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Ground Up Inquiry: Questions and Answers About the Emergence and Development of a Northern Australian Tradition of Situated Research

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Abstract

Ground Up Inquiry is the name of a situated approach to researching used by the Contemporary Indigenous Knowledge and Governance (CIKG) team in CDU's Northern Institute (Charles Darwin University, 2017a). The team partners with Indigenous researchers working under the authority of Elders in their home places. Many of our partner researchers offer research services through Indigenous Researchers Initiative (Charles Darwin University, 2017b). In the Northern Territory of Australia, Ground Up is often contract research and service delivery, but it is also increasingly recognised as an established research method where Indigenous and academic knowledge authorities work together as equals under the aegis of the modern university system. Composed as answers to questions, this paper revisits the origins of Ground Up, and gives an overview of this approach as situated research.

Introduction

Ground Up Inquiry, always pursued in partnerships, is committed to rendering multiple traditions of knowledge making and doing mutually visible. Here forms of life expressing disparate cosmologies are being connected and kept separate in research. The approach recognises such working together as a practice of dual academy research, where protocols and ethos need to be explicitly nurtured and maintained with care. In giving answers to six questions inspired by queries often made by students and others, the paper hopes to make Ground Up approaches to inquiry clear. We hope to develop its role in enhancing, expanding, and enriching the emergent capacities of Indigenous epistemic traditions in the academy and other institutions in northern Australia.

The account given here locates the beginnings of Ground Up Inquiry in the mid 1980s in Yolngu schools in Arnhem Land. The school had support from Deakin University in Victoria, the Australian Institute of Aboriginal and Torres Strait Island Studies (AIATSIS), and the relatively newly established self-governing NT administration. Later, in the 1990s in a different guise, Ground Up Inquiry became important within research in Darwin on Larrakia country. There, as research which was and continues to be strongly inflected by northern Australian forms of life, this approach to social research was consolidated. It became part of the expanding presence of the academy in northern Australia. In Darwin its first home was with the Faculty of Aboriginal and Torres Strait Islander Studies (FATSIS) in the Northern Territory University which was established in 1989, becoming Charles Darwin University in 2003. Ground Up Inquiry now is a core element in the Northern Institute in the College of Indigenous Futures, Education and Arts (CIFE) of Charles Darwin University.

This paper lays out a short account of how we the authors, as members of the research team Contemporary Indigenous Knowledge and Governance located in CIFE, see the recent past of Ground Up Inquiry. In partially

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describing processes and practices in Ground Up Inquiry as they currently play out, always in specific situations, it extends the detailed descriptions given in Christie (2013a). The aim of this article is to offer background information as this home-grown northern Australian approach to research begins to travel and take root with other peoples and places

When did your research group start developing Ground Up Inquiry?

As an academically branded and named approach to research in northern Australia, Ground Up Inquiry began to emerge in an Australian Research Council (ARC) funded project officially named Indigenous Knowledge and Resource Management in Northern Australia, 2003-2006, although the name Ground Up Inquiry did not materialise until a few years later. As this project proceeded it was retitled as Making Collective Memory with Computers (Charles Darwin University, 2003). The project involved university researchers working with several rather small Indigenous groups living on-country in Arafura, Darwin, Elcho Island, and Ramingining in Australia's Northern Territory. Each of these groups was interested in using some type of digital technology for their own cultural and epistemic or knowledge-doing purposes. Some wanted interactive screen maps they could use as part of projects to allow country to speak in its own voice; others wanted to collect together resources to enrich their children's education. These groups found that they needed to devise ways to evade the knowledge categories that seem to be built into digital technologies (Verran, Christie, Anbins-King, van Weeren, and Yunupingu, 2007; Verran and Christie, 2007).

At the same time as the work with small Indigenous groups was proceeding, the project was involved with larger official and semi-official organisations—the Yothu Yindi Foundation, the Department of Infrastructure Planning and Environment, and the Northern Land Council. These organisations had committed funds to the research and of course they had their own institutional problems requiring quite different digital technological solutions. In many ways, the needs and expectations of the larger institutions did *not connect* with the research agendas that the on-country Indigenous organisations were determined to pursue. It was within this set of tensions that the practices of Ground Up Inquiry began to come to life as a practical approach to social development research situated in northern Australia where in many places working epistemic traditions of two distinct cosmologies is the norm.

Two important aspects of Ground Up Inquiry can be recognised in records provided in the now archived website of this project. In nine elaborated displays under the heading 'The Research Journey' the actual day to day practices of researchers are detailed. Indeed, this commitment to displaying accounts of actual practices caused some tensions in the research, as partner organisations discovered that operational details had been revealed that they would rather not be made public. This determination to *provide accounts of practices of actual doings*, rather than prepare a general account of project methods is a core characteristic of Ground Up Inquiry. Second the requirement to develop a research ethos that recognised and sought to nurture the enrichment and expansion of organisationally situated, local epistemic spaces with digital technologies was key. Creating such knowledge spaces where the autonomy that was actively claimed and enacted by local knowledge authorities could flourish was the aim. Achieving this was seen as a key outcome of this research. In more recent times such political and epistemic autonomy has been reconceived by Indigenous Australian organisations and institutions as a form of sovereignty. Capacity development in communities begins with recognising 'other' epistemic practices, which in turn requires academic researchers to become *attentively reflexive about their own epistemic practices*.

In solidifying Ground Up Inquiry, this project 'Making Collective Memory with Computers', foregrounded as crucial, the need to engage each and every problem as situated, particular, and singular, and as coming along with its own particular epistemic space. Part of this was recognising the need to engage the presenting problems as they emerged in their complexities on the ground. Sometimes we needed to work to disengage from what the *assumed* problems were. Researchers needed courage to refuse established knowledge practices around the problems, and to somewhat dis-assemble received understandings. This involved rejecting some assumptions in making distinctions that were often unexpected. To some extent these different formulations were unwelcome

to some participants. We found we could not agree with all the participants all the time, and felt obliged to make our contrary interpretations explicit sometimes creating tensions with funders. A novel web of relations, often making novel connections and separations, was brought to the surface in each situation; every one of them singular and unique.

Each situation was problematic, in that it troubled knowledge-making conventions of both the Indigenous knowledge authorities and academics, but in each case the troubling aspects differed. The team of academics involved in that project learned to wait for each problem to identify itself in all its peculiarities, and in its particular conceptual terms and categories. Recognising the agency of these Indigenous conceptual terms, albeit sometimes voiced in English words, and often as English/Indigenous language concept pairs, was part and parcel of recognising the impact of situation. These concepts partially named some of the tensions that could be felt as 'in play'.

Subsequently the need for a name for our approach became apparent when CDU researchers established a loose alliance of researchers—Indigenous and non-Indigenous, undertaking contract research around 2006. Under the trading name of Yolngu Aboriginal Consultants Initiative (YACI), an Indigenous research consultancy business located in the academy was established (Charles Darwin University, 2006). Changes in the location and nature of expertise in Australia's wider research scene were becoming obvious. A new form of Australian governmentality was being established under the influence of the political economy of neoliberalism, and Australian universities were changing in becoming market-savvy. These changes in the knowledge-policy-governance landscape occurred as evidence-based policy and market mechanisms were established. Seeing the new opportunities and openings for Indigenous researchers and collaborative partnerships, helped to reveal Ground Up Inquiry as a unique emergent approach.

One remarkable outcome of the shift was that the significance, rigour and vibrancy of the radically alternative epistemic expertise of Indigenous knowledge authorities, became more evident. Some mainstream institutions and businesses which saw the need to engage Indigenous communities as clients, recognised that Indigenous authorities were the experts they needed to advise them. The rise of Ground Up Inquiry as trans-disciplinary and as connecting disparate knowledge traditions, paralleled the death of academic disciplines such as anthropology, sociology, linguistics, philosophy and English literature in many Australian regional universities, including our own.

Is Ground Up Inquiry Indigenous research method?

In the important matter of governance, authorizing or warranting knowledge making and doing as valid, Ground Up Inquiry is located in the academy, and hence is epistemically answerable to a modern institution and its epistemic norms. In ways that are highly significant when it comes to power relations, Ground Up Inquiry is therefore *not* an Indigenous method. The significance of that should not be minimized. Ground Up methods have strong historical roots in the academy, acknowledging influence from, and engaging with a range of academic fields and practices: for example, science and technology studies (Watson-Verran and Turnbull, 1995), pragmatist philosophy (Dewey, 1927, 1929/1958; Rowse, 1993), feminist philosophy (Pyne Addelson and Watson-Verran, 1998), actor-network theory (Nicholls, 2013), and material semiotics (Law, 2004). Significant here is recognizing that this particular bundle of inspirational sources in the canons of the modern academy emerged in response to perceiving the needs and requirements of the actual process of the research, rather than to other way around. Ground Up Inquiry is transdisciplinary in a profound sense in that it constantly re-assembles itself; its practices and processes are profoundly shifted again and again, by those of its partners.

In an important secondary sense however, Ground Up methods are warranted by Indigenous knowledge authorities. This currently occurs in epistemic spaces that partially connect and keep separate, modern epistemic and Indigenous epistemic practices. Epistemic spaces are situations where knowledge authorities work in articulating the myriad practices involved in going on knowingly. What exactly knowingful *is* in a modern sense, is very different to what it is in a contemporary Indigenous sense, and those differences can be

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felt by many, although only with difficulty elaborated. One must cultivate a new vocabulary of words that name epistemic practices. Learning to make sense of arcane phrases like 'epistemic spaces', 'configured knower', 'the ontological form of the known', and asking about the practices by which we can be certain enough becomes necessary. Taking on this new vocabulary can be challenging.

In Ground Up Inquiry, one such space of partial connecting and separating of epistemic practices, involves the nurturing of an epistemic space where that is feasible. Many people in the Northern Territory talk of 'both ways' when it comes to discussing the doing of knowledge practices in contemporary Indigenous situations. And such situations are not only modern Indigenous institutions like schools and clinics. So-called traditional Indigenous institutions—clans, age-cohort groups, and kinship categories which are functional institutions amongst all Australian first peoples, are included here. This so-called traditional epistemic space is where Ground Up Inquiry first emerged in the coming to life of a novel mathematics curriculum in the 1980s (Watson-Verran, 1992). These sorts of epistemic spaces are regarded by Indigenous knowledge authorities as authorized by the land itself; places of Aboriginal owned lands are invested with the agencies of what, in English is now known as 'The Dreaming'.

A second such form of authorization of knowledge generated in Ground Up Inquiry lies in the expanding and strengthening of institutionalized academic spaces where the voices of Indigenous knowledge authorities are amplified, and where Indigenous knowledge practices can be resourced. Strengthening commitment to opening possibilities for Indigenous knowledges to develop academic institutional roots is seen as crucial in consolidating the epistemic warrant of Ground Up research practices. Ground Up research takes seriously and depends upon recognizing First Nations' and First Peoples' sovereignty, and is committed to institutionally developing an academy open to partial authorization of research that is simultaneously warranted by epistemic authorities outside the academy (Spencer, 2020). Only when this is well established and highly visible, will accountability to First Nations and Peoples and their organizations and institutions be established.

What are the grounds that Ground Up Academic Research attends to and speaks from?

Ground Up Inquiry always addresses a situated and unique problem and does so with practices that emerge as particular to the situation. On the academic side the concept of people-place is crucial in affording this possibility. In conventional academic analysis the concept of people is ontologically quite other than place. This profound separation comes along with commitment to a modern cosmology which imagines matter set in space and time and society with its peoples, as framed by this natural setting. Indigenous Australian cosmologies in contrast have peoples and their places as a unified founding category generated as Ancestral Beings led their lives and invested locales as meaningful in particular ways.

Invoking a constitutionist framing which conceives modes of existence, or of being, as what is attended to in research (Latour, 2013), Ground Up's novel concept of people-place is proposed as an ontological innovation that is emergent in the practices of its research. The analytic concept can work to connect and separate incommensurable modes of existence of peoples and their places: the modern way of assuming a profound separation of a people and their place, and the Indigenous existential mode where a people and their place are one and the same entity, when it comes to knowingful doing. The concept of people-place becomes a portal by which situated concepts naming the unique tensions of a present problematic can emerge and be collectively worked with, including being named. Crucial in that, is getting the right story at the right time through participating in the collective work of the right people in the right place. Achieving that involves cultivating skills that academic researchers can learn.

Work in the project Indigenous Governance and Leadership Development (Charles Darwin University, 2015) was a turning point in the recognition of the set of skills, or the toolkit, that academic researchers need to cultivate in order to undertake Ground Up Inquiry. That project, with its seven distinct and different situations, was a first step in scaling-up the approach of Ground Up Inquiry. It was clear from the outset that developing capacities of members of Indigenous communities to work autochthonous governance processes with those of modern forms of governance developed by various levels of government, depended on recognising that all forms of governance

are invested with particular knowledge practices. It turned out to be crucial to show some sameness between governance as government officials understood it, and governance as Indigenous authorities understood it. And the way to do this we realised was to learn to tell detailed stories about what people—both government officials and Indigenous knowledge authorities actually do and say in doing governance. Albeit that the differences are obvious, when we showed practices by telling stories, everyone could recognise a useful working sameness.

Here the work of training academic researchers on this project in skills of analytic sociomaterial ethnographic story writing was considerable: learning to do story-telling that focussed on telling in seemingly redundant detail, what participants in the research actually did and said, made the difference between success and failure. In this project's engagements with very differently historically and geographically situated Indigenous communities, and with departments at all levels of government, the role of careful analytic ethnographic storying in Ground Up Inquiry became evident. This method has since been recognised as an innovative form of ethnography (Verran, 2021; Christie and Verran, 2013a).

Beginnings of a particular Ground Up Inquiry are never theoretical questions as framed by theories of modern society. Collective action around a problem as particular, always emerges as a multiplicity of interpretations, imperatives, commitments, agendas, priorities, politics and epistemics; it is never determinate in beginning. This commitment to indeterminacy in problematisation often needs to be maintained against the background of claims by the agencies funding the research. Funders often bring a solidified account of 'the problem' to be addressed. This stance involves maintaining that naming a Ground Up Inquiry problematic is always an outcome of inquiry. Sometimes the salient concepts are unexpected, and usually the conception of what the problem is turns out to be quite different in its formulation by Aboriginal elders, compared to formulations by others who have different sorts of interests. Teasing out connections in formulating the problem generatively, as one where enough understandings are common, is an important part of Ground Up Inquiry. This usually means that those agencies which engage Ground Up researchers and their Indigenous Research partners, are those who have come to realise that top-down solutions which depend upon the practices and categories of the government and non-government organisations have consistently failed.

Ground Up researchers experience research as paying attention to practices; situated practices as they happen: academic practices of assembling evidence, and others' normative practices, are grounds in a literal sense. In Ground Up concepts are taken as *happening* in the world as enacted sets of practices; concepts can be met with—literally; experienced in the form of participating in doing practices in making inquiries, alongside others enacting their practices.

Participant academic researchers write short analytic stories about how the on-the-ground doing of *their* familiar practices proceeds, or often they write stories about how those familiar practices are interrupted, so that they find themselves disconcerted. These analytic stories are reflexive in trying to convey how it felt to participate in a problem on the ground, as researchers, albeit often marginally. Capturing the happening of a discrete episode that somehow was meaningful in the playing-out of a whole event or episode is the aim of the evidential storying work. The stories tell about what people actually did and said in place at the time. It is telling an event that was somehow peculiarly revealing.

The story below is the sort of storying that Ground Up Inquiry generates. The reason for including this story is to alert the reader about *how it should be read*. This story of the happening of an encounter between scientists enacting their forms of knowing practices, and Indigenous landowners enacting theirs, is *not* proposed as a narrative where what matters is the story's denouement, how it all ends (not very comfortably).

It is not proposed as a narrative where the story carries a moral like 'the story' Goldilocks and the Three Bears', where a girl who dares to transgress has a good breakfast and might or might not have been punished, which is how stories are normally read in English literature. The story details differing epistemic practices in the doing of an episode of research which would later come to be recognised as Ground Up. It shows some of the ruptures and frictions emerging in the course of making and doing Ground Up research attending to grounds which emerge along with the problematisation of water and how it may be known in differing and related ways. The story is a form of data in that it reveals a potential for ongoing relevant and impactful work. It offers an account of *knowledge practices* as they happen in variable ways on the ground. So, as well as being a form of

data, the story also frames interpretations of what happens when Yolngu knowledge authorities try to work with hydrologists—authorities in a different knowledge world.

The story describes what scientists do and say as they enact the scientific concept of water as an element of landscape, and what Yolngu land-owners do and say as they experience that scientific concept as disturbingly different to their concept of their island's water (Hayashi et al., 2021). *Gapu* normally unthinkingly translated into English simply as water, nevertheless in ordinary Yolngu parlance is knowable in Yolngu people enacting quite different practices than the scientists, and in using different names. The story also describes what the Ground Up researchers are wondering at and how they are behaving.

The purpose of the workshop was to enable visiting scientists (mostly German hydro-geologists) to engage with relevant Yolngu authorities and outline a collaborative research project in Milingimbi where on-going community life has become problematic in a time of climate change. We began inside the office of the Crocodile Islands Rangers, an independent Yolngu ranger group working in land and sea management in Milingimbi and surrounding homeland areas. The participants then moved to a series of important locations dotted across the island - the water tower which held the community domestic water supply; a billabong located a little way out of town; and a proposed site for several aluminium measuring towers, each around five meters tall.

As the workshop in the rangers' office began, the conversation turned almost immediately to questions about housing and water needs. Members of the community asked how much water was in the aquifer? Could new houses be built soon? How could the scientists help? Questions were thrown forward by Yolngu workshop participants, who hoped that the scientists could assist them with making decisions around housing. However, the scientists made a clear statement: their project was about researching things like - water quality, salinity and transpiration rates. Questions about new houses was politics. They were on the island because climate change had radically altered the available water on Milingimbi. New - scientific - data was needed to understand the island's hydrological flows and assess water management problems before beginning to think about what to do next.

Following this statement there was some tension in the room, which remained unresolved as we packed our bags and drove out to various field sites. The first stop was a water tower - a large, elevated tank supplying the Milingimbi township. The scientists began talking to the rangers about the levels of water in the tower, the frequency of Milingimbi's rainfall and the transpiration rates of the surrounding vegetation. As this group of men - scientists and Yolngu rangers - stood in the hot sun, looking up at the tower, the two of us found some relief in the shade, sitting with a group of senior land-owning women. They marvelled at the willingness of the scientists to stand in the sun and get things done the hard way. If they wanted to know about water, these women suggested, all they had to do was ask. They would have been happy to show them.

When we moved down the road to a billabong, the scientists were interested in the salinity of Milingimbi's surface water. There, as the scientists were getting to work, the Yolngu stood at the water's edge telling stories. To us, as interested researchers whose job was to try to help both the scientists and the landowners understand each other, these differing sets of practices seemed to coexist quite easily, but they also revealed some tensions.

The head scientist threw in a salinity meter into the water, one of the Yolngu suggested that she could have taken a reading much more quickly - simply by dipping in a finger and tasting the water. As the scientists talked about how the water was too salty for fish, another woman at the edge of the group pointed to the remnant ashes of a fire where her son had caught a barramundi fish, cooked and eaten it just a few days earlier.

By the end of the day we arrived at our final stop: a swampy area where many paperbark trees were growing. The discussion centred on one of the measuring towers that the scientists wanted to erect, and about how it might be kept safe from fires and local children. The towers offer scientists a way of measuring transpiration from vegetation across the island. They are sensitive pieces of equipment that need careful monitoring. After significant rainfall, their collection buckets would have to be emptied to preserve the integrity of further measurements, and data would have to be collected and recorded continuously. The lead scientist had the components of a tower with him, and talked about installing it soon.

At this point, however, conversation suddenly came to a halt. Permission for such installations was not something that the Yolngu ranger group, who the scientists had been speaking to all day, could give. It would also depend on the outcome of negotiations between senior landowners regarding the character and boundaries of their lands and ownership. (excerpt from Dányi, Spencer, Maguire, Knox, Ballester, 2021).

There is no moral to this story, as a description of on-the-ground methods of three rather different groups of knowers - Yolngu authorities, hydrologists and ethnographers - the hope is that readers recognise what concepts are in contention. The concept pair that emerges as the site of the problematic tensions, which originate in and as the differential knowledge practices of hydrologists and land owners here, is *water/gapu*.

How was it that Ground Up came to pay close attention to concepts and how they emerge in practices?

Ground Up's approach to situated research proceeds through concepts, and it conceives of concepts or imagines them, quite uniquely. This arises from the origins of Ground Up in the schools of Yolngu Indigenous communities of north east Arnhem Land. Ground Up's way of conceiving concepts, and inquiring into how they work on the ground by paying careful attention to the practices in which they are 'done', came into being under the supervision of Yolngu elders beginning in Yirrkala in about 1988. This does not mean the Ground Up's concept of concepts takes up the same form as Yolngu concepts. There, as we understand it, concepts are conceived as playing something like the role of objects in object-lessons (Christie and Verran, 2013b). Inspired by the Yolngu form of concepts however, the Ground Up conceptualisation of concepts as participating in an ecology of practices (Stengers, 2005), is different than the usual modern conceptualisation of concepts as somehow located in human minds which know the world 'out-there' through those concepts, and use that knowing to make judgements and decisions.

Led by the Yolngu Action Group at Yirrkala School curriculum research was always begun with conversations seeking instruction and guidance from clan elders: researchers need to do their conceptual homework. In all subsequent work in Aboriginal communities spread right across the Northern Territory, Ground Up researchers have been led always to begin work by sitting down with elders, and local researchers, asking them about where to start, where to go, where not to go, who to talk to, how to collaborate, how to co-design, and to ask for grounded images.

Inspirations from four particular Yolngu concepts are acknowledged by contemporary Ground Up researchers: *Milngurr* and *Ganma*, and *Garma* and *Galtha* (Christie and Verran, 2013b).

Milngurr: Raymattja Marika (1959-2008), a Yolngu educator and philosopher from Arnhem Land told about a sacred waterhole, an ancestral source of fresh water on the salt pans belonging to her Rirratjingu clanspeople. A painting of this waterhole called Milngurr has concentric circles indicating the traces in the mud left by the rising and falling water levels; stylized pathways and footprints indicate its constant use. Taking care to be talking only about her own people, from her own clan group, Raymattja referred to Milngurr water as being in a newborn baby's head, and as being in place (Marika, 1991, pp. 22-23).

This water, this water is Milngurr water ... in place ... Fresh water created by those two [spirit being] sisters when they came piercing the ground as they went using their sacred digging sticks ... As they went, they created the Milngurr water. It explains that Milngurr. The Milngurr shows that. That place, that land, is our bone place. Containing the foundations, the culture and the law. We will hold it and pass it on later for our children. Put in place and teach the laws to our young people. There far ahead we do not know how things will turn out in the future. So that they will know their country, culture, language, foundations, laws for the different groups, and paintings, yes paintings. Yes. It's this [she points to the top of her head] that tells us, this water up here. When we feel this place on the child's head, it is still a small child, on the child we feel this soft spot, you see. Okay, it is this that grows in us, in our heads, our thinking grows and develops in our head, this explains what we would call our cognitive development. But it's the Milngurr water which reveals that, how we will develop our own heads for work and for living ... Yes. It also explains our feelings, how we will sense and understand our feelings. And for our thinking, and feeling, our minds, yes. And also, it will give us knowledge, this water. Our head will become full with water-knowledge. This means that it becomes filled with thoughts and ideas ... This is also true for our thinking, our ideas, our development. Growing up, we will hold on to this water, in the proper way, we will grow up like this, our development will. Our heads will become skilful. Okay. And also, we think that when we are learning new things, new ways, hard things, it is our Milngurr water in our heads which will help us. That's it.

Raymattja urges us to un-think the a priori dualisms of people and place, and of mind and matter. In Raymattja's Yolngu theory, children and their ancestral water-land are born complete and as forms of each other. The water in the child's head has a special name just as each child has its own names, some sacred and secret, not even known to the child itself. Raymattja implies that the separation of people from their place points to an on-going crisis in Western metaphysics. In the practices of Yolngu ordinary and ceremonial life, much complex epistemic and political work is done keeping situated-beings together—people-place.

Ganma: Another watery place, was the context of our work with Mandawuy Yunupingu (1956-2013) on a mathematics curriculum. Struggling to develop practices whereby English language number use and Yolngu ways of effecting order and value into the materialities of everyday life, those working to redesign a school mathematics curriculum were told of and taken to visit, the Ganma— a restless pool in the mangroves where the mixing together of salt and fresh water produces constant flux. Here fresh water from the land, and salt water from the sea are interacting with each other with the energy of the tide, and the energy of the bubbling springs which feed the tributaries carrying water from the land. When the tide is high the water rises to its full. When the tide goes out the water reduces its capacity. Just like this, Western and Yolngu traditions can work together. There must be balance, if not either one will be stronger and will harm the other. The juxtaposition of various watery people-places is the source of a vibrant productivity that researchers must nurture with care. As noted by the school principal, and traditional owner of the Ganma area:

This is the conceptual framework we are using to begin exploring that area where [non-Indigenous] and Yolngu meet. This is where our children live, this is where we must look for relevance ... The Ganma curriculum emphasizes the interface of children's situation in moving from one world to another. (Yunupingu, 1991, p. 101)

Garma: The Yolngu Garma is, in the first instance, an open ceremonial ground where different groups, always necessarily different people-places, with different ancestral languages and concepts, come together for negotiated performances. All Garma performances start off with an issue, be it a funeral or an initiation or maybe the return of a sacred object to its makers' descendants – they all involve both the necessity and the opportunity for a claim for authority. Here in a designated public space the rhythmic ceremonial activity is seen as a cosmological event. Through these performances/events, truth claims are made and assessed. Each group has a large repertoire of songs, dances, gestures, paintings and paraphernalia, which can be presented alongside others who share ancestral tropes ('songlines' or 'dreaming tracks'). Clan members collaborate to choose carefully which totemic objects will be shared in any particular located Garma. Each clan group offers its own interpretation while recognizing other clans and their collective history. They will also enact their own

distinctive performance, constituting in effect a truth claim, and a claim of authority to make these particular truth claims with these particular people dealing with this particular issue, here and now.

Galtha. The sign of the happening of a particular Garma as an event is revered as a Galtha. Galtha might be said of events as they happen in the present, of places known for past events, and in fact of people-places who effect a Galtha (Marika-Munuggiritj and Christie, 1995). A Galtha performs rightness and is the rightness performed. As an epistemology, how different is the Garma and its Galtha from a conventional classroom understanding of a knowing teacher imparting knowledge to benighted students. Serious intellectual work is done here, using the raw material of the past and present, sameness and difference to agree on ways forward together. Resisting always the move towards a higher level of analysis, the Galtha allows the possibility of participation in ontological work, performances are juxtaposed and categories and divisions are celebrated as effects or outcomes of collective work, allowing futures to be imagined.

What about modern concepts? How were they influential in Ground Up's beginnings?

Ground Up's origins in research making novel school curricula invoked and also re-conceived modern concepts in coming to work with Yolngu configurations of number concepts. In particular this occurred in the making of a mathematics curriculum called Garma Maths or sometimes Living Maths (Watson-Verran, 1992). In the community the research was authorised by the School Council of which all clan leaders were members. In a significant conference held in Yirrkala school in 1988 as part of research funded by AIATSIS, members of the NT Mathematics Subject Area Committee (MathsSAC) publicly announced their committee as committed to the research. From its beginning this research was governed by two powerful organisations whose epistemic agendas and commitments were incommensurable: Yirrkala School Council with its senior Yolngu knowledge authorities, and a government curriculum committee. In that situation practices of mathematics knowledge doing and making in classrooms under the aegis of the emerging Garma Maths Curriculum, and the practices of mathematics knowledge doing and making as endorsed by the NT government MathsSAC, were both treated as valid and right in their own ways. This created considerable tension which naturally emerged in and as the concepts of the Garma Maths curriculum. The task of our curriculum research was to render it as a generative tension: disparate, and in many ways incommensurate, and yet as also connectable.

This research episode threw up situations where differing concepts of the knowers were as much an issue of contention as the concepts that were the knowns (Verran, 2018). Learning how to participate in good faith in the practices of both these epistemic traditions was a steep learning curve; all researchers—academic and Yolngu alike, needed to learn to do new sorts of conceptual work. Looking back, that work can now be seen as involving academic researchers in radically revising their accounts of what numbers and mathematical objects are. That is ontological work. In changing one's mind about the sorts of things numbers and other mathematical objects are one must also think about what that means for how numbers are *done*.

This ontological work entailed taking really seriously the cultural, historical, linguistic, and political contingency of concepts like 'number' and 'spatiality' as established sets of experienceable practices. More importantly, the question of how to strategically reconcile this recognition of practices as 'doing' concepts—which is now seen as the core of Ground Up approach to research, with the two very different 'stories' that Yolngu knowledge authorities, and mathematical experts tell about what mathematical objects are, and how they are to be done was what we confronted in that project. Every Ground Up project faces this daunting question.

How to stay true to commitments over what maths knowledge concepts are in the classrooms of Yolngu schools, and also cultivate appropriate epistemic demeanour in meetings in offices in Darwin, and in meetings with clan leaders in Yirrkala? Just as researchers travelled and worked in-between the three places, so did the concepts that were core in the curriculum: numbers and *Gurrutu* positions, and space-time grid and *Djalkiri*.¹

¹ Gurrutu refers to networks of kinship connectedness, not only of people, but of places, ancestral songs and totems, including species of plants and animals, but also clouds, breezes, sacred objects, and much more. Djalkiri refers to the 'footprints' which prevent peoples and places from ever separating out.

What novel concepts have appeared in more recent Ground Up research?

In recent years, government and non-government organisations have sought to engage Ground Up teams in monitoring and evaluating the complex work of delivering a very wide range of services to Indigenous settlements and communities. Aboriginal researchers associated with the Indigenous Researchers Initiative have taken enthusiastically to monitoring and evaluation inquiry in using Ground Up's novel research approach. This situated inquiry addresses an area of great frustration amongst Indigenous Australians: outside agencies have failed fundamentally, despite much good faith, to monitor and evaluate their programs and projects in terms which the elders and knowledge and governance authorities understand as conforming to the imperatives of the unfolding of healthy people-places. There is often a sense that the wrong services have been delivered in a wrong way.

A current example is the Community Planning and Development programme of the Northern Land Council which administers royalty money from mining and rents. In the Yolngu elders' understandings, the notion of both *community* (as something put in place by the state effectively undermining ancestral governance of networks of people-places) and *development* (as something progressivist, leaving behind a benighted past) are both colonial enterprises—forms of governance that should be resisted, subverted and opposed.

In this troubled setting, in order to negotiate her own collaborative monitoring and evaluation of 'community development' projects, Nyomba Gandangu, a Yolngu researcher from much further west and decades later than Raymattja, and a member of the Indigenous Researchers Initiative alliance (Gandangu, 2020), introduced the Yolngu concept of *gakal* (Spencer, Gandangu, Yunupingu, Christie, in press). *Gakal* is a relatively common concept in Yolngu conversation, it refers to habitual practices, style, gait, and route taken by Ancestral Beings, anything to do with embodiment, particularly that which is appropriate, consistent with the ways in which the world and its making and doing that was put in place by the Ancestors. *Gakal* is not something which takes us back in time to an Ancestral world but rather is the expression of the Ancestral world in this secular present.

What sorts of things can be said to have or express *gakal*? Yolngu hiphop and smartphone ringtones are celebrated for their expressive (re)production of Yolngu *gakal* in the unfolding contemporary world. More importantly, as with Raymattja's example of *milngurr*, every child, has its own *gakal*. Each and every child should be helped to express that uniqueness that they are. Monitoring and evaluating the behaviour and learning of children, has nothing to do with good or bad, but everything to do with how they are allowed and encouraged to perform—as themselves. Attending to the conditions that will afford and support their growth as themselves is what is required. Each and every child needs the appropriate conditions to explore and grow into their own *gakal*, and what needs to be continually monitored and evaluated is *the provision of those right conditions*.

If the workers from the Land Council listen carefully to the elders, and understand how they struggle to govern the unfolding worlds of their people-place as themselves, with their particular authority, and often against overwhelming odds, then these workers can themselves contribute to the production and celebration of Yolngu *gakal* in collective life.

An interesting conflation occurs when attention is given to articulating *the conditions that afford emergence*. Monitoring and evaluation stops being *about* community development, instead good monitoring and evaluation *becomes* what good community development *is*. Ground Up research works to allow the sovereign governing elders to attend to the emergence of healthy generations of people-places.

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