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A connected community: Teachers' perceptions of using ICT to meet the needs of Indigenous students living away from home

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Abstract:
In 2001-2002, an innovative project entitled *Reach In -Reach Out* was begun in Far North Queensland. Its aim was to use telecommunications and Internet tools to facilitate communication between the children of Lockhart River who attend secondary school in such centres as Cairns, Townsville and Herberton and their families. The study described in this paper is the second (of three) to investigate the impact of this project and in this, is a direct continuation of research begun in 2002. Its focus is on the teachers of the secondary boarding schools and residential colleges attended by the children of Loc khart River and who are directly involved in maintaining the remote links of the project. The study described in this paper adopted an interconnected activity system (Engestrom, 1987) as its framework for analysis. The study was funded through a QUT Faculty of Education grant.

Reach In – Reach Out is an educational initiative to support Indigenous education in Far North Queensland. Its initial aim was to help students of Lockhart River who were living away from home by connecting them (through ICT) with their home community and school. The study described in this paper reviewed the *Reach In – Reach Out* Project as an *interconnected activity system* (Engestrom, 1987) from the perspective of selected teachers and volunteer tutors within the secondary schools and residential colleges hosting Indigenous students from Lockhart River.

The sites comprising the *interconnected activity system* of this study are in Far North Queensland (see Figure 1). They were (i) the source school (Lockhart River State School) which was examined as a discrete activity system in the previous study (Lloyd & Cronin, 2002a, 2002b); (ii) the three host schools reviewed in this study (Host Schools A-C); and (iii) a student residence (a boarding facility associated with, but independe nt of, Host School C and to be referred to as Residence C). The Indigenous Education and Training Alliance (IETA), the Education Queensland staff college with administrative control of the project, is positioned at the core of the interconnected activity system, that is, in the engendering of practices to promote improved educational outcomes for Indigenous students. IETA was established as a direct outcome of the *QSE2010* policy (Education Queensland, 2000) and the *Partners for Success* strategy (Education Queensland, 1999).
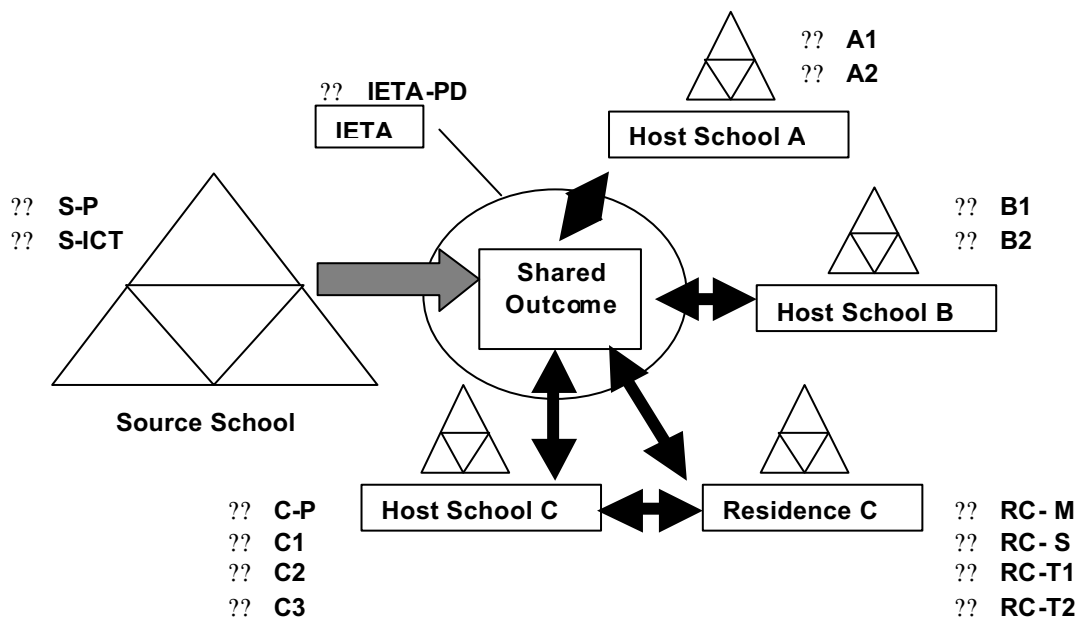
Figure 1: *Interconnected Activity System (after Engestrom, 1987, p. 78) and Study Informants*

The terminology adopted in Figure 1 (and through the text of this paper) reflects the particular circumstances of the study. It would be expected that the schools attended by the Lockhart River students to be referred to as "external" or "remote." But here it is the source school which is geographically more remote than the others which are located in larger centres. The comparative terms "source" and "host" were deemed more appropriate in this instance. The administering systems such as Education Queensland (with responsibility for Host School C) and the relevant church councils (governing Host Schools A-B and Residence C) are not included in the diagrammatic representation (Figure 1). While influential within each site (that is, each discrete activity system), the investigation of such influence was beyond the scope of this study. The informants to the study (N=15) are coded to represent their roles within their discrete activity systems. Where only a number is applied, then the informant was a teacher. Letters signify specific positions (PD is for Project Director, P is for Principal, ICT is for ICT Co-Ordinator, M is for Manager, T is for Tutor).

An important consideration in this investigation is that of agency. School administrations or governing boards have perlocutionary power and this is interpreted as the discrete activity system having such agency or power. The agency of the interconnected activity system is less amenable to definition as it would appear to be able to only make decisions or take actions concerning its own inner operations. This was exemplified in the distribution of the *Networking the Nation* funding which the *Reach-In Reach-Out* Project attracted in 2002-2003. Here IETA-PD and S-P (the author and signatory to the grant application) allocated funds according to existing infrastructure and local circumstances (for example, the difference in access to technical assistance, transport and telecommunications costs for each location). The discrete activity systems then, through a Memorandum of Understanding, made public how the funds would be

spent to the benefit of the project. Each discrete activity system had the agency of decision-making but this was constrained by the conditions set by the external funding and the internal negotiations of the interconnected activity system.

Components of the interconnected activity system
The following offers brief profiles of the sites included in the interconnected activity system of this study.

Source School
The source school is Lockhart River State School. It offers P-7 education organised into a pre-school and a four-level primary school. Traditional skills and cultural activities are actively promoted. The 2002 enrolment was approximately 150 students (Education Queensland, 2002). An estimated 10% of Lockhart River students moved between schools and communities (particularly Cairns, Weipa, Coen and Bamaga) during the school year. The seasonal nature of attendance was noted by the Cape York Justice Study (State of Queensland, 2001) which attributed school absenteeism to (i) family dysfunction from alcohol and substance abuse, and ensuing sleep deprivation, hunger, and lack of clean clothing for children, (ii) a curriculum which does not engage students, and (iii) poor teacher preparation and the youth and inexperience of teachers in Cape York schools (State of Queensland, 2001). The closure of the secondary school in 1999 necessitated post-primary students having to leave the Community. The *Reach In-Reach Out* Project became operational in 2001 as a means to support those students who had left to continue their secondary education at boarding school.

Host School A
Host School A is a faith-based P-12 co-educational college. It is in a major coastal city (of 100,000) and has an enrolment of 530 students. The College operates a boarding facility on site and has a specialist ESL unit for the students (approximately 30) who have come to the school from the Cape, Gulf and Torres Strait Islands. Indigenous students are a minority group comprising approximately 10% of the secondary school population. These students are from Lockhart River and other Communities such as Wadja Wadja, Coen, Hopevale, Kowanyama and Pormpuraaw.

Host School B
Host School B is a P-12 independent college under the auspices of the Indigenous arm of a church council. It is in a major coastal city of 130,000 people. Its boarding facility is on site but is administered independently. The total enrolment is 400 (including 170 boarders who come from approximately 20 different communities but are mostly from across the Cape, Gulf, and the Torres Strait Islands).

Host School C
Host School C is a P-10 state school in a regional town of 600 people. It has a discrete primary school and secondary department (to Year 10), which, although on differing campuses, are operated as one entity. The nearest state secondary school (which offers an 8-12 program) is 20 kilometres by road (across a mountain range). In 2002, Host School C had an enrolment of 279 students. Of the secondary school cohort (of 79 students), the majority come from the local area

(including Indigenous students), with the remainder from Cape and Gulf Communities. C-P believed it simplistic to view Indigenous students as a homogenous group with the same needs. There were often difficulties in the relationships between these students because of pre-existing tribal or clan conflicts with some being prevented from speaking to those who were "poison cousins."

Residence C

Residence C is a residential college administered by a church council. It is independent of Host School C but is located adjacent to it. Its resident students are from Lockhart River, Darnley Island, Pormpuraaw, Hopevale, Mabuiag Island, Murray Island, Bamaga, Coen, Warraber Island, and Mt Garnet.

Findings of the Study

The study draws its findings from observations and interviews of the current study. There were fifteen informants to the study (N=15) who took part in broader focus group meetings, and eight of whom were individually interviewed (n=8). The first finding (of two main categories) is the description of the shared outcome and the second is an identification and investigation of selected interactions within the interconnected activity system.

1.   Shared Outcome

The "outcome(s)" of the *Reach-In Reach-Out* Project are the global aims of (a) effective practice in Indigenous education, and (b) establishing and sustaining collegiate relationships. If this outcome is "shared", then it should be evident in the transcripts of this study and the actions of the discrete activity systems. All informants (N=15) to the study (represented in Figure 1) independently expressed the aim of improving the educational outcomes for Indigenous students through:

- ?? combating anxiety and unhappiness in separation from home and community
- ?? increasing rates of attendance and retention in school
- ?? making school/learning experiences more interesting and motivational
- ?? achieving of personal goals and higher levels of literacy
- ?? inculcating positive perceptions of schooling

It was held that *Reach In – Reach Out* was attempting to redress or ameliorate the problems faced by Indigenous students living away from home. This was evident (a) in the statement that "*Reach In – Reach Out* offers a very real strategy - one which we've used to increase retention at school and also to increase … learning outcomes" [S-P]; and (b) the observation (by example) of the positive effect of *Reach In – Reach Out* on students because "it's hands-on, it's real life and it's connecting back home - which is just so important for these kids that are so far from home" [C2]. An agreed tenet was that better preparation for secondary school (and the experience of being away from home at boarding school) would be of benefit to students. This was dubbed "the literacy of schooling" [IETA-PD] and informants to the study had developed induction or transition programs for this purpose.

It must be acknowledged that "educational outcomes for young people in Cape York are very poor compared with state-wide standards" (State of Queensland, 2001, p. 42) and that there are

"significant and unacceptable gaps between the educational outcomes of Aboriginal and Torres Strait Islander students and those of the general population" (Education Queensland, 1999, p. 1). The Royal Commission into Aboriginal Deaths in Custody (Commonwealth of Australia, 1991) noted that policy and practice in health, child welfare and education are inextricably linked to the disproportionate representation of Aboriginal and Torres Strait Islander people in custody.

The issue of school retention featured strongly in the concerns raised by all informants to this study. While anecdotal, A1 noted a marked increase in retention rates in Host School A since the inception of the Project. The *Partners for Success* strategy (Education Queensland, 1999) called for action on participation and retention (namely, improved school attendance, increased school completion, and reduced dropout rates). It also listed (as its first priority) the need for improved literacy and numeracy.

The commonality of understanding and its correlation to acknowledged issues and concerns would indicate that there is a "shared outcome" within the interconnected activity system. The shared outcome is representative of broader social agendas and was a complex of the issues listed at the beginning of this section. The emphasis was on (i) the human – with an abiding concern for the emotional happiness and self-esteem of the Indigenous student; and (ii) the curricular – with a focus on literacy. The prime motivation within the interconnected activity was encapsulated in the belief that the Project was about helping students because "they might not be brave enough to be a black dot in a white sea of kids. But that's the reality of intimidation of a black kid in a mass of white faces" [A1]. This concern was not left without a practical and pragmatic attempt at redress.

The importance of the "technical" was minimised. The subjects were all aware that while the "technological" was backgrounded, it was integral to the Project's operations. The *Networking the Nation* funding was to deliver better connectivity to the sites within the interconnected activity system. IETA-PD commented that the reporting for the Commonwealth required an addressing of "the issues of retention, … whether the kids cope - and does this project contribute to it or not." These are human outcomes for what was essentially the provision of a technical infrastructure.

2.   Interactions

The identified interactions are drawn from the components of an activity system (as shown in Figure 2). In the previous study (Lloyd & Cronin, 2002a, 2002b), findings were presented in terms of such interactions as (a) subject-community-object, (b) subject – instruments- object, and (c) subject-object-division of labour.
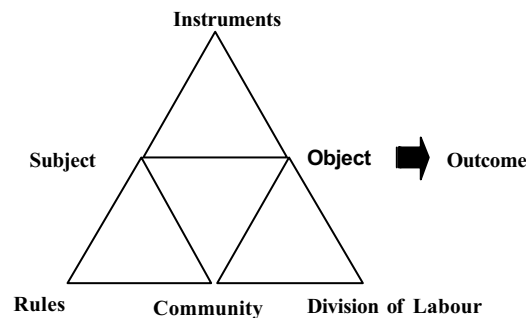
Figure 2:   *An activity system (after University of Helsinki, 2001)*

In the study repor ted in this paper interactions were complicated by there being several discrete activity systems (see Figure 1). The interactions identified in the previous study (Lloyd & Cronin, 2002a) had only limited application to the interconnected system under review and were therefore not adopted as its analysis tools. The stated importance of the "shared outcome" necessitated its inclusion in all interactions of significance to this study. These were (a) [Subject-Object-Community] - Shared Outcome (Section 2.1); (b) [Subject-Instruments-Community] – Shared Outcome (Section 2.2); and, (c) [Subject-Division of Labour -Community] – Shared Outcome (Section 2.3)

2.1 [Subject-Object-Community] - Shared Outcome

The *subject – object – community* interaction is the central process of an activity system (Hang & Wong, 2000). The object (here the *Reach In - Reach Out* Project) and its relationship to its community is described by the subject. Because of its contextualised nature, it also reveals perceptions of (a) distance and isolation, and the potential of ICT to ameliorate these factors; and, (b) the role of an authentic audience as a motivational tool in student writing. When grouped as [Subject-Object-Community] - Shared Outcome, this interaction describes how subjects view the shared outcome through their understandings of *Reach-In Reach-Out* (as it is enacted in their own discrete activity system). There is a lens applied to their view of the shared outcome.

All interview subjects (n=8) offered responses which focussed on the communication between students and their home Communities. As in the previous study, very few (n=2) mentioned the technology and this was as the medium for communication. The teachers in the interconnected activity system concurred with those within the Source School in not perceiving *Reach In - Reach Out* as technocentric. They shared a commonality of understanding that the project was primarily about students and their maintaining contact with their homes and families.

If the [Subject-Object-Community] - Shared Outcome interaction were to be written as [Subject] –[Object-Community - Shared Outcome], the relationships would change. The community becomes virtual and extends beyond the subject's workplace. All spoke of others in terms that would belie the geographic distances between them. There were (a) face-to-face meetings and workshops where all participating teachers were brought together; (b) visits to sites by the

Project Director and by individuals from Lockhart River (the Source School); and, (c) virtual contact through email, webcam and telephone connections. There was a sense of belonging and knowledge of being part of an innovative project.

Teacher collegiality has been described as "an awareness of sharing with someone the bond of being part of a larger, interdependent whole" (Ihara, 1988, p. 58). By holding and enacting a "shared outcome", the informants to this study revealed their collegiality. Collegiate behaviours and practices were noted in the incidental remarks made in focus groups and illustrative examples shared in interviews.

2.2 [Subject-Instruments-Community] – Shared Outcome

The [Subject-Instruments-Community] – Shared Outcome interaction considers how the extended community works together (through the tangible instruments of telecommunications and the intangible processes of curricular change, collegiality and collaboration, and commitment to vision) to achieve their shared outcome. The themes that emerged (relevant to the use of instruments in the community) were the power of (i) collaboration; (ii) student involvement; and (iii) the technology.

The power of collaboration was evident in the frequent references to the ability, capacity and effort of the participating teachers. IETA-PD emphasised how critical was the role of the co-ordinator at each site (that is, within each discrete activity system), and, in interview, C2 commented on the necessity to "have someone on the other end who's as keen as you are - that can just be spontaneous, can connect – can integrate it into their curriculum." The converse of this was noted by B1 who ascribed the failure of one (of two) e-mail home group activities to a lack of commitment by the Community co-ordinator.

The power of student involvement was manifest in C2's recall of a situation when she had a student set up the webcam in her classroom. The recount is that:

> … I was away, up at Pormpuraaw, and off the cuff I asked one of my students [Suzie, from Pormpuraaw] to link up the web-camera. She did it all. I was just talking to her over the phone with it and she did it. And you could hear when she connected, because there were all the giggles, all the giggles came across.

The Pormpuraaw teachers observing the student's competence were encouraged to attempt the connections themselves. C2 noted that:

> … the teachers were … amazed it was so easy; and then other staff came in and started talking … to *Suzie*. And her old teacher was … talking [to her]. I had mentioned that Suzie has had a little bit of temper lately and she … [said], "You know that's not a good choice" - just that back-up, that community support made the world of difference.

This anecdote speaks of an encouragement of a sense of responsibility, trust and value in students. It is consonant with the research recommendations for positive learning environments for Indigenous students (Fanshawe, 1976, 1978, 1989, 1999; Kuykendall, 1992; Malin, 1998). Godfrey et al. (1999) found that "effective teachers understand that Aboriginal students are often more independent than others, do not chastise or embarrass them in front of others, set

challenging and achievable objectives, and include cultural relevance and recognition in the curriculum and classroom environment" (paragraph 1). Hudspith and Williams (1994) believed that the key to effective learning outcomes for Indigenous students lay in (i) ensuring a safe and predictable environment; (b) relating home/community experiences to school experiences; (c) building positive affiliative relationships with students; (d) facilitating positive relationships between students, and (e) facilitating congruence of student/teacher goals and ensure achievement is recognised by student, parents and school. The ICT-mediated environment of *Reach-In Reach-Out* was able to replicate these positive learning environments.

The third (and final) theme is the power/transparency of the technology. The backgrounding of the technology (in a hierarchy with human and curricular concerns) has been noted in the current and previous studies and attributed to the simplicity and robustness of the technologies employed. Technologies are only foregrounded when they are faulty or their use is unfamiliar to us (see Ihde, 1979, 1990).

The purpose of the technical infrastructure funded by the *Networking the Nation* grant is to provide a bandwidth capable of transmitting video between the sites. It cannot be known how the improved connectivity will be used in the host schools once the *Networking the Nation* project is complete and its funding is exhausted. It remains speculative how these sites will make use of the provided infrastructure and how it will be deployed across larger student populations. There are issues of ongoing technical and financial maintenance to be addressed. It could be presumed that, without parallel ongoing advocacy (or with changes to key personnel), the hardware and technical infrastructure supplied by this funding will either be subsumed into the existing site infrastructure or not be maintained. In either instance, the original intention of supporting the retention and "coping" of Indigenous students living away from home may be lost.

2.3 [Subject-Division of Labour-Community] – Shared Outcome

This interaction is critical for the continuation, extension and maintenance of the *Reach In - Reach Out* Project. The *subject –division of labour – community* interaction allows the subject to describe who does what within the community to maintain the object, here the *Reach In - Reach Out* Project. There are formalised technical role s in ICT implementations as well as informal ad hoc roles to make the project operational. This gains in importance in an interconnected activity system as each site (the discrete activity system) exerts and retains control over what an individual can and cannot do – in turn, affecting their actions within the shared space. There are issues of timetabling and resource use to be accommodated and for which funds need to be allocated. The briefest review of the site profiles shows that, in all cases, Indige nous and Torres Strait Islander students are in the minority in the student populations of the discrete activity systems. This serves to confirm and reinforce A1's evocative metaphor of the Indigenous student seeing themselves as "a black dot in a white sea of kids."

If the percentages for Lockhart River (source school) students are calculated, then this becomes an even smaller, and arguably more marginalised group. It is difficult to lobby for resources where numbers are small and cumulative individual gains can be lost in a large school population. There was a sense at one of the sites that while *Reach In- Reach Out* was of benefit,

it was an example of positive discrimination for a minority and therefore not defensible against the needs of the wider school community. This is effectively a problem of losing the shared vision of improving the outcomes of Indigenous education. While it is contentious to suggest the site's compliance with the Project may be lip-service in order to secure the enhanced technological infrastructure from the *Networking the Nation* funding.

Host Schools A and B are, in a sense, typical of independent secondary schools in that they have wide-ranging academic, sporting and cultural agendas. As with all schools, there are complaints of a crowded curriculum and the expected teacher resistance to what is perceived as mandated change (Bailey, 2000). One informant suggested that there are " lots of extra pressures … and … staff just see these sorts of initiatives as one extra thing they've got to do" [B1]. This implies that while the informants to the study supported the "shared outcome", this acceptance has not been equally dispersed through extended school communities. This is particularly problematic where the division of labour within a discrete activity system is such that the *Reach In- Reach Out* co-ordinator is not a member of the school administration, ICT Co-ordinator or network manager. The pre-existence and primacy of the agendas of the people in these roles is such that it is a rare circumstance where they will also be seen to have attempted to enact the "shared outcome." The further *Reach In- Reach Out* extends from its epicentre in Lockhart River and the more diffused and diluted its message becomes, and the easier it is for its message to be lost in other louder conversations and demands for attention.

Summary of Findings
The significant findings of this study were:

1. that the informants to the study were enacting a shared outcome (founded on a broad commitment to the improvement of educational outcomes for Indigenous students);
2. that the telecommunications inherent in *Reach In - Reach Out* provided critical links for students (in communicating with their home Communities) and also for teachers (in establishing and maintaining professional support);
3. that the instruments of *Reach In - Reach Out* included the tangible instruments of telecommunications and the intangible processes of curricular change, collaboration, and commitment to vision);
4. that the components of the discrete activity systems within the extended system have a controlling or constraining impact on the Project (particularly "rules" and "division of labour");
5. there is an emergent problem of dilution of the shared outcome as the *Reach In - Reach Out* Project extends from its epicentre and this is due to the small numbers of students at each site in terms of whole school populations, and in terms of the cohorts of students from other Communities (who arguably have similar personal, social and academic needs);
6. there is an emergent problem of maintenance of technological infrastructures (in both technical and financial terms) as the *Reach In - Reach Out* Project extends from its epicentre and this is particularly problematic when participating sites are part of differing educational systems; and,
7. there is the possibility that as the *Reach In - Reach Out* Project moves out from its known world, it will be treated with misunderstanding (in terms of curricular and

technical demands on teachers and others), resentment (in terms of external mandation) or hostility (in terms of its favouring of one group over another).

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