

The Birth of the Living Archive: An emerging archive of Australian Aboriginal languages and literature

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Introduction

In 2012 an archive of texts in Aboriginal languages came to life in the Northern Territory of Australia attended by a host of midwives, friends, relations and well-wishers.¹ Its birth was much anticipated and well received. Based upon several thousand books which were made in Aboriginal languages between 1973 and 2000, it bears within it the promise of addressing some persistent concerns of diverse interest groups. The authors of this paper have backgrounds in linguistics, language education and science and technology studies, but it is through both longstanding and newly acquired relationship with Aboriginal language owners that the archive takes on its unique, often surprising form. Designed in part as academic research infrastructure, the Living Archive's overarching aim is the mobilisation of language work intergenerationally and interculturally.² To view its current form, visit <http://www.cdu.edu.au/laal/>.

Here, we tell of how the Living Archive of Aboriginal Languages came to be, and what it may grow up to do. Taking three perspectives in turn to highlight the multidimensional potentiality of the resource that has been created, the authors reflect on what has been achieved to date: not to claim that the project has achieved all that it set out to, but to make explicit the complex interplay of considerations that have to be borne in mind as the work progresses. What has been presented is a non-Aboriginal perspective, albeit one which has been strongly influenced by decades of involvement with Aboriginal communities, and which encourages dialogue and input from those authorities.

The many different human actors involved in the development of the Living Archive include story tellers and illustrators (and their descendants), literacy workers, programmers, linguists and other

academics. While each of those who negotiated and pulled together the original application for government funding had a partial vision of what was to emerge (in both senses of the word), no one vision prevailed, so we have attended to its emergence carefully, constantly thinking about what it can and cannot do, what it might learn to do, and what trouble it could possibly cause. We began with a commitment to develop a digital archive which would support and enhance Australian Aboriginal knowledge practices. This would be an empirical problem directed towards 'postcolonial databasing'.³ We see the archivist in this setting as undertaking a difficult and unpredictable balancing act, mediating between different knowledge practices so that the archive itself is developing in multiple ways.

Three Birth Stories

The Archivists' View

How to frame this story? We can start with a purely historical take. In a particularly famous era of Australian politics beginning in 1973, the federal government of Australia set up bilingual education programs for some of the Northern Territory (NT) communities where children spoke Aboriginal languages as their native tongue.⁴ Bilingual schools had Literature Production Centres (LPC) which produced books in Aboriginal languages. LPCs had Aboriginal Literacy Workers who were fluent and literate in the local languages, a 'teacher-linguist' and a Literature Production Supervisor who usually operated an offset printer. As a team, the LPC workers would collect stories, often recorded on tape from community elders, transcribe, translate (sometimes), edit, illustrate, format, print and distribute them. They produced versions of old time children's stories, pre- and post- contact histories, books about the environment, hunting, bush medicines, ghost stories, creation stories, stories of memorable events (the bombing of the Milingimbi Island mission during the second world war for example, or of a massacre, or a momentous ceremony), life stories, conception stories, and cautionary tales. Teacher-linguists developed vernacular literacy programs, and with the Literacy Workers produced series of pedagogical readers and curriculum documents. The books were always very slight, only a few pages, with only 100 or 200 copies printed. Some communities made bilingual newspapers and magazines.

At the end of the 1990s, bilingual schooling in the Northern Territory was losing favour in government policy.⁵ In fact it had a similar trajectory to bilingual education in the United States which had started in the early

1970s and lasted until the late 1990s when the Bilingual Education Act was terminated. The training and employment of local Aboriginal teachers and literacy workers was in decline, Literature Production Centres were closing, and in many areas the precious books which had been produced were being lost. While with the change in climate of educational policy a few people actively sought to destroy the Aboriginal language books they found in the formerly bilingual schools, there was generally widespread alarm at the loss of the thousands of books in dozens of languages. With the emergence of digital technologies in remote Aboriginal education, small projects sprang up around the NT trying to archive digital forms of threatened collections. By 2011 the pendulum had begun to swing back somewhat towards welcoming local languages and language owners in schools and the climate was right to secure significant funding from the Australian federal government through an Australian Research Council Linkage Infrastructure Equipment and Facilities grant. Linkage grants require significant cash seeding from partner organisations. The Northern Territory Department of Education and Training, which retains the copyright of all the books created in LPCs (in Australian law if not Aboriginal law), and which had been disinvesting in bilingual schooling for some time, became a key contributor. The funding allowed Charles Darwin University in the NT, the Australian National University in Canberra, and the NT Department of Education and Training, to work together to develop the archive. Some smaller archives of its type which had been planned, started, and sometimes completed in the years before the birth of the Living Archive, were incorporated into it.

When the archive was launched, its records became available for public access. Anyone can access and download the stories and illustrations, study them, and make a connection with the community of origin to better understand the stories. All the resources were originally made for public use, and as they are digitised, permission for public use is gained before they are uploaded. Therefore, there are no resources with access restrictions, though some are still awaiting signed permission before being made public. Aboriginal communities have access to other archives with access restrictions for protecting sensitive material, such as the Australian Institute of Aboriginal and Torres Strait Islander Studies.⁶ Researchers will be able to collaborate with the authors and illustrators of the stories or with their descendants. Everyone should be satisfied: the NT Government now that it has made safe the literature which 'belongs' to them; the linguists and literature production workers who worked hard for many years, often in difficult conditions, to produce

the materials in the first place, and who were alarmed to see them disappear; and the language and story owners in remote communities who are delighted to see their old stories and pictures again, and who look forward to seeing them on screen in many different versions. And most importantly, from the point of view of the Australian Research Council, researchers around the world interested in Aboriginal languages and culture, history, the environment, etc, now have access through this new 'research infrastructure', to both a vast array of stories and pictures, and the opportunity for collaborative research with their owners.

Thus the Living Archive will be different from other archives focussing on Indigenous languages⁷ in that it contains only works *in* the languages of concern, rather than works *about* those languages. They will be useful primarily to speakers of those languages, and other people who are willing to engage with the owners of those languages, thus bringing the community of speakers into an engagement with interested people from around the world, and thereby enhancing the "living" nature of the archive. For this reason, developing an interface useful for people who may not have advanced text- or computer- literacy skills is a high priority and makes this archive quite different from those designed specifically for researchers.

Bringing the archive to life has involved the complex work of locating books in small private and large public collections around Australia, taking them back to the communities of origin, and seeking permission from individual authors or their descendants to republish them publicly on line. Parallel work involved finding or creating metadata, starting with a download of around 3000 metadata records from the National Library of Australia's Trove website, and making the whole metadata set compliant with international linguistic standards, particularly the International Organization for Standardization (ISO)⁸ (and vice versa, as applications are being made to the ISO to correct some errors in language names and classifications.) Then in various locations we set about digitising the books, and employing optical character recognition, preparing various formats, including PDFs and text files. We engaged software engineers to develop batch uploading processes, efficient search mechanisms, a map interface that worked seamlessly with a database of digital resources and an application programming interface to allow community-based users wider access to the archive. We had worked collaboratively with Aboriginal knowledge authorities and the interface designer on previous projects designed for 'collective memory making' in emerging digital environments.⁹ In telling the archivists' story, it is easy to overlook the

hidden and often thankless work of the programmers, technicians and metadata specialists. Their work is particularly difficult, because only as the archive unfolds do we develop clearer ideas of how it may eventually be used by the communities of language owners, and by researchers and collaborators around the world. An iterative process is required as structures are put in place and subjected to evaluation and discussion until we have better understandings of the content and potential uses of the collection. Part of that iterative process¹⁰ has involved Aboriginal people in Web prototype testing for the archive, as well as in translating, audio recording and e-book construction.

The archivists' story reveals the huge complexity of bringing together several thousand books, and producing from them a useful digital archive under the authority of their creators. It makes clear the amount of hard work and good will on the part of literally hundreds of people over nearly 40 years which made it possible.

A Science and Technology Studies View

Telling a purely historical story, as we have just done, makes it possible to see the archive's complexity, but maybe difficult to see its contingency, its uncertain emergence from an ongoing, often fraught flux of ideas, technical possibilities and constraints, interests and agendas. For an alternative history, let us take an approach aligned to Science, Technology and Society (STS), which as defined by Wikipedia (itself a vibrant and burgeoning archive) as 'the study of how social, political, and cultural values affect scientific research and technological innovation, and how these, in turn, affect society, politics and culture'.¹¹ Our STS approach identifies aspects of the archive's birth and growth which the archivists' history may miss.

First, the archivists' story does not address, in epistemological terms, the 'crisis of representation' in the human sciences.¹² Representation is the 'paradigmatic style' by which knowledge in Western conceptions is produced and preserved. Stuck 'in the modes of thought and practice distinctly rooted in nineteenth century positivism',¹³ the archive in the archivists' story is a container of knowledge, its relationship to 'matters of power and authority',¹⁴ and its social, cultural and political values remain hidden. The STS archivist is not a disinterested selector, collector and assembler of artefacts from a transparent reality. The STS perspective focusses upon the many different moment-by-moment decisions made by countless people who, little by little make it what it is: the occasional disagreement, the sudden insights of possibility, the technical hiccups,

and the lucky breaks, and therefore how it continues to grow uncertainly, and how it may become frustrated in its attempts to fulfil the somewhat ill-defined purposes which, in our original funding application, we claimed it would serve. Many of the decisions which have now materialised in the archive were made more than thirty years ago, and we can discern those differences across the collections within the archive: some communities focussed much more upon the development of pedagogical readers, some on stories of days gone by, others on contemporary activities of local significance. And determinative decisions continue to be made as, day by day, we prioritise one collection over another, one book over another, one task over another on the endless list of tasks, and each decision in turn reflects the prioritising of a particular social cultural or political value. We pay attention to these, because in the words of the anonymous Wikipedia author, these decisions may 'affect society, politics and culture'.

This is the second part of the STS story: the causality also happens 'both ways'. The technology itself exerts some agency in the worlds in which it participates. Any archive has embedded within it, a particular ontology,¹⁵ a particular set of assumptions derived from the world 'out there' to which it relates. STS scholars¹⁶ have demonstrated what they call the process of 'grooving', whereby the data infrastructures of databases gradually come to affect the way in which we understand the world. They point to the subsequent process of 'negative bootstrapping', whereby we start to make assumptions about the nature of the world on the basis of the structures of the data that we are accessing. In the Living Archive of Aboriginal Languages, for example, there are represented only about 25 languages out of a total of more than 50 in Australia's Northern Territory. A few of these languages were large enough and vibrant enough to have been chosen (40 years ago by the Federal Government) as languages of instruction, alongside English, when bilingual programs were being developed. This decision, of course, led to high levels of vernacular literacy in some languages and not others, highly competent translators and interpreters in some languages but not others, the privileging of some languages over others in the colonising processes of church and state, and in one case, it led to one family of Aboriginal languages being taught internationally at the tertiary level.¹⁷ The STS archivist is alert to ways in which the Living Archive naturally performs this negative bootstrapping, and seeks ways to mitigate, reverse or undermine it. We take seriously Star's call to study 'boring things'¹⁸ and to 'attend ethnographically to the plugs, settings, sizes, and other profoundly mundane aspects of cyberspace'.¹⁹

A View from Country

There is a third story to be told, one which we, as non-Indigenous academics in a city university, are developing in negotiation with Aboriginal language owners 'on country' (i.e., on their ancestral land). This is the Aboriginal story, of those who originally told or wrote and illustrated the tiny editions of locally offset-printed books, and the stories of their families and descendants who may come to use the archive in their own way for their own purposes. Despite the funding application's focus on the needs of international research, the archive is most particularly designed for the Aboriginal owners. Living in very remote communities, often using languages entirely unrelated to those of neighbouring communities, with different experiences of bilingual education, literature production and digital technology, as well as specific local histories, cultures, and visions for the future, they work with us to design the configurations and pathways to and through their own sub-collections. It is a complex process: explaining the project, getting permission for the books to be digitised, doing the scanning, preparing text files, uploading digital resources, adjusting metadata in a provisional way – while preparing for local negotiations to develop interfaces for sub-collections at the local level. In the next section, we give examples of the preparations for those negotiations, but here we pause to think about the background to what could become the Aboriginal story of the Living Archive.

The Living Archive builds on previous collaborative research with Aboriginal knowledge authorities on the role of digital technologies in remote Aboriginal knowledge work. This work looked at both the concepts of archive and database as instruments for the intergenerational transmission of traditional knowledge,²⁰ and information-communication technologies for remote 'teaching from country'.²¹ Both these major projects worked most intensively with the Yolŋu people of north east Arnhem Land. Like Aboriginal people throughout Australia, Yolŋu celebrate the autochthonous coming to life of the land and its species, including the particular interrelated clan groups of its people. The knowable forms of the land, its species, its people, songs and ceremonies all came into being as the ancestors moved across the land, talking, singing, crying, dancing, hunting, and performing every human activity. Everything, the Yolŋu say, is made out of language. Language in the Aboriginal worlds, while staying in place, belonging to people and their 'country', has a strongly constitutive power. While in a Western metaphysics language naturally assumes the functions of representation, in an Aboriginal

philosophy language is performative (and representation is just another form of performance). The textual objects in the archive are not seen to be representing a world 'out there' or 'back then' they are material *traces* of previous episodes of creative collective action which can now be reinvigorated in new contexts of collective creation. The archive does not *contain* knowledge, or at least it contains knowledge only in the same way that the particular trees in a particular place *contain* the knowledge of the ancestors who through love and care set them and kept them in place.²²

We called our research program on the intergenerational transmission of traditional knowledge 'Making Collective Memory with Computers'. While we found our institutional co-researchers (the local Aboriginal Land Council, an Aboriginal cultural foundation, the local herbarium) very keen on developing databases of traditional knowledge, the Yolŋu co-researchers were themselves much more interested in actively using the project's cameras, recorders and computers for their own private or family-based knowledge work. Using Skype to teach undergraduate students in California from his own ancestral land, Yolŋu academic Yinŋiya Guyula explained how the environment itself has agency in teaching young Yolŋu children who they are.

Straight after the Wet Season when we sit down by the beach and look at the sea around the small islands of the hunting grounds of the reefs where we hunt turtles, and the certain signs in the skies tell the stories, of clouds sitting in the air after people have eaten; tells a metaphor of the shapes of clouds just sitting around the horizon which tells who we are, the Dhuwa people. Actually, it tells the story that we are the right people of that country.²³

So it is unsurprising that, on another occasion at a public seminar at the university discussing the role of databases in Indigenous knowledge work, Yinŋiya, feeling maybe that he wasn't being understood, stamped on the carpet and, looking down, said with a flourish, "The land is my database. It has all my knowledge resources". So in our third story, the Aboriginal archive is perhaps not what we (the non-Aboriginal project team) thought it might be. The entities in the archive are not different in kind from the entities in the world around us, created, cared for, kin, belonging, potent, with an ancestral history. Commenting on her work reviewing and assessing old unpublished texts for the archive, one elder said to an interviewer from the Australian Broadcasting Corporation: "I love my language, it's part of me, part of the land, and everything in

it. Every one of the clan nations in this area has their clan language, and these clan languages are our identity for us. This search and rescue work is something I've hoped to happen, so we can save our languages, or culture, what we long for what we want to have as Yolngu people'.²⁴ The fragments of text and old school books mean nothing until they are taken up, carefully, collectively and in good faith, and put to a particular purpose whether it be recreational, educational or for other work. In truth, the original literature which now forms the basic corpus for the Living Archive was seldom taken up by Aboriginal school students or their teachers, as reference materials for the study of history, science, ancestral lore, etc. There was much activity and excitement around the preparation of the books, the recordings, the transcriptions, the illustrating, the checking, the dictionary making, printing, collating, distributing, but in the words of senior Yolngu educator and philosopher Dr Marika, the books on the shelves soon became 'coffins'. Yet digital technologies are increasingly seen to offer possibilities for the survival of endangered languages and cultures. In the words of Wulumdhuna Yunupingu (translated from Gumatj):

What I'm really worried about is the future of the children. Later the old people will all pass away finish up, and what? What of theirs will the children end up knowing? There are all sorts of documents now for them, like CDs and videos, documents which will be kept. About what? Ancestral groups, what is his family name, who gave him life, that young child, who are his elders, his knowledge which was there before he was born, and for whom was he born?²⁵

How might we avoid the Living Archive becoming a mausoleum, of interest only to anthropologists and linguists and others of a Western knowledge tradition? How do we achieve the goal of developing an archive which is alive in ways that others may not be? In other words, how do we take Aboriginal epistemology seriously enough to develop an archive with a particular agency – what we have come to call a *Living Archive*? How do we build it in such a way that it comes to life and connects up its owners with its resources and with people of good will, who are interested in collaborative knowledge work and world building? And how do we ensure that each different group of language-story owners can design an infrastructure and interface for their own sub-collections which reflect their own particular histories, languages, cultures and aspirations?

These are not merely technical or epistemological questions. They are ethical questions. Australian Aboriginal knowledge is recognised,

universally as owned and located. It is not abstract or universal. Decisions over who has the right to agree for stories or artwork to be included in the archive must be made anew for each individual item. And as, increasingly, people want to add sound files or animations or produce talking books, these can only be included in the archive with the knowledge and consent of the original story owner. Making provisions for digital objects to be quickly removed (for example, if they contain images of a recently deceased person), is essential to ethical and culturally responsive technology.

Nurturing the Emerging Archive

We visualise our archive as emerging in an uncertain space in the middle of a range of polarities. We are balancing, for example, perspectives such as the imagined insider (language community member) and outsider (interested researcher external to the community), the responsibility to create a public archive and the need to maintain traditional authority, the pressure for interoperability and the need for local usefulness, the technical exigencies and our vision of the potential users, while attempting to 'future-proof' and take account of the creative uses of highly provisional and contingent resources typical of Aboriginal knowledge work *in situ*.

Undaunted, we attend to the emergence of our archive while keeping the potential Aboriginal users firmly in mind, and involve them collectively imagining the potential work of the archive, and their potential contributions to it, from the initial discussions around permissions and possibilities. Who will want to use the archive? What will they want to do with it? How do we make those uses easy, obvious and fruitful? Forget for a moment about the academic users, the linguists, the historians, the anthropologists, even the STS-ers looking at the archive as a metaphysical entity. They will have their entry point to a standard digital archive. Our separate and more significant task is to privilege the Aboriginal owners in the design of the archive. What might *they* want to do? How do we do our collective 'guesswork', our 'faith that we are doing this right, that we are entrusting and layering things and meanings that will be interpretable and meaningful in times to come'?²⁶

User evaluation of early versions of the archive has involved inviting Indigenous users to explore the site and give feedback, which has led to modifications at several points along the journey, and ongoing engagement with users in schools and community groups continues to refine the product.

It is most likely that Aboriginal users will be looking for books and stories in their own languages (or in other related languages which they can understand). Only outsiders would be looking for, say, all the books (in whatever language) about crocodiles or stars. Of course, and this is a simple task, we must retain that search possibility for everyone. Most owner-users will be looking at the collections of their own languages, or the sub-collection of those resources produced in their own communities. Many will have only limited literacy in their own languages. Most will be much more able to find their language group on a language map of the Northern Territory than in an alphabetical list of all the language names, so a map-based interface seems an obvious point of access for people who are more spatially oriented, who generally do not use much text literacy in their everyday life, and who are looking for a set of books which, like Yinjia's database, is geo-spatially locatable. The map interface will also work against the unconscious effects of 'grooving'.²⁷ It is easy to overlook those languages which, never having been selected for bilingual education, have never had the benefit of significant government investment in producing a literature. Their absence can be made present; the map interface will silently enable that through the use of colours. Working against the 'bootstrapping', the map makes us remember the forgotten languages, and in fact leaves spaces which cry out for filling, for some work to be done developing further resources, for further government investment, for initiatives for academic researchers and their students, for further collective action.

How might a community user find a particular book? We might assume that, much of the time, the community users (unlike the outsiders), will actually know the book they are looking for. Users will be presented with thumbnail images of the books in the first instance. Recognising the book's cover by sight obviates the need for much text literacy. If there are, say, 500 books in a particular language sub-collection, how might they best be arranged? Conventional archives might order the 'found items' alphabetically by author or by title, or by date, but each of these reproduces and reinforces Western practices (and in fact Western metaphysics) by privileging particular ways into a collection. How might we order the found resources in a way which reproduces and reinforces a more pragmatic approach and which possibly reflects a more Aboriginal way of using resources? Working to preserve 'ontological flatness'²⁸ resources can be ordered simply according to frequency of use, rather like the other resources scattered around a writing table or workshop. As each book is selected and read, it is counted. As the archive comes

into general use, the most popular or the most referred to books float to the top, as it were. In the same way that the most useful elements in the material environment become the most obvious to the eye of the hunter, so we modestly try to reproduce a productive environment for the knowledge worker. The more obscure books may require a bit of digging. Our previous collaborative research with Aboriginal people around digital technologies and knowledge work²⁹ has provided us with the basic coding requirements for ontological flatness, a precondition for the tailoring of bespoke interfaces at the community level. Each of the 25 communities of ownership has its own languages, history and vision, and the subsequent stages of the project involve these on-country negotiations to develop good configurations of space, technologies and people for community use.

We are also, of course, building in a text-based search for people with basic skills in languages with often difficult and complex orthographies. The tried and tested fuzzy search and suggest devices developed for Yolŋu languages³⁰ will be reconfigured for other languages where necessary. Keywords may be developed for the genres of literature of particular language groups to reflect the particular categories of life at work in the various locations (for example those relevant to the central Australian deserts as distinct from the mangrove forests of the north).

All those software assistants aside, there is a further, deeper ontological issue at work. In a conventional database, and in ours, the metadata is divided into fields: title, author, language, date, and so on. The sequestering of metadata into fields may inhibit the very productive and creative ways in which words in Aboriginal languages relate and connect across categories. In the example of Yolŋu languages, a particular word may be a person's name, as well as a place name, a ceremonial act or object, or particular connections between people and totems, or land and wind – indeed, almost anything. These links, connecting people, place, events, are the inheritance and manifestations of ancestral connections and do important work. The way in which the metadata are traditionally sequestered into fields to facilitate searching actually prevents those flexible political connections between things and names from being real in the database, and gives priority to a Western objectivist ontology.³¹ A simple search will scan all categories in both the metadata and the textual content in order to summon and activate these complex connections. While the initial input of metadata was limited to the information presented within the published books themselves – information which varied widely in both quality and quantity –

consultation within communities enables significant expansion as gaps are filled and connections are established.

Let us turn finally to the resource itself, the digital object, the book in the first instance. From the beginning (and importantly in our application for government funding), we determined to develop 'preservation' (high definition) and 'presentation' (easily downloadable) versions. We attach multiple downloadable resources to each record: such as an image PDF, a text file (for linguistic work, analysis, and creative reconfiguring of texts), occasionally a sound file (the story being read, the original recording from which the book was made, or a knowledgeable commentary about the origins and background to the book) and an e-book version. This is only the beginning of the effort to make the books active, generative of new relations, new ways of being in the world. While creating the possibilities for multiple interpretations and formats to be attached to each record, we are also working to generate connections between the digital resources, and a community of owners, exegetes, researchers and students, further transforming the archive into a living entity.

Aboriginal knowledge is different from Western knowledge in many distinctive ways, one being that it *belongs* to people. Already we have owners who, happy to let their stories and their languages be made public, at the same time want to know who is looking at their stories, and what they will be doing with them. With a signed permission form for every story that can be made public we are also inviting owners to agree to being contacted by interested students and researchers for further collaborative work. Attending to Aboriginal sensibilities around knowledge resources alerts us to the performative and the generative possibilities of this living archive.³²

Conclusion

And so our archive comes to life. Roaming between the camps of the archivists and programmers, the philosophers whose interest is in the generative and constitutive powers of technology, and the Aboriginal storytellers and their descendants with whom we have worked for many years, we nurture a new life which will grow into something we can barely visualise. In her analysis of 'STS-ers as Analysts and Co-constructors of Databases and other Archival Forms', Waterton clarifies how 'individuals, research teams and institutions ... experimenting with digital and other material and political forms of archive ... implicitly project and perform ideas of the human subject, ideas about how we can and should live in the world'.³³ Our current work of preparing a framework for tailoring by

its owners – the many different language groups with their own land, ancestors, stories, languages and collections – requires that we juggle an almost unmanageable array of epistemological, ontological, political and technical balls. We build something robust and flexible, but just solid enough to go on with, and provisional enough for people to take up and form in their own ways.

We, like the Aboriginal storytellers, are working with what Haraway has called ‘partial, locatable, critical knowledges’.³⁴ As Lucy Suchmann made clear in her search for the location of design in software, ‘the fact that our knowing is relative to and limited by our locations, does not in any sense relieve us of responsibility for it. On the contrary, it is precisely the fact that our vision of the world is a vision from somewhere that it is inextricably based in an embodied and therefore partial perspective which makes us personally responsible for it’.³⁵

Aboriginal and western knowledge traditions have been proven to work together productively, though partially, locally and critically. Information technologies are not politically innocent; they are a product of social political and cultural values and in turn affect them. And so, developing an infrastructure which is solid enough to work and not so solid that it pre-empts the possible uses and configurations to which it may be enlisted, one which works ‘well enough within both traditions’³⁶ with potential for extension, is our current task.

Endnotes

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13. *Ibid*: 210.
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15. Michael Christie, (2005) ‘Words, Ontologies and Aboriginal Databases’.
16. For example Geoffrey Bowker, (2000) ‘Biodiversity, datadiversity’ and Geoffrey Bowker and Susan L. Star (1999), ‘Sorting things out’.
17. Michael Christie, ‘Engaging with Australian Indigenous knowledge systems’.
18. Susan L. Star (1999) ‘The ethnography of infrastructure’.
19. *Ibid*: 379.
20. Full details of this project, its products and publications can be found at ‘Indigenous

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21. Full details of this project, can be found at 'Teaching from County', accessed June 13, 2014, www.cdu.edu.au/tfc. An edited version of papers emerging from this work can be found at http://www.cdu.edu.au/centres/spill/journal/LC_Journal_Issue2_2010.pdf. See also Michael Christie and Helen Verran, (2010) 'Reflections on the teaching from country programme as a situated learning community: Media, place, pedagogy' and Michael Christie et al 'Teaching From Country, Learning From Country'.
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