2

Curriculum as Knowledge System: The Warlpiri Theme Cycle

Samantha Disbray and Barbara Martin

Introduction

In contexts across the world, recognition of Indigenous Knowledge (IK) and its importance, in particular to science and sustainability, has become increasingly prominent (Bohensky et al. 2013; Inglis 1993; Johnson 2012; Roué 2006). According to the UNESCO 'Local and Indigenous Knowledge Systems' website, societies from all parts of the world possess rich sets of experience, understanding and explanation:

> Local and indigenous knowledge refers to the understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings. For rural and indigenous peoples, local knowledge informs decision-making about fundamental aspects of day-to-day

S. Disbray (✉)
Australian National University, Canberra, ACT, Australia

B. Martin
Yuendumu School, Yuendumu, NT, Australia

G. Wigglesworth et al. (eds.), *Language Practices of Indigenous Children and Youth*,
Palgrave Studies in Minority Languages and Communities,
DOI 10.1057/978-1-137-60120-9_2

> life. This knowledge is integral to a cultural complex that also encompasses language, systems of classification, resource use practices, social interactions, ritual and spirituality. These unique ways of knowing are important facets of the world's cultural diversity, and provide a foundation for locally-appropriate sustainable development. (UNESCO 2016)

Indigenous educators and advocates have promoted IK in education, with its value defined in terms of indigenous rights and improved educational and well-being outcomes for Indigenous students and communities, as well as fostering linguistic and bio-ecological knowledge (Barnhardt and Kawagley 2005; Bates et al. 2009; Battiste 2002; Little Bear 2009; Semali and Kincheloe 2002). In line with the UNESCO depiction of IK, many characterisations of these diverse and complex knowledge systems stress their local and holistic nature and detail multiple strands of social, cultural, metaphysical, ecological knowledge and lived practice (Barnhardt and Kawagley 2005; Haami and Roberts 2002; Maurial 2002; Roué and Nakashima 2002; UNESCO 2016; Walsh et al. 2013).

In Central Australia, the interconnected nature of traditional and contemporary knowledge has been explored in work by both Aboriginal and non-Aboriginal scholars and practitioners. Fiona Walsh, Veronica Dobson and Josie Douglas have explored the Arrernte socio-ecological system in the context of Natural Resource Management (2013). The Arrernte are traditional owners of the lands surrounding, and on the site of, Alice Springs, which is the main population centre in Central Australia. The authors of this work, including Arrernte elder Veronica Dobson, propose an 'Anpernirrentye framework', which encompasses social relationships among humans and 'connections between plants, society, country, and laws and all things' (Walsh et al. 2013, p. 6). The three major interrelated domains of an Arrernte worldview are represented in the framework: Apmere (Country), Tyerrtye (People) and Altyerre (Dreaming, Creation time). They explain: 'Anpernirrentye is not only about human social relationships because plants and animals are related to Aboriginal people through the same social system that classifies and structures relationships among human individuals' (p. 6). They seek to make clear relationships between plant and animal species and the Arrernte people, which have, until recently, rarely been of interest to European scientists. In earlier

work, Mary Kemarre Turner depicted a complex mapping of Arrernte knowledge (Turner 2005). Finally, in their elucidation of Warlpiri 'Ngurra-kurlu', a template of Warlpiri culture, Pawu-Kurlpurlurnu et al. (2008) describe a system that represents the 'five key elements of Warlpiri culture: Land (also called Country), Law, Language, Ceremony, and Skin (also called Kinship)' (p.1). Their template of Warlpiri culture promotes Warlpiri pedagogy, identity and self-esteem, community and country well-being and effective ways to work with Warlpiri people.

The curriculum developed for teaching Warlpiri language and culture in four schools in Central Australia, the Warlpiri theme cycle, is the focus of this chapter. The Warlpiri theme cycle has developed over four decades through the Northern Territory (NT) bilingual education programme. Despite changes to education policy over the decades, Warlpiri educators continue to advocate for, develop and structure their teaching programmes around the theme cycle (Devlin et al. 2017; Nicholls 2005; Simpson et al. 2009). Educators, elders and community members in the four Warlpiri schools, which make up the 'Warlpiri Triangle' (see Fig. 2.1), have worked on the development of local curricula to teach their children Warlpiri language and cultural knowledge in school. The three-year cycle covers 12 themes or knowledge domains, central to Warlpiri land, language and law (shown below in Fig. 2.3). It is designed to be taught over a student's schooling life, from early childhood to secondary years, as the students take part in a cycle of ever deeper learning in each domain. With four themes each year, the cycle is mapped to the NT school year, which is divided into four terms. In this, the theme cycle replicates traditional ways of learning and knowing but is adapted to the rhythm of non-traditional contemporary schooling. Though the domains of learning are separated out for the purposes of the curriculum, they nevertheless remain inextricably connected.

The Four Warlpiri Communities

The Warlpiri communities, Yuendumu, Nyirripi, Willowra and Lajamanu are located in the arid Tanami region of Central Australia in the NT (see Fig. 2.1). They are separated by hundreds of kilometres and each has a

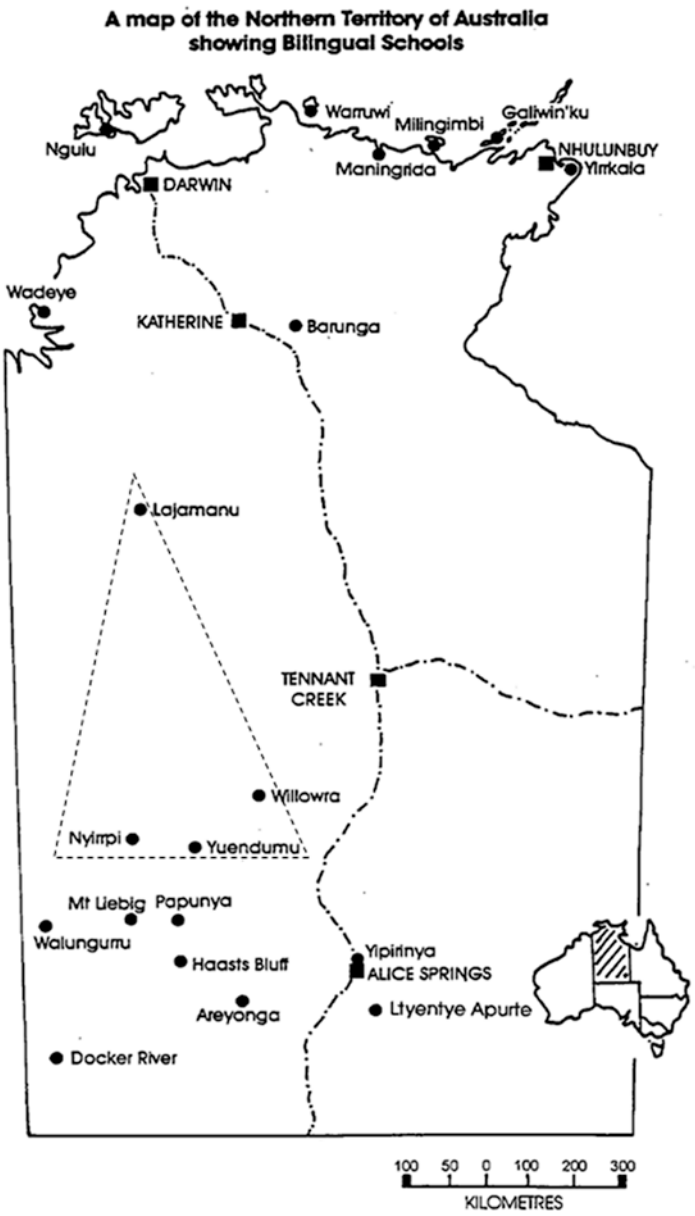

Fig. 2.1 Map of the Warlpiri Triangle, in relation to Alice Springs and schools with bilingual education programmes in 1990 (Northern Territory Department of Education 1990, reproduced with permission)

unique history. However, they are connected by family (Musharbash 2008), mobility, language and culture: they are part of a Warlpiri unity. As Warlpiri educators wrote in 2008:

> Nganimpa-rlalu jintangku Yapa Warlpiri manu wangkami jinta jaru, Warlpiripatu kurlangu Jaru. Nganimpa yungurnalu waja-waja mardarni maninja wangurlu nganimpa-nyangu jaru manu culture. Nganimparlu yungu-rnalu tarnngangkujuku mardarni pirrjirdi-nyayirni tarnngangkujuku.
>
> We are one Warlpiri people and speak one language. We don't want to lose our language and culture. We want to keep it going and we want to keep it strong. (Northern Territory Department of Education 2008, p. 2)

This unity is also expressed through regional Warlpiri initiatives such as the Warlpiri Triangle in the context of the Northern Territory bilingual education programme, Pintubi Anmatjere Warlpiri Media and Communications Association (PAW media undated), the Warlpiri Youth Aboriginal Development Corporation (Warlpiri Youth Development Aboriginal Corporation 2015) and the Warlpiri Education and Training Trust (WETT) (Central Land Council undated).

Yuendumu, with its current population of over 800 Warlpiri people and a total population of approximately 1000, was established in 1946 as a ration station. In 1947 it became a Baptist mission and was declared an Aboriginal reserve in 1952 and administered by the Native Affairs Branch of the Australian Government. The reserve became an Aboriginal freehold land under the Aboriginal Land Rights Act (Northern Territory) 1976 and the land and area became the Yuendumu Aboriginal Land Trust area. Yuendumu was one of the first NT schools to take up bilingual education in 1974.

Willowra is a smaller community with a population of approximately 450. It began as a residential area on a cattle station, and the Willowra pastoral lease was purchased by the Department of Aboriginal Affairs on behalf of the local Indigenous people in 1973. Five years later a land claim to Willowra was lodged under the Aboriginal Land Rights (NT) Act 1976 and in 1983 the traditional owners were granted inalienable freehold title to their country (Vaarzon-Morel and Wafer 2017). The bilingual programme began in 1977.

Lajamanu, located in the far north semi-arid part of the Tanami region has a population of around 800. The Warlpiri community was established here in 1949, when a number of families were moved from Yuendumu by Native Affairs. Twice over the next two decades, people walked the 700 km south back to Yuendumu, only to be returned to Lajamanu (Lajamanu community members 1984). Since then Warlpiri have made this community their home. In 1980 the Lajamanu Council was established, the first Community Government Council in the NT (Remote Area Health Corps 2009). Its bilingual programme began in 1981 (Nicholls 1998, 2001, 2005).

Nyirripi is the smallest Warlpiri community, with a population of approximately 250. It was established in the late 1970s, and after persistent campaigning by the residents of this outstation, a school was established in the early 1980s, with support for its bilingual programme provided from Yuendumu. In all four communities, Warlpiri is spoken among all age groups, although in Lajamanu, children learn a new Warlpiri variety: Light Warlpiri (O'Shannessy 2008, 2011, 2015).

Indigenous Language and Knowledge in Education in Australia

The NT bilingual education programme was established in 1973, an important move in recognising and fostering Indigenous languages in education (Devlin et al. 2017). Today, Indigenous languages and knowledge are taught in many schools across Australia, to Indigenous and non-Indigenous students, through language revitalisation and second language and bilingual language maintenance programmes (Disbray 2015; Hobson et al. 2010). In response to revitalization efforts across the country in the 1980s and 1990s, the Australian Indigenous Languages Framework (1993) was developed to support the range of language teaching settings, and varied learner profiles, both Indigenous and non-Indigenous. A number of states drew on this to develop curriculum documents (Government of South Australia 2001, n.d.; Northern Territory Department of Education and Training 2002; NSW Board of Studies

2003; Victorian Curriculum and Assessment Authority 2009), and locally, individual language groups have designed their own programmes to teach their languages (Hartman and Henderson 1994; Hobson et al. 2010). In 2015, the Framework for Aboriginal Languages and Torres Strait Islander Languages (Australian Curriculum n.d.) was launched as part of the new national curriculum. Its implementation and impact is yet to be seen (Disbray 2015, 2016).

The NT Bilingual Program

The Warlpiri theme cycle was created in the context of the NT Bilingual programme, which ran as an official programme from 1974 until 2008 (Simpson et al. 2009), and was reinstated in 2015. Some 25 schools in remote communities in the NT operated programmes and were important sites for the development of local curriculum and pedagogy (Marika 1999; Marika-Munggiritji and Christie 1995; Marika-Mununggiritj 2002), literature in Aboriginal languages (Gale 1992, 1994, 1995, 1997) and Aboriginal teacher training (McTaggart 1999). The programme was established after the newly elected Labor Federal Government's call to 'launch a program to have Aboriginal children living in distinctive Aboriginal communities given their primary education in Aboriginal languages' (Department of Education 1973) and sparked a period of remarkable creativity, educational engagement and innovation (Disbray 2014). The revitalisation and assertion of cultural knowledge and practice, repressed under the previous assimilationist era, fed into local goals for bilingual education in the NT. By 1989, Christine Walton and William Eggington reflected that:

> Many Aboriginal teachers and community members have found bilingual education not only a preferable model of education for their children, but also a means whereby they have been able to take their rightful place in the schooling of their children. They see it as a vehicle for self-determination and a means whereby they have been able to incorporate their languages and cultures into the school in order to make the school an instrument of language and culture maintenance, rather than destruction. (1990, p. ix)

Formal western-schooling was still relatively new when the bilingual programme began. In some communities, mission schools had been present for as long as 40 years, in others, less than 20 years. Many of the Indigenous teaching staff in the programmes were among the first or second generation of adults to experience non-Indigenous education. Only a handful of Aboriginal languages were used as literate languages, generally limited in these few instances to church literacy. Few adults were literate in English or their traditional language(s). In many sites, the first step in establishing a bilingual programme was to develop orthographies for literature production and literacy teaching and learning. Going out to places of significance on traditional country with elders and recording their stories and knowledge was an important aspect of early vernacular literacy production.

Indigenous researcher and bilingual educator Dr Marika (1999) provided a professional and personal reflection on vernacular literacy research and production and its role in developing Indigenous pedagogy at Yirrkala school in east Arnhem Land (see also Marika-Munggiritji and Christie 1995). Marika reflected on how language resources were developed collaboratively, with elders, educators and other community members, often with the assistance of linguists and teacher linguists. The materials document Yolŋu knowledge including cultural knowledge, such as land tenure, ceremonial life, social practice and organisation, local history and dreamtime stories; knowledge of the natural world, such as plants, animals, ecosystems; as well as hunting, tracking and resource use. Educators skilfully wove these themes into the local curricula, incorporating science, maths and social science along with language and literacy outcomes. Examples of such local pedagogy and integrated curricula include 'Galtha Rom' and 'Garma maths lessons' at Yirrkala School (see Morales, et al, Chap. 4, this volume). Others include 'Dhanarangala Murrurinydji Gaywanagal', later 'Gattjirrk' at Milingimbi School (Tamisari and Milmilany 2003).

The inextricable link Marika observes between the development of vernacular literacy and teaching materials, teacher education and community involvement in bilingual schooling and the development of Indigenous curriculum and pedagogy is also evident in other

locations. In Central Australia, in addition to the Warlpiri theme cycle, Yanangu [Aboriginal] educators in the Pintupi-Luritja region (Papunya, Haast's Bluff, Mt. Liebig and Kintore, see Fig. 2.1) were also committed to the development of local curricula to reflect and teach core knowledge through their bilingual education programs. According to teacher linguist Neil Murray at Walungurru (Kintore) in 1987:

> The singular most encouraging thing is to witness the emerging concern (and ultimately responsibility for)—by the Yanangu teachers for curriculum development. That they are actively embracing and translating what is essentially a whitefella concept (a difficult one at that) is more to their credit. This has been particularly engendered by the RATE [Remote Area Teacher Education] program and more recently due to the visit by Kevin Keeffe [a former teacher at Papunya school, who] in conjunction with the Yanangu staff produced a booklet which defines their major concerns and interests. A copy of the booklet is included with this report. The booklet suggests a means of devising and identifying curriculum through an Yanangu frame of reference. (Northern Territory Department of Education 1987, p. 45)

The bilingual programme provided a context and a forum for Indigenous educators to discuss, develop and implement local curriculum over time. In the case of the Warlpiri theme cycle, this exploration and development is ongoing.

The Warlpiri Theme Cycle

> Old people told us what to put in the Warlpiri cycle. We worked every time with elders, about what we should teach the kids, in different parts of the school. Jukurrpa [stories, Dreamtime stories], jurnarrpa [made objects], what food, everything. In SACE [South Australian Certificate of Education] workshops and at Warlpiri Triangle and sometimes Jinta Jarrimi they help us and so they can help us to teach kids. (M. Kitson, Warlpiri Educator at Willowra School, 2014, Transcript SD022)

Early Development and the Themes

When the bilingual programmes began, there was no explicit plan to develop a curriculum as such. A core task was to develop Warlpiri literacy materials to begin teaching children to read in Warlpiri. In 1975 only a handful of books had been printed. Initially, 'paste-over' books, in which the text in existing books (in English or other Indigenous languages) was covered with a piece of paper with Warlpiri text, were used. These paste-overs and translations of English books were a quick way to make books. However, staff in the Warlpiri schools were committed to producing Warlpiri stories in Warlpiri language and developing a bi-literate and bicultural programme, with texts reflecting local knowledge and local experience. A very rich and unique collection resulted. Knowledge from elders and community members was recorded, transcribed and edited. Line drawn illustrations with traditional icons, symbols and designs used in body painting and sand drawings accompanied the texts. Some of the earliest books were accounts of the Dreamings (foundational narratives) for the important sites on Warlpiri country. Others were texts on land, flora, fauna, material culture as well as contact history. By 1980, there were over 100 Warlpiri publications and by the mid-1990s over 600. There are now over 700, including community newsletters, which provide a broader function for literacy outside of the school setting. The books are grouped by theme, and for many, songs have been developed, providing bundles of themed resources.

Linguist Mary Laughren was employed to support the Warlpiri bilingual programmes in 1975. In her 1983 report in the Annual Reports of Specialist Staff in Bilingual Schools she wrote:

> Much of my time is spent with literature production – aiding literacy workers and teaching assistants to improve their reading and writing skills, checking Warlpiri texts for spelling and punctuation errors, English translations and so forth. Literacy workers are now typing directly into the computer, thus allowing for the easy editing of texts and the flexible layout of books. (Northern Territory Department of Education 1983, p. 62)

One output from this early literacy production work was the development of a Warlpiri-English dictionary under Mary Laughren's stewardship. It became clear that the dictionary should reflect Warlpiri semantic classifications which could form the basis for curriculum development:

> Since the dictionary entries give a lot of information about each word – grammatical category, semantic domain, definition of meaning, range of meanings, English glosses, idioms in which the word is used, synonyms, antonyms, words of similar meanings, many example sentences as well as the English glosses, I believe that it provides teachers and others with a most valuable source of information on which to draw for curriculum development. Entries from fauna, for example, contain oral essays composed by Warlpiri people describing the animal in question – its appearance, habitat, behaviour, whether edible or not, how it is prepared for human consumption, ritual affiliation. Animals are compared and contrasted with other animals of a similar kind. Warlpiri classification is clearly indicated in the dictionary entries. (Mary Laughren in NTDET 1983, p. 62)

In the 1980s, the programmes began to consolidate (Disbray and Devlin 2017). More Aboriginal educators took up and completed teacher training. With their growing expertise, they were able to approach their teaching more as a 'programme' and to understand the role of planning and curriculum, and formal work began on developing a Warlpiri curriculum. In 1984 and 1985 in a set of workshops at Lajamanu, with school staff, community members and elders, along with some educators from the other communities, came together to discuss what boys and girls at different ages should be taught and how. The domains or themes they identified included kin, ceremony, edible plants, (meat) animals, the human body and country. In the documents they created, they wrote that men should teach boys knowledge of country and artefacts and ceremonies, and women should teach girls about gathering foods, and their ceremonial significance and visual representations [kuruwarri]. Learning in and out of classrooms was proposed, in the school grounds and at places of significance on Warlpiri country, with multiple generations of Warlpiri. The documents became part of the school policy (Lajamanu School 1984, 1986; Nicholls 1998).

The following year, staff and community members at Yuendumu started to develop a secondary program to have approved as a Certificate of Education course by the South Australian Board of studies. Educators, elders and community members from Yuendumu, Willowra and Nyirripi went out in family groups over a number of trips and then in workshops developed themes and content for units of work. Although the programme was never approved as a secondary programme, it became an important part of the primary and post-primary programmes in the four schools. The themes are schematised as in Fig. 2.2.

With more development through the 1990s, the cycle was fine-tuned. Gradually, the three-year cycle (Fig. 2.3) emerged, initially at Willowra, and by 2000 it was adopted by all four schools to structure the Warlpiri programmes (Northern Territory Department of Education 2004).

At the annual planning and professional learning workshop 'Warlpiri Triangle', which has been in place since the early Warlpiri maths workshops in the 1980s (Warlpiri Literature Production Centre 1984; Warlpiri Triangle Mathematics Workshops 1987), educators, elders and commu-

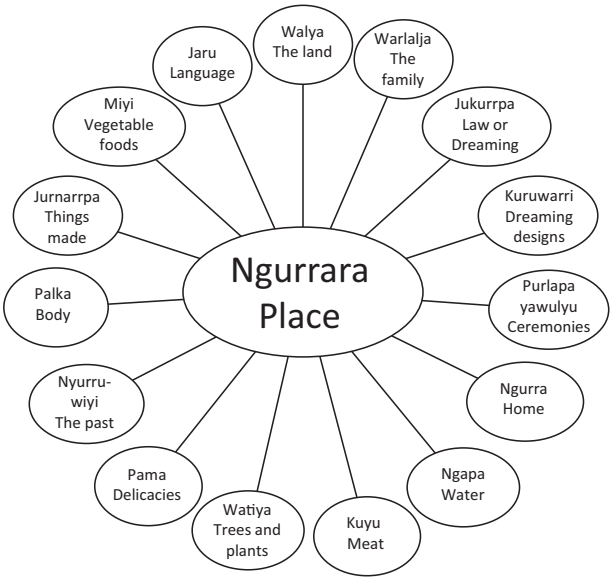

Fig. 2.2 Organisation of Warlpiri curriculum content in 1989 curriculum

Term Year	One	Two	Three	Four
One	Ngapa *Water*	Watiya *Trees & plants*	Jurnarrpa *Possessions, belongings, tools, artifacts*	Yuwulyu, Purlapa & Juju, *Women's ceremonies, men's ceremonies & monsters*
Two	Palka *Body*	Warlaja *Family & kin*	Kuyu *Meat animals*	Jaru & Rdaka-rdaka *Language & hand signs*
Three	Jukurrpa & Kurruwarri *Stories & designs*	Nyurru wiyi *History*	Ngurra & Walya *Country & home*	Miyi *Plant food*

Fig. 2.3 Themes and structure of the Warlpiri theme cycle—1999 to present

nity members dedicate time to plan curriculum and lessons. In the early 2000s, a term-wise workshop began, the Jinta Jarrimi workshops ['coming together'] in order to provide more frequent professional development opportunities and to further develop the curriculum cycle. The planning and development process for the theme cycle reflects not only the Warlpiri knowledge system but also the Warlpiri pedagogy underpinning the school programs, with its intergenerational, interconnected and recursive nature.

Warlpiri Knowledge, Pedagogy and Curriculum

Barbara Martin reflects on the interconnections between themes in the modern three-year curriculum cycle and Warlpiri ways of being:

> Every theme is connected to every other theme. It's hard to pull apart because they are connected, but we can focus on one part, one relationship at a time, step by step for children at school, and still teach connections. It is just as people have many connections and different roles in relation to each other at the same time. In each theme there are Kirda and Kurdungurlu because everything, plants, animals, food, has a ritual/ceremonial link.

The Kirda relationship to country is inherited from a person's father's side or from their father's father's side, while Kurdungurlu rights derive from their mother's father. Kirda are sometimes described as 'owners' of specific tracts of land and Kurdungurlu have been described as the 'managers'. However, both Kirda and Kurdungurlu imply ownership, though they fulfil different functions and ceremonial roles, 'based on a principle of radical complementarity, involving an elaborate system of checks and balances' (Nicholls 2016).

> Even though we are teaching about warlaja [family] or ngapa [water] theme, it is connected to everything, to law, people, land, country, Jukurrpa [Dreamtime/Stories], songs. And each theme flows to the next one, from ngapa [water] to watiya [plants and trees], watiya to jurnarrpa [artefacts], jurnarrpa to yawulyu and pujali [women's and men's ceremony].

This resonates with Walsh, Dobson and Douglas' depiction of the Arrernte Anpernirrentye framework described above. The framework can be understood as a 'free-rotating multidimensional form where domains and elements shift and enlarge according to the context. However, the framework appears static on the two-dimensionality of paper [yet] each element could be expanded to illuminate deeper understandings' (Walsh et al. 2013, p. 18). Walsh, Dobson and Douglas offer the example of a plant species with healing and health values that indicate further relevant elements such as one's spirit, causes of sickness and healing remedies. They emphasise that Indigenous ecological knowledge studies often focus at the microscale on such rich detail. While at this level, researchers can lose sight of the full array of interconnections between knowledge domains that are embodied; the Anpernirrentye framework provides a novel mesoscale conceptualization that emphasises connectivity. Similarly,

the Maori mind maps described by Roberts (2012) emphasise complex relatedness between people and the natural world. These mind maps encode ecological knowledge for utilitarian purposes and also socially, to position oneself within the world.

Barbara Martin explains a similar positioning in the world, key to Warlpiri ways of being and teaching:

> We are talking about living culture 'warnkaru' it's alive in the country and in each person. There are proper ways to act and live and move in places, that show that everything is connected – law, land, country, songs, people. When we are on country, the right person or right skin[1] must call to the spirits, we call it 'wintaru' – calling to the spirits'. I remember it from my uncle. When I was very young, one night, when the sun went down, we arrived at a place to camp out and hunt. He called out, 'we come with respect, we bring our kids to learn here, we've come to teach them, don't harm us, look after us' 'Don't harm or frighten our kids' – it's like talked song, or a singing talk that way of calling out – we call to the spirits, to the 'mirlarlpa'. We have to have respect for the country, we have to respect everything, know who the traditional owner is of a place or land, the Kirda [land owner, ritual custodian]. Kirda is responsible for songs, country, law, kurruwarri [designs associated with Dreamings], and then Kurdungurlu [the ceremonial servant and worker role], they have to help organise law, ceremony, Dreaming and help the Kirda – singing and painting, cooking, making shelters. They work together, and with 'warlaja' too, family, and they have to ask for them to look after us when we are out hunting, hunting kuyu or miyi (meat or vegetable foods). This is how we teach children Warlpiri culture, with respect.

We can show this by looking at one theme, ngapa (water). This is a very important domain of knowledge in arid Warlpiri country. Water places and rain feature significantly in law and ceremony. Warlpiri educators teach very young children the names of water places – rivers, rock holes, flood outs and soakages and common animals that live there. They choose a set of focus books so that children can learn both literacy and content. Children learn contemporary Warlpiri songs, in which important knowledge is embedded. Songs also help children to learn new words and ideas and are fun.

In addition, classes are taken out to different places close to the community for water theme work. Throughout the year, elders take part in bush trips and overnight country visits, to explain the places, sing the place and tell stories. Middle aged family members come too, to learn from elders and take part in teaching children. Going out with family on country is central to learning in the school programs. The Jukurrpa [Dreaming], the songs, the knowledge is out on the country. Educators and community members go as *Kirda* and *Kurdungurlu*, the 'right' people must go—the Jangala and Nangalas go as *Kirda*, with Jampijinpa and Nampijinpa as *Kurdungurlu*. On country visits, the children are painted up by family with the designs for their skin group and role, and hear the traditional songs associated with places, stories and Dreamings. In these ways, intergenerational knowledge sharing is alive and enacted through the theme cycle.

After an excursion or country visit, the children revise what they have learnt by writing photo captions and recounts often through a group-negotiated text to make a class big book. Students at different levels write their own stories, or photo captions, because the theme study is designed to be the platform for teaching Warlpiri literacy. The words in the focus text, song lyrics and class big book provide a word bank, and literacy-learning activities such as cloze worksheets and games such as Word Bingo consolidate their literacy skills. Sometimes there are excursions to the community arts centre for children to learn more about the *kurruwarri* [paintings], and this links traditional knowledge to contemporary culture, practice and enterprise.

Older children learn more important traditional stories for water places and they learn which families are responsible for specific places. In this way, students move through the theme cycle over time. When students first learn a theme, they learn it at a simple level. After three years, they learn about the same theme, and having learnt about other parts of Warlpiri knowledge, they can engage with deeper knowledge and make connections to the previous themes. This reveals the recursive nature of the theme cycle. Just as traditional knowledge sharing takes place over ceremonial cycles over time, with novices learning more at subsequent phases, so children learn deeper and deeper knowledge through the school programme. The same pedagogy is applied for all themes, whether the focus in the theme cycle is on plants, artefacts or stories.

Long-term Warlpiri Educator Tess Ross explains the connective nature and the esoteric complexity of the Jukurrpa, the knowledge at the heart of the curriculum she, Barbara Martin, and other Warlpiri educators have developed:

> The Jukurrpa links us up with all the other tribes around and even far away, as the Dreaming travels on into other language areas (…) Jukurrpa gives us connection to whatever is our Dreaming: for example, it might be goanna, kangaroo, fire, water, stars or any other natural thing. If we are Janganpa Jukurrpa we are possum Dreaming, we are the place of that Dreaming, Yuendumu hills, we are the Kirda, that means we are the owners and we own the designs, kuruwarri, the ceremony, we dance for this Dreaming and we own the songs and the country. We get our Dreaming from our fathers and our father's fathers. We are born with it. Everything is Jukurrpa, but we don't always know what it is. Sometimes people learn it from dreams. Everything has always been here, but Jukurrpa is always making it change. (Ross and Baarda 2017, p. 249)

Practical Benefits

The theme cycle has a range of practical benefits. By organising the Warlpiri programme through it, there is always a clear direction for teaching, irrespective of the priorities for the Education Department or individual principals at a given time. Further, there is no risk that the same material is repeated. Students learn about each important area of knowledge, in a staged fashion at an ever more complex level. The theme cycle also allows for peer learning among students in the school, as older children can help reinforce what younger children are learning because they are all learning the same theme. With a shared theme for the term, classes can be grouped if necessary. This ensures the continuation of the teaching programmes at times when there are few teachers or resources dedicated to the Warlpiri programme. Further, coordinated teaching can take place through whole school activities such as bush trips, country visits, culture nights and elders programs, with all year levels learning about the same theme, just at a different level of complexity. Teachers and

assistant teachers learn together from elders and plan together in a united and coordinated way within their school. Finally, teaching from the Warlpiri theme cycle across the four schools means that if children move between schools, they will all learn about the same key content.

The theme cycle and the term-wise workshop staff attend are crucial to a coherent regional Warlpiri education programme. One large workshop takes place each year: the 'Warlpiri Triangle' workshop. The workshop report generated from this serves as both a record of the workshop and a planning document. In the other three terms, there are smaller workshops, Jinta Jarrimi workshops [*jintajarrimi*—come together]. These are attended by a smaller group, who share the planning and learning back at their respective schools. The workshops exemplify intergenerational and traditional Warlpiri knowledge-sharing practices, which have underpinned the creation, development and ongoing planning and elaboration of the theme cycle. At each workshop the same protocols and routines are followed: welcoming by the host community, sharing from individual schools, planning with elders, sessions with a particular professional learning focus, song writing, group reading and raising concerns from individual or all schools and seeking strategies to manage these. Planning for the next term's theme work draws on previous material but is always prefaced by a restatement of previous planning for the theme. Educators and elders discuss what is important for this domain of knowledge, what children should know, who and how it should be taught, before the specific planning for the next term is undertaken. In these planning processes are cycles of restatement, and expansion, which are in turn reflected in the theme cycle and pedagogy.

A Future for Warlpiri Teaching, Learning and Bilingual Education

The Warlpiri schools are part of the Northern Territory Department of Education, which staffs the schools and provides the policy for their operation. Ultimately, Warlpiri control of their schools and the teaching and learning programme is limited. Policy implementation is always

mediated in an interaction of top-down and local forces, a source of potential strength and vulnerability of the programs. Even under the once strong NT bilingual programme, individual school programmes were subject to local decision-making, with the attitude and practice of the individual principal key to the vitality of the programme (Disbray 2016; Hoogenraad 2001; Ross and Baarda 2017). This situation remains.

In 2008 the NT government introduced a policy decreeing that the first four hours of every school day be taught in English, undermining the already beleaguered bilingual programme (Devlin et al. 2017; Nicholls 2005; Simpson et al. 2009). However, in the four Warlpiri schools, efforts were made to continue teaching Warlpiri, albeit with reduced support from school principals for some time. In 2015, a manager for the bilingual programme was appointed reflecting renewed tolerance, although the current NT Department of Education strategic plan does not endorse bilingual education, and no policy is in place to guide or safeguard it (Disbray 2016). In the Warlpiri and other schools, trained Indigenous teachers are now few, due to the withdrawal of the well-resourced teacher training programmes in the 1980s and 1990s. Recently, younger educators have been increasingly taking up employment in schools, particularly Yuendumu and Nyirripi, injecting new energy and strength to the programmes (Pers. com Kim Omar, NTDoE, March 2016). The immediate future for the Warlpiri programmes is promising at a local level in some of the schools, and there appears to be at least tacit support from the Education Department.

A further future-oriented development was the creation of an electronic database in 2014 to safe keep Warlpiri teaching and learning materials. Funded largely by WETT, a Warlpiri mining royalties fund, this on-line repository, 'Warlpiri Pina-jarrinjaku' stores and allows distribution of materials across the four sites. The database is structured around the theme cycle and stores a range of materials from workshop reports, planning templates, songs and syllabi, though more materials are yet to be added. It is hoped that this resource might augment existing planning and programming practice and provide a backup should there be any interruption to the regional planning workshops.

A further digital technology important for supporting language teaching programmes is the Living Archive of Aboriginal Languages (LAAL),[2]

created at Charles Darwin University (Christie et al. 2014). It already houses thousands of texts created in NT bilingual education programmes and other literature production contexts. A large portion of the Warlpiri collection will be stored and made available from the LAAL database.

Conclusion

In this chapter, we have described the Warlpiri theme cycle, its development and the domains of Warlpiri knowledge. We have argued that the processes of knowledge reproduction in its development, domains and pedagogies reflect and enact this living IK system, responsive to the contemporary context of schooling in the four Warlpiri communities. In both its development and teaching in schools, the theme cycle is intergenerational and recursive, core elements of Warlpiri knowledge sharing. Embodied in the theme cycle are multiple strands of social, cultural, metaphysical, ecological knowledge and lived practice, which characterise this local IK system. In developing, advocating for and continuing to use this theme cycle, Warlpiri educators[3] seek to raise their children as modern, bilingual, bicultural, strong and knowledgeable citizens:

> First language doesn't get in the way; it helps to make education strong. And schools are important places for keeping our languages strong. Warlpiri language has a future. It is important for building the future leaders of our communities. It is important for pathways to jobs, like managing our lands and using our cultural heritage, in tourism and arts. (Minutjukur et al. 2014, p. 160)

Notes

1. 'Skin' is a classificatory moiety system. There are eight skin groups, with eight male names and eight female names. Every Warlpiri person has a skin name through their mother and father. This links all Warlpiri through as classificatory kin, such as mother and father and also husband and wife,

and so the skin system prescribes relationships between people. Patri- and matrimoiety groups are linked to places, sites and Dreamings belonging to a skin group. Many other Aboriginal groups across Australia share similar skin systems, and so it is possible to establish classificatory kin relations with others.

2. Visit http://laal.cdu.edu.au/.
3. To see this paper presented by Warlpiri educators Valerie Patterson Napanangka and Sharon Anderson Nampijinpa at the 2014 Garma Festival, visit https://www.youtube.com/watch?v=fdCboHjkk5w.

References

Australian Curriculum. (n.d.). *Framework for Aboriginal and Torres Strait Islander studies*. Retrieved from March 3, 2017, http://www.australiancurriculum.edu.au/languages/framework-for-aboriginal-languages-and-torres-strait-islander-languages/rationale

Australian Indigenous Languages Framework. (1993). *Australian indigenous languages framework: National consultation document, November 1993*. Adelaide: Australian Indigenous languages project.

Barnhardt, R., & Kawagley, A. O. (2005). Indigenous knowledge systems and Alaskan native ways of knowing. *Anthropology and Education Quarterly, 36*(1), 8–23.

Bates, P., Chiba, M., Kube, S., & Nakashima, D. (Eds.). (2009). *Learning and knowing in indigenous societies today*. Paris: UNESCO.

Battiste, M. (2002). *Indigenous knowledge and pedagogy in First Nations education – A literature review with recommendations*. Eskasoni: Apamuwek Institute.

Bohensky, E., Butler, R., & Davies, J. (2013). Integrating indigenous ecological knowledge and science in natural resource management: Perspectives from Australia. *Ecology and Society (Special Edition), 18*(3). doi: http://dx.doi.org/10.5751/ES-05846-180320

Central Land Council. (undated). *The Warlpiri Education and Training Trust story* (Web page). Retrieved from September 1, 2015, http://www.clc.org.au/publications/content/the-warlpiri-education-and-training-trust-story

Christie, M., Bow, C., Devlin, B., & Simpson, J. (2014). *The living archive of Aboriginal languages*. Darwin: Charles Darwin University, The Northern Institute.

Department of Education. (1973). *Progress report on the bilingual program in schools in the Northern Territory*. Darwin: Department of Education.

Devlin, B., Disbray, S., & Friedman Devlin, N. (Eds.). (2017). *History of bilingual education in the Northern Territory: People, programs and policies*. Singapore: Springer Publishing.

Disbray, S. (2014). At benchmark? Evaluating the Northern Territory bilingual education program. In L. Gawne & J. Vaughan (Eds.), *Selected papers from the 44th conference of the Australian Linguistics Society, 2013*. Melbourne: University of Melbourne http://hdl.handle.net/11343/40960

Disbray, S. (2015). Indigenous languages in education – Policy and practice in Australia. *UNESCO Observatory Multi-Disciplinary Research in the Arts, Special Edition 'Indigenous Education in Australia: Policy, Participation and Praxis', 4*(1), 1–27.

Disbray, S. (2016). Spaces for learning: Policy and practice for Indigenous languages in a remote context. *Language and Education, 30*(4), 317–336.

Disbray, S., & Devlin, B. (2017). Consolidation, power through leadership and pedagogy, and the rise of accountability, 1980–1998. In B. Devlin, S. Disbray, & N. Friedman Devlin (Eds.), *History of bilingual education in the Northern Territory: People, programs and policies*. Singapore: Springer.

Gale, M. (1992). Publish or perish?: Observations on the reasons for writing in Aboriginal languages. *Australian Aboriginal Studies, 2*, 42–48.

Gale, M. (1994). Dhangu Djorra'wuy Dhawu: A brief history of writing in aboriginal language. *Aboriginal Child at School, 22*(1), 22–34.

Gale, M. (1995). Pirrarni nganimparnalu yanu…; Yesterday we wenr …': Storytelling in warlpiri and its implications for literacy. *International Journal of the Sociology of Language, 113*, 37–58.

Gale, M. (1997). *Dhanum Djorra'wuy Dhawu: A history of writing in Aboriginal languages*. Adelaide: Aboriginal Research Institute, University of South Australia.

Government of South Australia. (2001). *South Australia curriculum standards and accountability framework: Languages (Australian indigenous) R-12*. Retrieved from April 30, 2014, http://www.sacsa.sa.edu.au/index_fsrc.asp?t=LA

Government of South Australia. (n.d.). *South Australian Certificate of Education, Australian languages Stage 1 and 2.*

Haami, B., & Roberts, M. (2002). Genealogy as taxonomy. *International Social Science Journal, 54*(173), 403–412. doi:10.1111/1468-2451.00392.

Hartman, D., & Henderson, J. (1994). *Aboriginal languages in education*. Alice Springs: Institute for Aboriginal Development (IAD) Press.

Hobson, J., Lowe, K., Poetsch, S., & Walsh, M. (Eds.). (2010). *Re-awakening languages: Theory and practice in the revitalisation of Australia's indigenous languages*. Sydney: Sydney University Press.

Hoogenraad, R. (2001). Critical reflections on the history of bilingual education in Central Australia. In J. Simpson, D. Nash, M. Laughren, P. Austin, & B. Alpher (Eds.), *Forty years on: Ken Hale and Australian languages* (pp. 123–150). Canberra: Pacific Linguistics.

Inglis, J. (1993). *Traditional ecological knowledge: Concepts and cases*. Ottawa: IDRC.

Johnson, S. (Ed.). (2012). *Indigenous knowledge*. Cambridge: White Horse Press.

Lajamanu community members. (1984). *Stories from Lajamanu*. Darwin: Northern Territory Department of Education.

Lajamanu School. (1984). *Statement of school policy*. Lajamanu School. Lajamanu, NT. Lajamanu, NT.

Lajamanu School. (1986). *Lajamanu school languages policy*. Lajamanu School. Lajamanu, NT.

Little Bear, L. (2009). *Naturalizing indigenous knowledge, synthesis paper*. Calgary: University of Saskatchewan, Aboriginal Education Research Centre, Saskatoon, Sask. and First Nations and Adult Higher Education Consortium.

Marika, R. (1999). Milthun latju wanga romgu Yolŋu: Valuing Yolŋu knowledge in the education system. *Ngoonjook: A Journal of Australian Indigenous Issues, 16*(December), 107–120.

Marika-Munggiritji, R., & Christie, M. (1995). Yolngu metaphors for learning. *International Journal of the Sociology of Language, 113*, 59–62.

Marika-Mununggiritj, R. (2002). Some notes on principles for Aboriginal pedagogy. *Ngoonjook, 22*(December), 44–45.

Maurial, M. (2002). Indigenous knowledge and schooling: A continuum between conflict and dialogue. In L. M. Semali & J. L. Kincheloe (Eds.), *What is indigenous knowledge?* (pp. 59–78). New York: Routledge.

McTaggart, R. (1999). Reflection on the purposes of research, action, and scholarship: A case of cross-cultural participatory action research. *Systemic Practice and Action Research, 12*(5), 493–511.

Minutjukur, M., Patterson, V., Anderson, S., Gibson, F., et al. (2014). Voices from the Red Dirt on education. *Journal of Australian Indigenous Issues, 17*(4), 158–163.

Musharbash, Y. (2008). *Yuendumu everyday*. Canberra: Aboriginal Studies Press.

Nicholls, C. (1998). Serious business: Warlpiri aspirations, Indigenous land rights and the TESL curriculum. In G. Partington (Ed.), *Perspectives on Aboriginal and Torres Strait Islander Education*. South Melbourne: Cengage.

Nicholls, C. (2001). Reconciled to what? Reconciliation and the Northern Territory's bilingual education program, 1973–1998. In J. Lo Bianco & R. Wickert (Eds.), *Australian policy activism in language and literacy* (pp. 325–341). Melbourne: Language Australia Publications.

Nicholls, C. (2005). Death by a thousand cuts: Indigenous language bilingual education programs in the Northern Territory of Australia, 1972–1998. *The International Journal of Bilingual Education and Bilingualism, 8*(2&3), 160–177.

Nicholls, C. (2016). *Friday essay: Land, kinship and ownership of 'Dreamings'*. Retrieved from March 18, 2016, http://theconversation.com/friday-essay-land-kinship-and-ownership-of-dreamings-39637

Northern Territory Department of Education. (1983). *1983 Annual reports from specialist staff in bilingual programs in Northern Territory Schools*. Darwin: Northern Territory Department of Education.

Northern Territory Department of Education. (1987). *1987 annual reports from specialist staff in bilingual programs in Northern Territory schools*. Darwin: Northern Territory Department of Education.

Northern Territory Department of Education. (2004). *Warlpiri Triangle report*. Alice Springs: Northern Territory Government.

Northern Territory Department of Education. (2008). *Warlpiri triangle report (Lajamanu School)*. Alice Springs: Northern Territory Government.

Northern Territory Department of Education and Training. (2002). *Northern Territory curriculum framework. Indigenous language and culture*: Northern Territory Government.

NSW Board of Studies. (2003). *Aboriginal languages K–10 syllabus*.

O'Shannessy, C. (2008). Children's production of their heritage language and a new mixed language. In J. Simpson & G. Wigglesworth (Eds.), *Children's language and multilingualism* (pp. 261–282). London: Continuum.

O'Shannessy, C. (2011). Young children's social meaning-making in a new mixed language. In U. Eickelkamp (Ed.), *Growing Up in Central Australia – Indigenous experiences of childhood, youth and transformations* (pp. 131–155). New York: Berghahn Book.

O'Shannessy, C. (2015). Multilingual children increase language differentiation by indexing communities of practice. *First Language, 35*(4–5), 305–326.

PAW media. (undated). *PAW media Pintupi Anmatjere Warlpiri media and communications*. Retrieved from September 8, 2016, http://www.pawmedia.com.au/

Pawu-Kurlpurlurnu, W. J., Holmes, M., & Box, L. (2008). *Ngurra-kurlu: A way of working with Warlpiri people* (Vol. DKCRC Report 41). Alice Springs: Desert Knowledge CRC.

Remote Area Health Corps. (2009). *Lajamanu community profile*. Remote Area Health Corps. Katherine West, NT. https://www.rahc.com.au/sites/default/files/documents/community_profiles/Lajamanu%20Community%20Profile.pdf

Roberts, M. (2012). Mind maps of the Maori. *GeoJournal, 77*(6), 741–751. doi: http://dx.doi.org/10.1007/s10708-010-9383-5

Ross, T., & Baarda, W. (2017). Starting out at Yuendumu School — Teaching in our own language. In B. Devlin, S. Disbray, & N. Friedman Devlin (Eds.), *A history of bilingual education in the Northern Territory: People, programs and policies*. Singapore: Springer.

Roué, M. (2006). Introduction: Between cultures and natures. *International Social Science Journal, 58*(187), 7–14. doi:10.1111/j.1468-2451.2006.00598.x.

Roué, M., & Nakashima, D. (2002). Knowledge and foresight: The predictive capacity of traditional knowledge applied to environmental assessment. *International Social Science Journal, 54*(173), 337–347. doi:10.1111/1468-2451.00386.

Semali, L. M., & Kincheloe, J. L. (2002). *What is indigenous knowledge?* London: Routledge.

Simpson, J., Caffery, J., & McConvell, P. (2009). *Gaps in Australia's indigenous language policy: Dismantling bilingual education in the Northern Territory*. Canberra: AIATSIS.

Tamisari, F., & Milmilany, E. (2003). Dhinthun Wayawu – Looking for a pathway to knowledge: Towards a vision of Yolngu education in Milingimbi. *The Australian Journal of Indigenous Education, 32*, 1–10.

Turner, M. K. (2005). *Everything comes from the land (chart)*. Alice Springs: IAD.

UNESCO. (2016). *Local and indigenous knowledge systems*. Retrieved from February 1, 2016, http://www.unesco.org/new/en/natural-sciences/priority-areas/links/related-information/what-is-local-and-indigenous-knowledge/

Vaarzon-Morel, P., & Wafer, J. (2017). 'Bilingual time at Willowra': The beginnings of a community-initiated program, 1976–1977. In B. Devlin, S. Disbray, & N. Friedman Devlin (Eds.), *History of bilingual education in the Northern Territory: People, programs and policies*. Singapore: Springer Publishing.

Victorian Curriculum and Assessment Authority. (2009). *Victorian essential learning standards: Aboriginal languages, cultures and reclamation in Victorian schools: Standards P–10 and protocols*. VCAA.

Walsh, F., Dobson, V., & Douglas, J. C. (2013). Anpernirrentye: A framework for enhanced application of indigenous ecological knowledge in natural resource management. *Ecology and Society, 18*(3), 18. doi: http://dx.doi.org/10.5751/ES-05501-180318

Warlpiri Literature Production Centre. (1984). *Pipa Nyampuju Nampapinkikirli manu Nyajangukurlu: Bilingual Warlpiri-English Mathematics Book*. Yuendumu: Warlpiri Literature Production Centre.

Warlpiri Triangle Mathematics Workshops. (1987). *Karlarlakari-karlarlakari-kirli: Kujarnalu Yirri-Yuraja Manu Yirrarnu Nyurruwiyi Turnu-jarrinjarla Wirliyarrayirla manu Yurntumurla*. Yuendumu: Bilingual Resource Development Unit.

Warlpiri Youth Development Aboriginal Corporation. (2015). *Annual report 2014–2015*. Warlpiri Youth Development Aboriginal Corporation.