the RATEP program could not initiate a program in word processing or gaining access to information, and did not suggest or describe the mechanisms by which this could occur. Consequently, the initiation and implementation of the present project not only provided an immediate solution to a problem but also represented a catalyst for self-sustaining growth of the use of technology by Aboriginal and Torres Strait Islander students. Along with this, we hoped the program would provide other outcomes, such as detailed information about learning styles that would enable us to further design other learning experiences for the students.

The creation of a 'community of practitioners' (Lave and Wenger, 1991) using technology was conceived, which consisted of a group of students led by an expert who was familiar with the content domain and sensitive to the needs of this special group of students. Our aim was to give encouragement to the students to further explore the potential of computers in a non-threatening environment. We hoped that it would then lead to shared knowledge with an extended community of new students, whereby the students would take such skills and knowledge into the wider community. It is important to note that the existing training models with computers found in the university system have not been of any benefit to Aboriginal and Torres Strait Islander students. Our Indigenous students have not chosen to attend such courses, yet if they did, they found them to be totally inappropriate to their needs and interests.

Theoretical Framework

The design of the project was based on the work of Lave and Wenger (1991) who argue that social practice, what people do and how they communicate about it, is the primary generative phenomenon, and learning is one of its characteristics. They 'locate learning not in the acquisition of the structure, but in the increased access of learners to participating roles in expert performance' (Lave and Wenger, 1991: 17). A key part of this process is the imparting of skill and knowledge with increasing levels of sophistication and participation. In this context learning is viewed as **being in** a particular social world, not merely knowing about

or describing it. In this model the expert is viewed as an 'old-timer' who shares his/her practical knowledge and skills so that 'newcomers' are gradually inducted into a community of practice defined by the project, that is, as effective users of technology. They state:

... learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to move toward full participation in the socio-cultural practices of a community. 'Legitimate peripheral participation' provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts, and communities of knowledge and practice. It concerns the process by which newcomers become part of a community of practice (Lave and Wenger, 1991: 29).

The characteristics of such a community, which make it particularly effective, occur when: participants have broad access to different parts of the activity and eventually proceed to full participation in core tasks; there is abundant horizontal interaction between participants, mediated by stories of problematic situations and their solutions; and the structures of the community are transparent for the learners' inspection (Engeström, 1991: 252).

These features were incorporated into the design of this project. Lave and Wenger (1991) discuss various ways in which the model has been applied to varying communities including Vai and Gola tailors in West Africa and midwives in South America. Consequently, it was thought that the model would be particularly appropriate for our Indigenous students who have a strong tradition of solidarity and learning collaboratively.

Aims and Objectives of the Project

From this framework we conceptualised five broad aims for our project. We wanted to:

- encourage Aboriginal and Torres Strait Islander students to use technology by providing a supportive framework for learning about new technology
- increase the skills of Aboriginal and Torres Strait Islander students in their use of technology
- examine performance and learning with computers

- establish a community of practice centred on technology
- provide a knowledge-base for planning future support programs for Aboriginal and Torres Strait Islander students at QUT.

As previously stated, we thought that the content of the program might include information pertaining to the basics of word processing and desktop publishing, information access in the Library and use of the Internet by Aboriginal and Torres Strait Islander students at QUT. The University currently has 218 students enrolled on three campuses, and this pilot study involved 16 students in the Bachelor of Education degree. The teaching/learning context for this project is based on a model of apprenticeship in which an expert who has specific skills and knowledge (in this case with technology) imparts this knowledge to a group of novices. An essential element in this project is that the expert has to be sensitive to the needs and interests of the Aboriginal and Torres Strait Islander students and work with them as a facilitator in order to encourage them to experiment, take risks and want to use computer packages to complete their assignments and other assessment requirements.

We also needed to evaluate and document the project in terms of student outcomes and report on their experiences throughout the project. We are not aware of another university that has such an initiative and it is hoped that the results of the project will encourage other universities to adopt such a program. We feel that, at the moment, Aboriginal and Torres Strait Islander students are disadvantaged because they do not feel confident and competent using technology. Our overall goal was to empower them to use technology in the three contexts previously described, so that they could appropriate it for their studies.

It was our intention that once the community of practice had been established by the project it would be **sustained** by the strong tradition of community practice inherent to Aboriginal culture so that as new students come to QUT in subsequent years, they would **join** the community and be **supported** by their peers.

Creating the Community of Practice

The Aboriginal and Torres Strait Islander students who attend QUT are assigned to a tutor from the Oodgeroo Unit whose main role is to support them with their academic work. In reality, however, the relationship is much more than this as they work together closely in all matters concerning the students' welfare while they are attending the University. The Unit is part of the Division of Academic Affairs and reports to the Pro-Vice-Chancellor, Academic, but has its own co-ordinator and academic and general staff members.

The students were introduced to word processing by the teacher/mentor who was then available to the students for additional time on subsequent days so that the students could come to them with ideas, questions and problems. The basics of word processing and desktop publishing were presented, so that the students learned how to enter, edit, format and print documents, thus enabling them to reproduce quality materials with text and, if the need arose, graphics. The emphasis was on practical problems experienced by the students. We collaborated with unit co-ordinators in order to ascertain what content was appropriate for this phase but to a large extent content was determined by the requests of individual students.

At the same time and where appropriate we helped the students to carry out a literature search using CD-ROM and to access articles from international databases. Finally, for those who asked, we showed them how to use the Internet, with an initial focus on the use of e-mail. This was later followed with sessions on accessing the international Listserv facilities and World Wide Web pages.

Thus, the design focused very much on a model that was grounded in sound pedagogical principles, characterised by group participation, learning by doing, sharing problems and successes and open channels of communication. It was designed to enable technology to be integrated successfully into the total learning process and represented an attempt to operationalise Lave and Wenger's (1991) model.

The project began in Semester 2, at the beginning of July. Our records identified 19 students in the Bachelor of Education who were asked if they wanted to participate in the project. Three of the students had deferred their studies at this point and thus we made contact with 16 students, who were in the first, second and third year of their four-year Bachelor of Education degree. Our tutor/mentor established contact with the students, either via their Unit co-ordinator or directly by phone, and explained her role. The students were then asked if they would like to make a time to meet with the mentor so that she could determine their needs with regard to the type of technological assistance that they thought they might need for the semester with regard to completion of assessment items. When this was done each individual or group of students established a pattern of assistance that continued for various periods of time and frequency.

From the beginning it was apparent that in order for the model to succeed we had to be sensitive to the needs of the students while at the same time realising that we were the 'old-timers', or experts with technology. We needed to know what the students wanted to use the technology for, so we determined the broad parameters and asked the students to set the agenda and maintain contact with the mentor as they decided. The traditional form of instruction with technology tends to be a course that is offered on a given day and time, and with the content determined by an instructor. This obviously did not suit our group of students, so they did not attend. In this process they were severely disadvantaged with regard to their experiences and thus competence with technology. We were able to support individuals and small groups of students in a much more intimate way and then they in turn helped each other by providing information about useful and not so useful ways to accomplish things.

Indigenous Students Learning with Technology

What follows are some examples taken from the study to illustrate how individual students participated in the project.

From the beginning it was apparent that Carl was interested in technology and wanted to appropriate it for his own needs and pleasure. He said that he did not know 'anything much' about computers before he came to university, except how to turn them on and type. He had learnt how to touch type and this put him in a good position to do his assignments in a very rudimentary way. What he wanted now was to learn more about the advanced aspects of word processing and more importantly how to access the Internet, because he had heard that it was fun to 'surf the net'. After being shown how to set up the e-mail and access lists, Carl proceeded to have 'fun'. He said, 'At first we just did it as a fun thing. We didn't take it seriously we just wrote abusive letters to each other!! There was some seriousness if we needed some help ...' He was shown how to find out who was on line at the same time and thought that this was useful because it was good to be able to connect to them and chat. By the end of the semester he said that he did not do this much because he had learnt a lot himself and did not need so much help. Meanwhile, the mentor had shown him how to find a 'penpal' via the web and this opened up a whole new audience for interaction. At the moment Carl is in contact with four 'overseas' pals, one of whom he 'talks' with on a regular basis. They talk about many things over the net but mainly '... different life styles and stuff and the things we do ...' Apparently she goes to 'a highly regarded university ... some big name'.

Carl indicated that one of the things that he had learnt this semester was that there are different ways of writing. He said that he liked the non-formal way of writing on e-mail as compared with the formal requirements for assignments. He stated that he felt that he '... relies more on computers now. Every morning I go into the e-mail room and check for mail and stuff. I don't know ... it's quicker ... does assignments better and stuff.' In regard to this latter comment Carl expanded to explain that '... the spell check and the thesaurus and word count and stuff. It takes all those pressures away ... yeah ... just those little things make all the difference.' This was important because at the end of the semester Carl got his first 'credit' grade for an assignment after just scraping through most of his units in this, his first year, at university. It seemed to give him more confidence

to proceed. In fact he realised the importance of presenting assignments on the computer and thought that his lecturers were of the opinion that if you did not use a computer that you would fail the course. He stated:

They have made us use computers and stuff by ... counting one of the assignments on the computer ... like having to send something to your tutor on the computer ... that is more or less saying if you don't do this and learn how to use the computers you are going to more or less fail this course (Carl, interview transcript, November, 1995).

In this particular course the lecturers had given information out via e-mail and expected the students to use it as the main form of communication for assignments and other interactions.

What Carl was indicating was his perception that using technology was essential to success at university. This is exactly what we had perceived and thus were extremely pleased when his success in this unit was the first of its kind. So during the course of the semester Carl had become familiar, proficient and confident in using a word processor, e-mail and accessing the Internet for 'fun'. However, it did not stop there. Carl was proficient and confident enough at this stage to help other students with their assignments and tasks. He said:

I help other students actually. It is one thing to know how to use a computer but if you know how a computer works you can ... it is more ... it is better ... you understand it better. ... Most of the students in the course don't know how to save a thing without asking ... so I help them ... (Carl, interview transcript, November 1995).

This was very important for our model because we hoped that once the community of practice was established it would be self-sustaining in the way that Carl had indicated that he had helped others. He said, 'It is just ... it is one of those things for me. I said I wanted to learn how to use a computer ... it helped me to do my work ... I don't know ... it just made my work a lot easier that is all.' Carl noted one very important thing about his peers' reluctance to use technology. He thought that they were '... too afraid to ask ... I am not afraid to ask any more but they are sort of ...' By helping students to help themselves and each other, we are hoping that the community of practice that has been established will continue to grow and increase the proficiency and confidence of all our Indigenous students at QUT.

We had another individual student come to the mentor in a different way. Kaara was described by the mentor as very earnest and diligent. He wanted to make an appointment to meet with the mentor each week for a private tutorial using Word Perfect. He knew that there were computer labs around the campus but did not know how to use them. The mentor got him an account to use the labs and went with him to demonstrate how to log on and use the word processor. The weekly visits continued throughout the semester and Kaara is now using his skills to produce his assignments with ease and fluency.

It was interesting for us to note that all the male students we supported with this project came forward on an individual basis but many of the females came in small groups. We found that, in general, the female students demonstrated more experience with word processing and did not need much help at all, except to learn the more advanced features of word processing that would enhance their finished product. When they worked without the mentor they tended to remain in small groups and work on their assignments in a collaborative way. Additionally, only one of the females requested information and strategies about how to access the Internet via Netscape, whereas nearly all the males did.

Conclusion

We indicated at the beginning of this paper that this project aimed to increase the confidence and competence of our Indigenous students with technology by creating a community of practice. We have had evidence that this was achieved at different levels and in various ways. All of the students that came to have sessions with the mentor demonstrated an interest and a need to know more about various applications using the computer. They have shown a willingness to do this at the individual and small group level, but did not sign up *en masse* for computer courses offered by the University. Many of the students demonstrated a capacity to use computers for their work in a highly proficient and relevant way in this short space of time, and three began to demonstrate the mechanism by which the community would be self-sustaining, that is by helping their peers to enter the community. It is our hope that we will be

able to extend the community to all our Indigenous students so that they will not be disadvantaged in completing the requirements for their various degrees and ultimately in their chosen professions and indeed in life out there in the real world beyond university. One of our participating students, Getano, summed up the experience thus:

It made it a lot easier with you coming ... if we didn't know something we could always ask you and go away and practise it. That made it a lot easier ... what knowledge I have I pass it on. I'm a sort of tutor when there is no other tutor ... since you have been here I have picked up a lot (Getano, interview transcript, November 1995).

References

Engeström, Y. (1991) 'Non scolae sed vitae discimus: towards overcoming the encapsulation of school learning.' *Learning and Instruction* 1(3): 95-134.

Lave, J. and Wenger, E. (1991) *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.

Nicola Yelland is a Senior Lecturer in the School of Early Childhood. Her research interests focus on the ways in which students can use technology to enhance knowledge building and learning. She is concerned about issues pertaining to social class, gender and race and the use of technology. **Dr Keith Gilbert** is a Senior Lecturer in the School of Human Movement Studies. His research considers aspects of culture and sport and how the two intersect. **Nereda White** is with the Weemala Higher Education Centre, the Australian Catholic University, Brisbane. **Jacki Smith** was the Research Assistant and mentor for this study. She is now employed as a computer support person at the Oodgeroo Unit at QUT. □

Call for Submissions

The Editors of *The Australian Journal of Indigenous Education* welcome submissions such as:

- ◆ articles of 2,500 to 3,000 words on issues relevant to Aboriginal and Torres Strait Islander education
- ◆ research reports
- ◆ news items
- ◆ book reviews
- ◆ notices of forthcoming conferences, seminars, etc.
- ◆ reports on relevant conferences
- ◆ information about resource centres and how to access them
- ◆ resources and materials for teachers and students.

Please see inside back cover of this issue for **Guidelines for Contributors**.

All material should be sent to:

The Editors
The Australian Journal of Indigenous Education
Aboriginal and Torres Strait Islander Studies Unit
The University of Queensland
Brisbane. Qld. 4072