
Indigenous Knowledge and Resource Management in Northern Australia making collective memory with computers



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Digital Technologies and Aboriginal Knowledge Practices - DRAFT ONLY

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USING/DESIGNING DIGITAL TECHNOLOGIES OF REPRESENTATION IN ABORIGINAL AUSTRALIAN KNOWLEDGE PRACTICES OF PLACE

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Abstract: Indigenous Australians are often keen to use digital technologies in their local knowledge practices as part of a struggle to develop sustainable livelihoods on-country. They want to use digital technologies to ensure that 'history stays in-place', seeing their knowledge practices as expressing the remaking of an Ancestral reality. This paper tells of a research project that discovered the hard way that the notion of 'development' Aboriginal groups articulate is better understood as 'envelopment'. As we began to discern Aboriginal Australian ways of 'doing place' we came to see how Aboriginal Australians struggled against the grain of digital technologies designed as tools for representation, turning them to use in knowledge practices where each instance of re-presentation is a unique performance choreographed for a particular momentary situated purpose. At the same time they were prepared to use possibilities the technologies offered in producing seeming definitive representations to achieve political ends when dealing with representatives of mainstream Australia.

Keywords: Indigenous Australian knowledge; development; Yolngu Aboriginal concepts; use and design of digital technologies of representation.

INTRODUCTION

Many Indigenous people in northern Australia are beginning to use digital technologies in promoting the interests of their traditional groupings, their clan lands, histories, connections and places. In some instances they see these interests as coinciding with incorporation of modern infrastructure into their life-ways, and/or mobilising resources—both cultural and natural in exchange for money, or to achieve recognition of their rights to participate in ongoing negotiations over resources. Here they might find themselves using digital technologies in dealing with mining companies, government departments and/or tourism operators. At other times they see the interests of their lands and peoples as best served by processes that could be considered as the opposite of the opening up implied in these uses. They incorporate digital technologies in processes that enrich collective being in their clan places, strengthening processes that ensure that history 'stays in-place' and that clan lands and intellectual property stay in the right hands and set in the right relations with other clans.

Often strong emotional reasons are also involved. Perhaps the most potent reason that some groups of Aboriginal Australians are beginning to engage in negotiations around use of digital technologies relates to the concern that Aboriginal parents and grandparents have for their youngsters. Some feel that many in the younger generation are growing up without a robust Indigenous identity based in a strong grasp of their community's knowledge traditions. These elders endorse the use of computer databases and other digital technologies to work with audio files, texts, photos, videos, maps, lists etc. to help with their work of teaching. They see possibilities in digital technologies for continuing the work elders have always done in Aboriginal family groups using whatever resources come to hand: the work of regenerating clan and place as one, so as to ensure the continued health and well-being of both land and people.

Nevertheless a significant number of Indigenous and non-Indigenous people respond with horror to the idea of using digital technologies to do collective memory in Indigenous communities. Are digital archiving technologies compatible with Indigenous knowledge? The issue was raised during a meeting held at Charles Darwin University in December, 2002. "No, No, Aboriginal Knowledge is out on the land. People live it doing things together on country, and computers actually are more harm than good." The concern grows from worries about disenfranchising Aboriginal knowledge authorities, further marginalising legitimate Aboriginal interests, diversion of energy and resources from Aboriginal priorities, and backgrounding of Aboriginal sensibilities and sensitivities about valid knowledge practices, and misappropriation of intellectual property. In short there is a wide-spread suspicion that digital technologies can only work by treating the knowledge of Indigenous Australians as a commodity. The anxiety is well grounded, but so too are the worries of those who value the experience of being on country with today's generation of elders and want to keep that experience in a useable form for generations to come. As one young Aboriginal woman put it in replying to the comment above. "That's all very well, but while our elders are getting very old, the young teenagers today aren't interested in learning anything from them. We need to find good ways of keeping some of the knowledge of the old people of our country before they all pass away."

This paper considers an approach to digital technology use and design grounded in this dilemma. We understand this as work that involves the intersection of two quite different knowledge traditions where little is held in common between the ways the traditions understand themselves. Our response is to problematise the process of use and design of digital technologies. We look for ways of proceeding in particular circumstances that connect-up well enough in both traditions. Processes of the research are emergent and situated, and accounting them becomes part of the practices and products of the research along with the uses for digital technologies that Aboriginal people devise, and the designs for products that might better afford those uses. In our research all these emerged intimately co-constituted with and by the regenerated people-places that were the main concern of our Aboriginal colleagues.

Our approach is inspired by Lucy Suchman's writing. Informed as it is by feminist studies of science and technology, she asks the seemingly odd question 'Where is design?' Suchman suggests that locating design is the first step in re-placing design. Design should be valued as

"views from somewhere" instead of as being "ways of being nowhere while claiming to see comprehensively" (Haraway, 1991, p.193 and 196).

After our research had been going for a little over a year, at a public meeting to launch the project website in December 2004, Michael Christie summed things up this way (IKRMNA, 2004a). "There are some common threads that run through the work that we're doing, but ultimately we're starting off with people on country doing what they're doing using digital technologies and then finding good ways of helping them to do it. And at the same time, helping to understand what the digital technologies they are using are doing there, and maybe ways in which they are actually steering people in a direction they don't actually want to go. We begin with ways in which people are actually creating solutions for themselves using particular pieces of software, and ways in which their work of using computers and digital technologies are somehow integrated into the ordinary, everyday routine practices of grandparents talking to children, and grandchildren, and people being on country and learning and talking.

The crucial point about the way the research developed, was working from that notion that Aboriginal knowledge is always local and performed, it's integrated in lands and peoples and the lives that they lead, so that in fact, as soon as you try to think of one solution that is going to work for everybody, you're already starting to compromise some people's agendas, some people's histories, some people's contexts. So the visions and agendas of the different groups of people always arise from their histories and their contexts. So as it turned out we started working with half a dozen groups of people and they all had their own aims, and their own problems, their own projects, their own ways of using digital technology already, or the ways in which they wanted to do it."

Michael's description of our work here harks back to Suchman's account of located design. Located accountability is built on what Haraway (1991, p. 191) terms "partial, locatable critical knowledges." As she makes clear, 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. The only possible route to objectivity on this view is through collective knowledge of the specific locations of our respective visions (Suchman, 2002, p. 96).). Thus knowledge is partial in two senses – never complete, and always revealing of perspective. Taking seriously the notion of partiality understood in both its senses, our research sought to understand the general processes of knowledge work in Aboriginal Australia and how this both expresses and enables what is generally understood as development. At the same time we sought to elaborate how Aboriginal Australians are incorporating digital technologies into these knowledge practices in seeking to promote their own visions and agendas for development, as a beginning in identifying how we as researchers might intervene to support these Aboriginal efforts.

CONTRIVING WITNESS OF PLACE IN ABORIGINAL AUSTRALIA

Like most people in most places, Aboriginal inhabitants of northern Australia are keen that 'development' of their places does not come to dominate processes which renew the on-going collective life of their places. Rather they are keen for connecting up and dealing with other places that can be harnessed to enrich and strengthen. However in Aboriginal places this need to ensure that development remains subservient to what might be called on-going 'envelopment of place', is even more crucial if liveable Indigenous futures 'on country' are to become reality. In Aboriginal ontologies, place is pre-eminent. In those metaphysics, all meaning flows from place so that the knowledge work involved in doing place in Aboriginal life is of a different order than for other sorts of Australian place.

After 200 years of colonisation, most of the ancient Aboriginal languages of Australia have been lost, and it is only in very remote places that Aboriginal youngsters grow up speaking pre-European languages (however enhanced they may be by 'borrowings' from English, Macassan, Afgan and other visitors and invaders). In the far north of Australia, in the north east of the Northern Territory, about 5000 Yolngu continue to speak traditional languages and practice traditional religion and culture, and generally run their collective life through Yolngu ontologies and epistemologies. There are dozens of Yolngu clans, and marriage being exogamous, every Yolngu can tell about their own land and ancestral history and (equally importantly) that of their mothers and their mothers' mothers and so on. Most Yolngu live on ex-missions but many live on small 'homeland centres' which maintain a difficult (and currently threatened) relationship with state and federal government policies and practices.

In this paper we use an image of one of our co-researchers as emblematic.

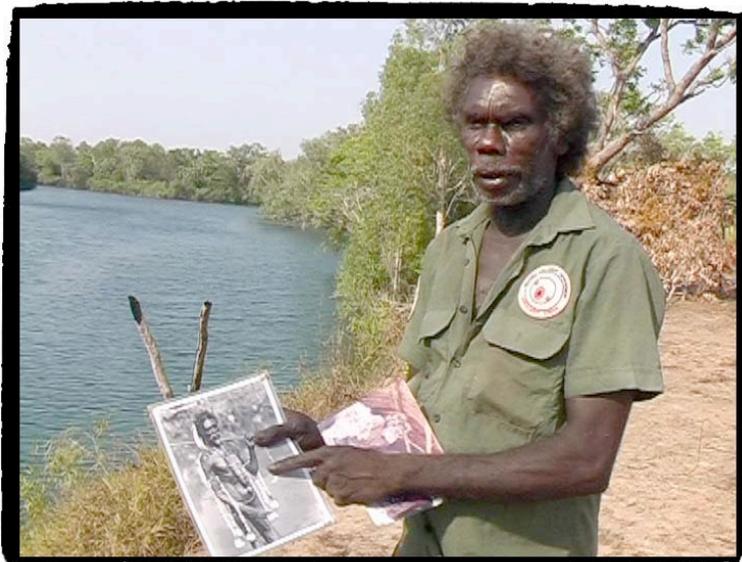


Figure 1: Māngay is telling a story of Djilpin standing in that place speaking to a video camera. He points to an image of his father's father Minyipirriwuy wearing ancestral sacred objects which guarantee his authority to speak, a photograph taken in the 1930s by anthropologist Donald Thompson. Māngay obtained the image from the Donald Thompson Collection at the Museum of Victoria (Guyula and Guyula, 2005).

Māngay is a Liya-Dhālinymirr man living at Mirrngatja on the eastern margins of the Arafura swamp in central Arnhem Land. In 2003 accompanied by his friend John Greatorex, Māngay visited nineteen places around the edge of the Arafura swamp, a World Heritage listed area. In each place, while John filmed, Māngay spoke of its history, the Ancestral Journeys it features in, its location in the complex patterns of Yolngu land ownership, and the varied responsibilities for and interests in that place invested in different groups of Yolngu people. Māngay exhorted and instructed, demonstrated and explained. These short biographies of significant places were delivered in Māngay's Liya-Dhālinymirr language. In the first instance, John provided an English interpretation for the video footage on an audiocassette tape so that both could be played simultaneously at a meeting with mining company executives and community members. In subsequent filming Māngay's younger brother Yingiya, while listening to and watching the recording of his brother speaking in-place, translated the talk into English. In the DVD we assembled for Māngay the second video of Yingiya speaking English appears as a small square set into the larger image of Māngay speaking Liya-Dhālinymirr as shown in Figure 3 (IKRMNA, 2003). In addition students enrolled in....

Māngay's endeavour involving digital technologies of various sorts was already underway when the IKRMNA project investigating the use of digital technologies in Indigenous knowledge and resource management started up. Māngay's concerns were to do with two contrasting arenas or polities.

(1) The project aimed at familiarising Māngay's kin with their Ancestral places. These, mostly young people have traditional claims to these various places but reside in major centres of population, the ex-missions, which are home to several thousand Yolngu. Māngay saw possibilities in using video footage for promoting familiarity between people and places enriching the ways those links are celebrated both informally and formally. This work can be understood as contributing to processes that fold histories back on themselves regenerating collective life. In this paper we see this as 'enveloping' processes in doing place;

(2) Of equal concern was making sure that non-Aboriginal people who were planning the installation of a pipeline (inside a two metre deep trench across thousands of kilometres) south of the Arafura swamp, knew that the land has a story, and that the places have people keeping them alive. It is they who need to tell that story and have an active authoritative role in negotiations over those resources. Māngay was concerned about other strangers intruding onto the land. Like many Yolngu he has a keen ear for the sound of vehicles and survey planes in the far distance, and the sight of unrecognisable vehicle tracks. The work of 'doing place' is here turned to engaging with various agents of 'development' processes that effect various forms of opening up, and making claims in that arena.

We see now that as we muddled along working with Māngay and Yingiya and the videos of place that Māngay and John had recorded, IKRMNA contributed to the invention a form of Yolngu video-witness of place. This can be understood as involving a form of redesigning-in-use of technologies that have come to life within a regime of Western sensibilities about representation.

This redesigning-in-use of technologies of representation in contriving knowledge practices in contemporary Yolngu witness of place dealt with three issues that are intimately related

but at least to some extent can be teased out as distinct tensions. The first involved managing the graphic literalism that seems to be embedded at the core of video technologies. Mängay working with John in-place had to find the right forms of words, the right gestures and the right means to capture images in attending with this issue. The second problem concerned the inertia embedded in DVD displays. Once edited in particular DVD authoring software the form of display of video footage is unchangeable. This inflexibility is a fatal flaw when knowledge practices call for each presentation of the video footage to be understood as a unique performance. At the time we were assembling the DVD we could find no solution to this issue, apart from abandoning DVD display technology in the future in favour of a computer based technology designed from the start as open and flexible (IKRMNA, 2004c). However we recognised that this would severely diminish the usefulness of our work for Yolngu people. While their access to computers is very limited, many own TVs and DVD players. As it turned out we inadvertently found a way to ameliorate this problem in attempting to manage the third problem—designing a product that spoke to a wider English speaking Australian audience allowing for strong claims to be made while not compromising the content designed primarily for Yolngu viewers.

We suggest that the form of Yolngu video-witness that IKRMNA muddled towards in working with Mängay and Yingiya is not fully determined with respect to the knowledge practices it might participate in embedding possibilities for managing contradictions. While contriving ways to turn the technology to serve well enough for Yolngu knowledge practices, the DVD *East of the Arafura Swamp* which we introduce in our final section, also sustains a capacity to speak to Western knowledge forms which to a large extent work in opposite directions.

'DEVELOPMENT' AND 'ENVELOPMENT' OF PLACE

Our inspiration in identifying that much Aboriginal work in doing place is directed towards on-going envelopment in contrast to knowledge practices more familiar to Westerners that are designed to promote development is Raymond Williams' well known text, *Keywords. A vocabulary of culture and society*.

Develop(ed) came into English in the mid 17th century following an earlier English form *disvelop* from an immediate forerunner *développeur* (French) from *desveloper*, old French, with the root sense of the opposite of wrapping, or bundling—thus unfold, unroll. It was metaphorically extended in the 18th century and came to include the sense of developing the 'faculties...of the human mind', Warburton, 1750... It went through its first main extension in the new biology, in close relation to ideas of evolution.

The most interesting modern usage of a group of words centred on *develop* relates to ideas of the nature of economic change. In the mid 19th century the idea of a society passing through definite evolutionary stages [emerged]...Implicit in this notion was the idea of progressive development...

This use for the processes of an Industrial and trading economy clearly strengthened from the late 19th century and became normal in the 20th. It could have, as its simple opposite undeveloped, but the most significant change came after 1945, with the new and influential word underdeveloped. This connects with two ideas: (i) that of lands in which 'natural

resources' have been insufficiently developed or exploited... "the ore unmined, the stone unquarried, the timber unfelled" etc. and (ii) that of economies and societies destined to pass through predictable 'stages' of development' according to a known model.

Very difficult and contentious political and economic issues have been widely obscured by the apparent simplicity of these terms. Thus a particular land might be developed for its own purposes, as in some kind of subsistence economy, but seen as underdeveloped in terms of a world market dominated by others. (Williams, 1976, p.103)

From the etymological disentangling that Williams did thirty years ago we see that development, capitalism, and notions of the exchange values of commodities, and globalisation are intimately tied up together. It reminds us that a considerable amount of disentangling and unravelling work needs to be done in penetrating the cloud of self-evidence which surrounds contemporary discussions of the role of digital technologies in 'development'—too big a task for this paper, and not our primary purpose. Evading that task here we go back to an old root meaning in proposing a way to contrast contemporary Aboriginal sensibilities about place with those that have currency in other places. Here we focus on some of the 'enveloping' work we have become involved with in our IKRMNA research project, and briefly consider how Yolngu landowners like Mängay might use digital objects to do 'development' in ways they understand as responsible.

YOLNGU METAPHORS THAT HELP UNDERSTAND ENVELOPING ASPECTS OF DOING PLACE

In this section we articulate some of the metaphors that Yolngu Aboriginal people use to theorise their work of regenerating clan and place as one, something they see as crucial in maintaining the health of both their communities and the ecosystems that sustain them. Why do we elaborate what seems like arcane anthropological detail in a paper about use and design of digital technologies? As we noted earlier, research methods, uses for digital technologies that Aboriginal people devise, and the designs for products that might better afford those uses, emerge as intimately co-constituted along with the regenerated people-places that were the main concern of our Aboriginal colleagues. Taking this seriously then we can understand this Yolngu theorising as articulating allegories for innovation. They are means of imagining relations between 'producers', 'users', and 'regulators'. This is as salient to technological innovation as it is to the re-making of place and clan as one.

Our work with Yolngu, before we turned our attentions to digital technologies had been in the context of schooling, elaborating processes known as 'Aboriginalisation' and 'both ways learning'. These emerged in a long process whereby Aboriginal people and the knowledge traditions which belong to them were gradually being incorporated into the curriculum of government schools. Long and careful negotiations between the schools and community elders had given rise to articulations of traditional Yolngu epistemologies, metaphysics and ontologies specifically useful in innovation in cross-cultural and intercultural education. (Wunungmurra, 1989; Watson, 1990a; Marika-Mununggiritj, 1991; Marika-Mununggiritj, 1991; Ngurruwutthun, 1991; Watson and White, 1993; Christie, 2000)

Two constructs which Yolngu have contributed to the public arena of Indigenous education in Australia are particularly cogent in understanding Yolngu imperatives for digital

technologies and knowledge work in place. The first, the concept of *garma*, drew our attention to a distinctive Aboriginal epistemology which has something in common with European constructivism, except that in the Yolngu epistemology, place is a crucial determinant of knowledge. The Yolngu concept of ‘*garma*’, denotes in the first instance an open ceremonial ground where different groups (always necessarily representing different places and correspondingly different languages) come together for negotiated performances. It is an open, public space, (usually alongside a closed secret/sacred space) where ancestral histories are performed in the context of contemporary issues, and where thereby current truth claims are presented and assessed. Key to an understanding of the *garma* philosophy is the principle that each individual participates in the negotiation and playing out of a collective history, while carefully, publicly, producing a distinctive performance of his or her own unique provenance. Slight differences in the ways feet or hands dance for example, can be read by the literate as an articulation (and a celebration) of something small but highly significant and distinctive in the particular history of a small group’s land and its connections. In this epistemology the actual place of negotiation is always ontologically prior to the work of making truth. Someone always already owns the *garma* site, and gives it up for the work of a properly supervised properly accredited process of knowledge work.

The notion of *garma* has been used to describe the effective processes of inter-cultural schooling – where western and Aboriginal knowledge traditions are choreographed to work together productively with the integrity of each unimpaired, in education, (Watson, 1990b; Ngurruwutthun, 1991, pp. 107-122), inter-cultural community building (Yunupingu, 1994, pp. 1-11) and cross cultural communication (Cass et al., 2002). The *garma* is interesting because it produces a unified truth from necessarily divergent perspectives, from different performers bringing their knowledge, experience, particular artefacts (ancestral designs, musical themes, shapes, colours etc), particular styles and histories to the collaboration. Yolngu could use the metaphor of *garma* to describe what Mängay is doing holding the photograph, standing in front of sacred water, performing for the camera, and prosecuting a succession of claims – about the land, about intruders, about history, about connections, about accountabilities.

The second key concept was *galtha*, which marks the instantiation of a particular Yolngu metaphysics. In the Yolngu ontology, the originary ancestors moved across the country singing, dancing, talking, crying, hunting, cooking – doing everything human, and leaving behind the knowable features of the world and its people with their distinctive languages, histories, totems and truths in place. Thus the world we see and know contains – in fact it *is* – the visible identifiable traces of this work, the ongoing translation from idea/action to reality/place. When a ceremony is to be performed, there are long, complex often fraught negotiations necessary to develop agreement on everything from where, and who, to which images, which sacred names, which ancestral song lines, and which ritual acts are best for this time, these people and this place. This is serious world-making work. Once the negotiations are complete a small ceremonial act is performed - something coming from the air and setting itself in the ground – a spear maybe, or a spade. This is called the *galtha*. The negotiations have finished and the performance has begun. If the *galtha* has been properly negotiated, and is properly performed, the ceremony is efficacious. Its work is not simply to represent an ancestral reality, but to produce it here and now. Knowledge work here has

nothing to do with development and everything to do with continuity/envelopment. Effective Yolngu knowledge work does not produce effective representations of an external world rather it produces effective worlds in place *as performance*. A Yolngu who shows outstanding capability to become his or her ancestral provenance is said, in particular contexts at particular moments, to become his own galtha, a sort of self-actualization (Marika-Mununggirit j and Christie, 1995). Galtha in this sense is a careful process for producing, doing, and enveloping place.

A STORY OF A RESEARCH PROJECT

In researching and sometimes intervening in the ways digital technologies are being used and might be better used by Aboriginal people on country, the IKRMNA research project group has for the past three years been a marginal participant in some of those variously disparate forms of doing Indigenous places in northern Australia. In the beginning, although tensions were evident between the partners that were assembled to support the research under a government policy that favours so-called 'linkage research', the contradictory impulses we now separate as 'development' and 'envelopment' of Indigenous places, were not distinguishable, at least not for us. It might be of course that some of our co-researchers more experienced in doing Indigenous places in contemporary Northern Australia could articulate the distinction.

While recognising that this proposal was controversial amongst both Indigenous and non-Indigenous people (Christie, 2004; Verran, 2006) researchers located in the Centre for Indigenous Natural and Cultural Resource Management (CINCRM) responded by brokering an Australian Research Council Linkage Research project grant application. Under the agreement reached, three institutions involved in working with Aboriginal people 'on-country' were to contribute funds and in-kind resources which would be supplemented by substantial government funds were the application successful.

Our partners were institutions whose interests were in some aspects opposed: a regional Aboriginal advocate organisation, the Northern Land Council which keeps vast archives of many Aboriginal places as evidence in Aboriginal land claims; the Darwin Herbarium, part of the government department concerned with infrastructure and which has a rich ongoing program of ethnobotanical documentation; and the Yolngu Aboriginal organisation Yothu Yindi Foundation a charitable organisation that grew out of the internationally famous rock-band Yothu Yindi, engaging (among other things) in Aboriginal cultural and ecotourism which saw the possibility of commercialising digital cultural resources. These institutional research partners and the Australian government were concerned to develop Indigenous places and promote sustainable livelihoods for Aboriginal people on-country. Seen from their point of view the project would help them with their archives of Indigenous knowledge.

Somewhat to our surprise the grant application was successful and in mid 2003 we began rather tentatively, vaguely adopting an action research approach but still assuming that there are key differences between the work of teaching and of advocacy, and between use and design. We see now that we were acting on an assumption that producing/exchanging knowledge and making negotiations over resources were ontologically distinct practices. Somewhat wiser, three years later, we have come to see making knowledge, sharing knowledge with kin and outsiders, making, prosecuting defending and evaluating truth claims

as the work of envelopment and further that various knowledge practices cannot, or at least need not be differentiated. Another way of saying this is that use and design are one and the same and intimately embedded in knowledge practices. Seeing practices which are startlingly different in our own culture being constituted as indistinguishable by Yolngu returned us to the question of development: what is it, how does it fit in? We also began to see that Māngay and Yingiya were using/designing with and through digital technologies in a struggle to develop a product which simultaneously effects contradictory representational/performative capacities. But we are getting ahead of ourselves here.

To go back to the beginnings of our IKRMNA research project work: our cautious approach was informed by our past experience of working with Yolngu Aboriginal elders and teachers in educational settings in the 1980s and 1990s. There we learned to work with secular Yolngu Aboriginal knowledge practices inspired by and developed from traditional religious knowledge practices. It is worth telling a little of that here for the issues we faced then are not too dissimilar to those we faced in beginning work on the Indigenous Knowledge and Resource Management in Northern Australia (IKRMNA) project. In the late 1980s in Australia many people in Aboriginal communities were beginning to identify that schools had been used quite openly to capture the minds of Aboriginal children and turn them towards the dominant culture, to assimilate Aborigines into the mainstream society. Around this time a group of individuals associated with Yirrkala School in the Yolngu community grasped control of administration, curriculum and pedagogy in the Yirrkala school pushing a government deregulation and devolution policy past the limits the policy planners had imagined. Ten years of expanding classroom control through bilingual education had prepared the Yolngu teachers for this, and for moving the agenda from bilingual education to 'two way' or 'both ways' education, although in the beginning no one knew what that might entail. It turned out to focus on an understanding of pedagogy which incorporated both governance arrangements (who decided about what goes on in the school, who monitors its processes and evaluates its success) and pedagogy (how to go about producing Yolngu knowledge in the new generation).

One aspect of our experience of this school based research of the 1990s that seemed salient, was seeing IKRMNA research and its tangible products (like this paper) as collective performance. Related to this notion of performativity, one innovation we introduced in IKRMNA was a project website that we tried to have function as a form of distributed witness (IKRMNA, 2004b). A second aspect of the approach we had learned in the 1990s that we adopted in IKRMNA, was to see workshops, understood as collective learning and teaching, as central. We tried to understand them as small garmas, but of course they were pale shadows of the ancestral Yolngu garma, hampered as they were by the exigencies of funding, aeroplanes, timelines, ignorance of ancestral histories, and our own western objectivist, progressivist mindsets. In IKRMNA we supplemented this work with on country stays by team members, particularly Bryce Anbins-King one of the digital designers working for the project.

Yet telling things this way does not quite capture the messiness, the projects started and abandoned, and the pervasive feeling of confusion that characterised the first eighteen months of the IKRMNA project. It could be said that we were following the "queerest, baroque, and most idiosyncratic terms offered by the actors" (Latour, 2005, p. 47) in our confused refusal

(or inability) to behave like the proper social scientists envisaged in the research grant application which had us as "developing and trialling appropriate protocols around use of digital technologies for use with Indigenous knowledge". Unable to clearly perceive what our Aboriginal co-researchers expected of us (were we there to see or to do what was going on?) we had already learnt enough from Yolngu about collaborative work that we had no choice but to engage in a way which was not wholly recognisable by the academy (or our Linkage Grant partners).

About a year into the project it became clear that the interests of the on-country Aboriginal groups we were working with did not line-up with the concerns of those 'official' organisations contributing to the funding of the project. In saying this, we don't mean that we 'discovered' this dislocation, but rather that in muddling along with digital designers and Aboriginal people both individually and in groups, some disparities could no longer be ignored. To some extent the realisation coincided with the completion of what we had seen as preliminary to our research—an audit of databases in Northern Australia that held information concerning indigenous knowledge and resource management.

We had looked very carefully at the work of various institutions and the hundreds of digital repositories of what is generally known as traditional ecological knowledge (TEK), or rather as we came to see, its traces. It was soon quite clear, somewhat to the disappointment of our funding partners, that the notion of a single database of Indigenous knowledge that was somehow salient to Aboriginal resource management and development was an unrealisable fantasy. And further, it became starkly evident that the sort of Indigenous knowledge work utilising digital technologies which was already going on in-place, and with which we were becoming increasingly involved was quite incompatible with what we conventionally understand as databases. In particular it showed the notion of a single database consolidating the outcomes of past and present TEK collecting work as a continuation of the imperial fantasy (Richards, 1993). Not only would it be nigh impossible to repatriate digital information to the ongoing work of envelopment on country, but anyway, Aboriginal knowledge workers on country actually showed very little interest in this 'dead' information. This disappointment meant that the funding partners almost lost interest in the research, although generously they continued to contribute funds and we continued to work with many of the people whom their organisations represent.

We now gloss the split that became evident at this time as one between organisations interested in using digital technologies in knowledge work that contributes in developing Aboriginal places in the senses that Williams evokes (1976, p. 103), and those groups who want to use digital technologies in knowledge work that has the effect of folding the histories of Aboriginal places back on themselves, so that history stays properly in-place. We use the term 'envelop' to evoke this phenomenon. Having learned to see this split we also came to see IKRMNA's work as technological using/designing which managed the split. Our using/designing works tensions arising in contradictions embedded in some contemporary Yolngu knowledge practices involved in witnessing Yolngu places.

WITNESSING YOLNGU ABORIGINAL PLACE—MANAGING TENSIONS BETWEEN 'ENVELOPMENT' AND 'DEVELOPMENT'

Mängay's contribution to the IKRMNA research project is particularly useful because it came from an impulse which predated our involvement, and revealed for us some ways forward for our thinking and our interventions. What exactly were John and Mangay doing out there, driving from place to place talking into the microphone with the wind howling? Mängay was making claims about himself and his connections, he was making comments on invasive species and die-offs, he was chiding Yolngu, and warning non-Yolngu, he was presenting evidence for his truth claims, implicitly explaining how this new form of presenting truth claims should be read. He was pointing to the ample evidence of "Abiding Events (Swain, 1993, p.22).

A major outcome of the use/design endeavour we have described in this paper is a DVD entitled *East of the Arafura Swamp* (Guyula and Guyula, 2005). Copies of this DVD are held by Mängay who opportunistically distributes them amongst his Yolngu kin. The DVD is also readily available to back up his and his compatriots' interventions in mainstream Australian politics. Master copies of the DVD product are held on computers in the School of Australian Indigenous Knowledge Systems at Charles Darwin University and a phone call from Mängay to John can have one ready for Mängay to hand over to government officials or representatives of mining companies as required.

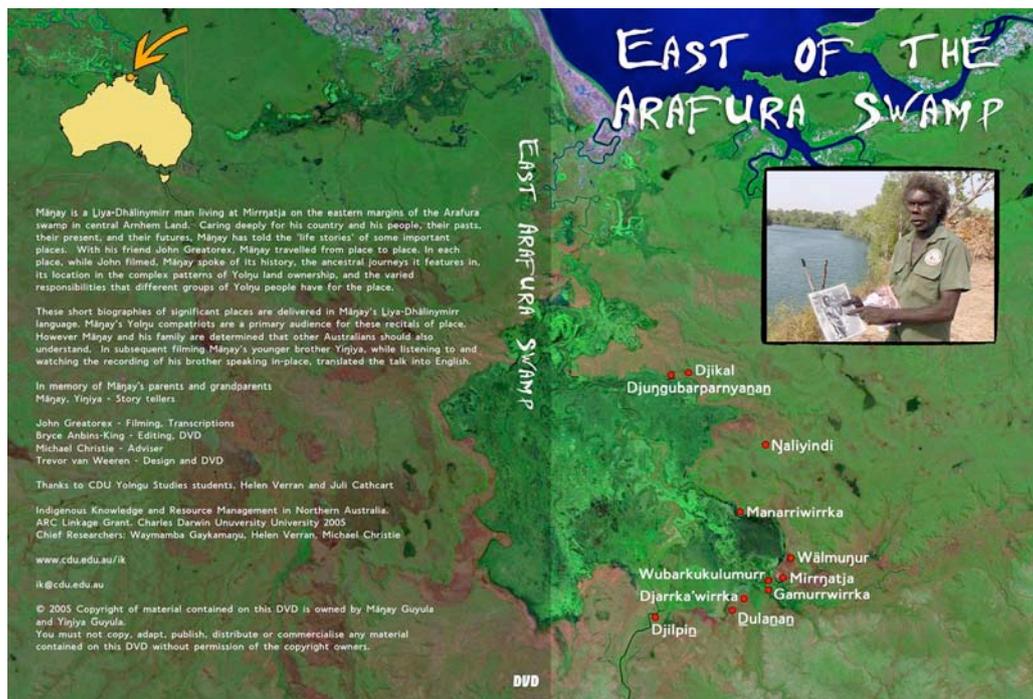


Figure 2: The slick of the DVD *East of the Arafura Swamp* produced for Mängay and Yingiya Guyula by IKRMNA showing names of the places visited superimposed on a satellite photo map of the Arafura Swamp region in central Arnhem Land in Australia's Northern Territory. Copies of the DVD are available on request from John Greateorex in the School of Australian Indigenous Knowledge Systems, Charles Darwin University.

The DVD plays the nineteen short videos that were filmed by Māngay and John in 2003. These are accessed through the map interface shown on the DVD slick (Figure 2) with the opening screen tracing the journeys Māngay and John undertook. A series of nineteen small squares, each containing an iconic image from the footage as a thumbnail which light up when the cursor is passed over them, constitutes the menu. Click on one of these squares and Māngay appears in place and begins to speak. Soon after the video of Māngay speaking and gesturing in place begins to play, a small yellow square appears showing a 'talking head', usually on the lower left side of the screen. Here the subsequently filmed video of Māngay's younger brother Yingiya speaking English, translating Māngay's Liya-Dhālinymirr talk plays (see Figure 3). The soundtrack of this translation is set to run over the top of Māngay's slightly muted sound track, and timed to run slightly behind it. The product is designed so that English emerges from the left-hand speaker and Yolngu matha from the right side of the screen. Yolngu listeners can turn off the English soundtrack and listen to the Yolngu matha sound track. For them the image of Yingiya silently mouthing English words on the lower left of the screen interrupts—but we argue below that this interruption is a crucial element in the technology's working for a Yolngu audience.



Figure 3: A still taken from the video of Māngay's witness of Djilpin, showing the 'talking head' of his younger brother Yingiya translating Māngay's Liya-Dhālinymirr soundtrack into English..

We are suggesting that the DVD *East of the Arafura Swamp* is a product of using/designing with 'technologies of representation'. We place this name in inverted comas now to signal that the episode we have narrated here has redesigned the tools as 'technologies of witness of Aboriginal place'. We see the episode of use/design as growing out of Māngay's endeavour to witness a series a Yolngu places he knows and loves and suggest that Māngay was mainly concerned to assemble digital objects that could be used subsequently in what he understands as multiple unique performances of the places. We claim Māngay has invented a form of

Yolngu video-witness whereby people can imagine themselves to be in-place hearing the testimony of one of its custodians. The audiences for this witness are profoundly disparate. On the one hand Māngay wants to induct his young Yolngu kin into knowing and loving these places as Yolngu places; he exhorts them to contribute to the on-going envelopment of those places. On the other he intends the videos to make a strong claim to the wider Australian polity. Māngay wants the DVD to articulate a sound basis for engaging in processes that might effect development. But there is to be no misunderstanding: Yolngu owners are controlling those processes.

In concluding we explain how we see the DVD as dealing with the three problematic issues we identified earlier. How does it manage the problem of video's designed-in capacity for graphic literalism? From Māngay's point of view this characteristic of video footage is paradoxically both enabling and potentially fatal for his project of video witness of Yolngu place. Second is the issue of DVD authoring software. Once a display of video footage is contrived using this technology it cannot be changed by ordinary users given the level of technical skill required. This stability of re-presentation is both dangerous and invalid in the context of Yolngu knowledge practices where each instance of witness is by definition a novel performance. The third element we found problematic in this endeavour concerned the need to allow the video to work well enough in exemplifying Yolngu knowledge practices while still making strong claims for display to the wider English speaking Australian polity, for Yolngu ownership of and rights to control the places witnessed.

The 'technologies of representation' engaged with in Māngay's project, have arisen in communities of practice imbued with sensibilities expressing a Western metaphysics, and they are salient to its epistemological and ontological demands. We suggest that this results in an in-built graphic literalism which we see as simultaneously crucial and damaging.

In journeying, storying, making the videos in-place, Māngay and John are 'doing place'. But this 'doing' should not be understood as only or even primarily generating representations of the places that were visited. On this understanding using digital technologies in doing Aboriginal place can perhaps be seen as a new addition to an already established repertoire of 'technologies' for witnessing place—story telling, family journeying, dancing, singing, forms of 'abstract' painting and carving. In both informal and formal settings people variously witness place in ways that range from the popular and secular to the high culture of Yolngu religious ceremonies. However unlike display of video footage and photographs all these 'traditional' forms of doing Yolngu place express intimate and embodied knowledge of place while being self-evidently performative and partial re-presentations.

Māngay is keen to use the graphic literalism of video footage and photographs to familiarise in an embodied sense. He seeks to educate his young kinsfolk about places to which they are ineluctably linked but lax in getting to know 'in person'. To achieve this Māngay expects his Yolngu viewers will pay attention and learn how to read what they are seeing. For example he stands in front of a rock in the shape of a turtle, addressing, and even caressing the turtle/rock, explaining its existence as an expression of the shared Yolngu Ancestral reality, *as something you cannot see*.

How to read this image? Definitiveness, so valued by Western ontologies and epistemologies actually works against Yolngu ontologies and epistemologies where explicit recognition of

the possibilities of multiple expressions of Ancestral Reality is crucial. Mängay finds he needs to both show and tell the places, and also instruct. His viewers need to be told what they should not see, and what they should see. The exhibit could be understood by analogy to a family photo album. No one sees one photo or one example of video footage of their kin as definitive. They look at photos of grandma and look for something inside, the spirit that animated grandma. Mängay must make sure that viewers treat the turtle/rock in the same manner. There is a fine art on display in the story telling in Mängay's videos, and for many Yolngu they are not comfortable or easy viewing.

Remember that in Yolngu ontology the originary ancestors travelled across the country bringing it into existence, leaving behind the knowable features of the world like this turtle/rock. It is and is not a turtle, and is and is not a rock. Below we show some of Mängay's carefully chosen words which we suggest signal that the video footage should be read as a galtha. Mängay is making a declaration that his video making act is to be understood as an invitation to begin the collective work of world making.

Table 1: Text taken from Mängay's biography of Wubarkukulumurr

Original transcription	Free Translation
Bañam dhika/yi djinaga ga ñorra, dholkuma mak ñayi munatha/y ñarkula/y, ñarkula/y mak ñunhi ñayi munygum bäy dhika/yi ñorra ñayi ga ga ñanak miyapunu bañam ñunhi ñayi ñanak miyapunu.	Somewhere here inside, a rock is lying maybe it has been covered by earth and water. Maybe the water has hidden it, inside here is the flesh of a turtle, that rock is turtle flesh.
Beñur/dja ñunhi, ñunhi ñayi murrutjuwal/dja ga rumbal/dja, murrutjuwal/dja	It came from there, this turtle bone, and the flesh of the turtle.
Beñur walal märrañal ñanak/nha nhakun, ga dhiyal/na walal dhä-yuythurr, dhuwal gunga mala dhärra marrtji	They brought the turtle flesh from over there, and here they sat cooking, eating and drinking the soup, here where these pandanus palms stand.
Yan nhakun yolñu wunñli ya' bitjarr, dhuwal gunga nhakun ñayi ga ganañ'thun ya' bitjan, gäna ga dhärra, ga ñunhi/ny bala.	These pandanus standing are Yolngu spirits standing in a group by themselves, separate, standing alone, and over there.
Ga wiripu ga dhuwal wunñli/ny nhawi, mokuy nhakun wañarrwañarr ñunhi, Mukarr, muka, Mukarr ñunhi dhiyak miyapunu/w walal dhä-yuythurr dhä-yuythurr walal gana ñukan, dhiyalañumi, ga ñunha nhawi, ñarrañi ñunha dhärra ga, dhudi/ñur	So you see these are the ancestral spirits called Mukarr, yes, Mukarr spirits were here preparing and eating turtle they were eating it here and over there around that bush apple tree, underneath it.
Wubarkukulumurr ñunhi/dhi nhawi yäna nhakun walal gana ñakarañal nhäwi mapu ñayi miyapunu ñunhi/yi/ny ga dhuwal wäña/ny ga dhuwal gunga mala, wunñli yolñu wañarrwañarr	Here at Wubarkukulumurr that's what they used to call it, there are turtle eggs around this place, and those pandanus palms are the traces of those ancestral spirits.
Dhuwal gunga mala dhärra ga, yan nhakun dhuwal yaka ñarra/pi gyañi dhuwal dhañuny dhiyañ bala birr baman nyumukuñiny/ñur ñarra ñakul dhäwu walalañgun ya' bitjarr?	These pandanus standing here, it's not just me thinking up this story, it was from a long time ago when I was very small I heard this story from them, you see?
Dilkurru/wurru dhiyañ bala dilkurru/wurru bäyñu ga dhuwal ñarra ga ñakaram dhäwu, ñunhi/dhi walalany yän wanañgum dhäruk ya' bitjan nhaltjarr walal marrtjin rraku rom ñakarañal.	The old people, now those old people have passed away, and here I am telling the story, I'm just copying their words, whatever it was that they told me.

This text was transcribed by Janet Hodgkin and translated by Michael Christie.

As we described earlier, in the serious world-making work of Yolngu knowledge practices a small ceremonial act is performed - a galtha. If the galtha is properly performed what follows is efficacious; its work being to produce Ancestral reality here and now. A Yolngu person like Mängay who embodies outstanding capacity to become his or her ancestral provenance

in particular contexts at particular moments, is his own *galtha*, having powerful agency. We see Mängay exercising that agency through his use of video footage inviting commencement of careful processes for producing, doing, and enveloping place.

Nevertheless the technology of the *East of the Arafura Swamp* DVD, the array of digital objects that IKRMNA helped Mängay generate has disadvantages. From Mängay's point of view each copy of the DVD Media Pro display that is burnt distributed and watched should be understood as a new performance of the choreographing work that Mängay and John undertook in 2003. But assembled by the expert hands and eyes and skilled sensibilities of IKRMNA design researchers Trevor van Weeren and Bryce Anbins-King using proprietary software like DVD authoring software, the collection is stuck in a particular array. Its capacity to be tailored specifically for each type of audience and each time-place of performance is very limited. There is a very real danger that the movies on the DVD will come to seem like a scientific report, because the display is set and stabilised. It plays without explicit recognition that, like the stories Mängay tells, any particular viewing should be understood as also a particular performance of place. The freezing of one particular edit of the video material in a DVD display severely limit its usefulness, among other things making management of the paradox around video's graphic literalism more difficult.

Discussions of how to manage this problem filled many hours of IKRMNA meeting time (IKRMNA, 2005) and in the end we put it in the too hard basket. However on viewing the DVD later we came to see that we had inadvertently to some extent ameliorated the problem in seeking to deal with what we saw at the time as a separate issue. Mängay and Yingiya were determined to use the capacities of the video footage and DVD technology to come up with a product which would speak strongly to an English speaking audience. Here they were quite comfortable with utilising the apparent definitive representation of the places achieved through technologies of representation. The seeming linear connection between place and owner captured in the video footage, and the capacity of the video images to convey a simplification of Yolngu place was to be mobilised to allow the DVD product to make strong claims in the wider Australian political context, promoting the interests of both place and people.

Increasing the efficacy of the DVD in achieving this end inspired the work John and Yingiya subsequently undertook in recording Yingiya translating Mängay's commentary to provide an English language voice-over, and Trevor's work in contriving a display which allows the two brothers to speak on screen almost simultaneously. The contrivance of two brothers sharing the one screen, the senior brother speaking Liya-Dhālinymirr in-place, the younger filmed in an evidently 'other' context speaking English increased the capacity of the DVD to speak to the mainstream Australian polity promoting the interests of these Yolngu places and their peoples. It retained the powerful authenticity of Mängay speaking Liya-Dhālinymirr in-place while allowing English speakers to hear Mängay's message.

For Yolngu viewers the contrivance of the two brothers speaking simultaneously interrupts. But we later came to understand this interruption as useful. It speaks to the problem that the display inertia embedded in DVD authoring technology causes for Aboriginal knowledge practices, and it also adds forces Mängay's instructions to his Yolngu kin on how to read his video-witness. The sight of Yingiya speaking English against a background contrived from a

creased yellow bedsheet, contrasts powerful with his older brother's in-place talk. It reinforces Māngay's exhortations to care for and know the many places that Yolngu viewers and their families have interests in, some of which Māngay is seen performing. Implicitly it reminds Yolngu viewers of the dangers implicit in neglecting to attend to their places.

At the same time the silently mothing Yingiya there on the screen to some extent undoes the set and stabilised nature of the display of places on the DVD. The inset square reminds Yolngu viewers that this presentation is *not* a garma. It is merely a prologue to a garma, where multiple interests come together in a spirit of serious negotiation and world making. A Yolngu audience watching the *East of the Arafura Swamp* DVD is powerfully implicated in significant work. The interruption of the silent talking head mouthing English words reminds viewers that while it is the testimony of Māngay on display it is they the audience who now must do the work. For a Yolngu viewer the silent talking head of Yingiya effects an unspoken reminder of difference, and provides a commentary on the inadequacies of representational technologies designed for Western knowledge practices when used by Yolngu for Yolngu purposes.

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