The Yugambeh digital language story

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Abstract

The Yugambeh Aboriginal people of south east Queensland have one of the Aboriginal Australian languages at the forefront of digital language resource use for more than a decade. Yugambeh launched one of Australia's first Aboriginal language apps a decade ago as a word list and more recently partnered with Google to launch a web-based language tool Woolaroo now used by Indigenous groups worldwide. It was a long struggle to gather the community and the resources behind this project and is not a path that can be recommended for every community. We present that history from the perspective of some of those involved to highlight the important steps in this process and significant features that arose. We use an autoethnographic approach to consider the complexities of digitisation of Indigenous languages. The first author was instrumental throughout this campaign, as part of the worldwide movement to revitalise Indigenous languages. The article is a combination of his contribution and other from the community, with the work of the second author who is also Yugambeh and works in developing technology for language revitalisation. We use these voices to highlight the significant aspects of this and other language movements. This revitalisation work has been shown to bring cultural, social and economic benefits as seen in case studies of the Israeli, Māori, Irish and Hawaiian languages. For the Yugambeh language this revitalisation began with the original families understanding who they were and their right to stand up as a community. The combination of community events, opening of the language to all Australians and the ability to adapt to changing technology has enabled this language to grow. This work was supported and carried out by a section of our Elders who understood the importance of community identity and has resulted in significant digital knowledge being gained by the community.

Keywords Language revitalisation · Aboriginal languages · Digital tools for language sharing · Community-led projects

1 Introduction

When the first author addressed the world's leading Indigenous language specialists at UNESCO's Paris headquarters for the 2019 International Conference Language Technologies for All Language it was to give a 10-min explanation of Woolaroo—a web-based language product developed by Google Partner Innovation in partnership with the Yugambeh Museum. The process with Google had been of huge benefit to the language community and such technology will undoubtedly help others.

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In such a short speech he could not explain the decades of community development that had enabled the language community to get to this stage. His Aboriginal family had been fighting against the system that repressed Aboriginal people for more than a century. As far back as the 1800s family members had negotiated for outcomes normally reserved for non-Aboriginal people. The reach for digital assets for our future generations is simply an extension of this history. Nor could he explain the profound benefit to languages such as Yugambeh through language revival [15, 20, 26].

Woolaroo is an open-source app developed by Google, that enables anyone to take a photo and translate their surroundings into their own language, and this is shared across 10 endangered languages using their Cloud Vision API. This uses images to share words across these languages and allows language communities like Yugambeh to preserve and expand their language word lists and add audio recordings to help with pronunciation. The languages it supports now include Louisiana Creole, Calabrian Greek, Māori, Nawat,

Tamazight, Sicilian, Yang Zhuang, Rapa Nui, Yiddish and Yugambeh. Any of these languages are an important aspect of a community's cultural heritage and it is important for us to see our languages included in new technology, as a tool to assist language learning [1]. Also work to incorporate language in modern tools can show respect for the knowledge embodied in these tongues, both in the way the data is handled [6] and the pride in being able to hear the language in public.

Crucial to those Indigenous communities where our language is poorly resourced and often out of reach to people from our community is that Woolaroo is available free and puts the power to add, edit and delete entries completely in our hands. In this way people can respond immediately to newly remembered words and phrases and add them directly for future use. We hope this community access will enable us to collect much more material for teaching our young their language, as it is "putting language documentation in the hands of speakers" [3].

However, many Indigenous and endangered language communities are nervous of technology, due to the lack of understanding of advances in the technical world of Data Sovereignty and the historic disregard for the importance of our languages. Work is being done to develop processes of "establishing and maintaining relationships of reciprocal care and support with specific Indigenous communities" [11]. For there are opportunities to create new technology from the needs and vision of Indigenous people [9].

Historically many are afraid to speak their language due to previous persecution for uttering their tongue. We cannot share all we know to everyone, due to the importance of our knowledge and the need to keep it 'pure' by allowing it told only by those who are authorised and well informed on the story [16]. Also we do not have the words for many new things in our world, as our languages were forbidden for years. There legacies of distrust mean a long process to work through for change in how we use technology [4], especially through those whose language it is taking control of [2].

We want to tell the story of what happened with this one community in the digitalisation of Indigenous languages with our people and how this relates to other language work, as the change that is happening is important, if we can reach a space where Indigenous people can use advanced technology without fear of misuse or appropriation. This work uses an autoethnographic approach as a way to explore the complex situations arising in the digitalisation of Indigenous languages within Indigenous communities and narrate the experience as it unfolded [23].

2 Approach

This paper was prepared through discussions between the authors spanning many years, sharing their experiences, then when nearly done, Rory O'Connor referred this work back to others from the Kombumerri Aboriginal Corporation for Culture (KACC) who set up the Yugambeh museum. He asked hem to verify the stories and confirm their experience. This was an iterative process over about 6 versions of the paper, until all the contributors and authors were happy with the content and the way the work was expressed. Hence, we show where the authors have added their own work and where others from the KACC have contributed (by name) and have requested they be acknowledged.

The work is based on our personal experience and positionality as Yugambeh people working on language revitalisation. Rory O'Connor has been involved in the work to revitalise his language since his early years. Cat Kutay has not lived on country and has focused on gaining technical skills to then apply to knowledge sharing, in particular language resources. In this work, from the inside out and from the outside in, provides a meeting point where the issues of language revitalisation and its effect on people is discussed, and the opportunities created for other languages from this place-based work is expanded. We cover the bringing together of community, and technology, for language work [12].

Autoethnography is a qualitative research method that relies on the researchers' experiences to analyse cultural beliefs, practices, and experiences in this case around how we revive our language and engage community. We expand this with our self-reflection and explaining our relationships with others in the revitalisation work. While working with our own language reduces the conflict of working as an outsider [10], working in the area of technological innovation and design means there is still a need to be aware of the challenges in remaining within culture when designing around language use.

3 Personal account of history

The Yugambeh language revival story officially began in the 1980s, triggered by a struggle with the University of Queensland (UQ) over ancestral remains. The University was holding the remains of almost 200 Aboriginal people who had been excavated during the 1960s from a large traditional burial site near Jellurgal, Burleigh Heads on the Gold Coast. The site was discovered by accident. The remains were excavated by the University, where they were also stored for many years. In the interim they had studied by various departments and some even sent to America for testing, a practice that has been common [21].

RO: My mother's cousin was working at the university at the time and called our families together to have our people reburied. It was the first time our extended family had stood together as an Aboriginal community. We were assisted by the head of the UQ Anthropology Museum, who was Dr Peter Lauer. He helped guide us through the bureaucracy and made the appropriate introductions. There was resistance from the UQ academia at first. But our families stood firm and in 1987 we laid our people back in the earth at a dawn ceremony near the original site with burial material provided by the Ramingining community of the Northern Territory, a community who have been able to retain much of their traditions.

RO: This became a watershed moment. The individuals involved—my mother Patricia, her sisters and cousins—realised that they actually had a voice and could affect social change. During the process they had become incorporated, forming the KACC in 1984. My mother then proposed the organisation work to regathering her family's traditional language.

In 1987 the federal government announced the National Policy on Languages, and the next year a newspaper advertisement appeared promoting Federal Government funding for projects involving Aboriginal or Torres Strait Island language research. Patricia and her youngest sister Ysola applied and were successful. So started their first funded language work. It became apparent that while there were fluent communities around Australia, very few were taking steps to ensure it was recorded and passed on to future generations. This led to Patricia and Ysola being key drivers in establishing Australia's first national Indigenous language body—the Foundation for Aboriginal and Torres Strait Islander Languages (FATSIL). My mother's role included writing the constitution and helping to establish the funding models that would form the basis of the emerging Federal Government language program.

FATSIL lobbied for respect for languages, in schools and in government. It was the first community organisation to work across language groups, which is difficult as the settler policy has been to divide and conquer. They also set up protocols for language work. As part of this broad language work, Patricia and Ysola and a small group of relatives were seeking any original sources of their Yugambeh language, including anyone who could remember a few words. This is usually where Aboriginal language reclamation work starts, either gathering existing speakers, or looking for the speakers who have been recorded before they passed. Or it can start from people working with neighbouring languages and sharing those resources.

RO: I recall a meeting to re-gather language held on the Gold Coast during this time. I was a journalism student. The room was full of older Aboriginal men and women. Dr Margaret Sharpe, a linguist familiar with Bundjalung, was present to guide the group about language.

Before the meeting I approached one of the older men. "Do you know any language?" I asked.

"No!" he replied emphatically.

I asked another.

"Do you know any language?"

Again "Nuh!"

And the third put it beyond doubt.

Do you know any language?

"Nuh! I'm only here because my wife made me come."

There did not seem much point to the exercise. Then Dr Sharpe stood in front of the group, whiteboard marker in hand, and began to explain how to say "A mob of kangaroos is over the hill," in language, but the Bundjalung (southern) language.

She only got to halfway through the sentence when the first voice spoke up. "That's not how we say that." It was one of the men who said he didn't know language. He was instantly joined by others. "We don't even use that word—that's the language from the south."

The room buzzed with voices and murmurs. People did remember their language. Just they had just spent their lifetime being told not to speak it. The language was not as lost as people had thought, and in particular the identity as a distinct group was strong. So the Yugambeh continued the journey of language reclamation. This approach to language as something known by linguists, rather than the people, is easily overturned when we start working together on the language. We have had elders worried about teaching non-Aboriginal children in school as they will "learn quicker that the Aboriginal students".

CK: In fact, we have seen many examples where the opposite is true and the relation to Aboriginal English as well as the pride in speaking their tongue has enabled the Aboriginal children to flourish back in their english classrooms.

Being a sleeping language as Yugambeh was, is far more the norm than the exception in this country. Before British colonisation, over 250 languages and 800 dialects were spoken in Australia [13]. The first comprehensive measurement of languages was the National Indigenous Languages Survey (NILS) in 2005, which reported that 145 languages were still in use. Of these only 18 languages were considered strong. That figure has since dropped. Figures from the 2020 NILS [14] report show 123 languages are being spoken Australia wide. Of these just 14 are regarded as strongly spoken and fluent with the remaining 109 languages listed as endangered or critically endangered.

Language loss is no accident. It has been the result of policies and actions deliberately adopted by authorities and governments at all levels to destroy Indigenous culture for almost 250 years. Equally the inability of language groups to revitalise and revive their languages has been caused by

government indifference and lack of interest, as well as unrealistic demands on community.
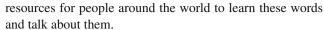
Australian communities are correct to feel frustrated by the lack of federal investment in their languages and culture. By way of comparison, the New Zealand government in 2018 spent approximately NZ$46 per capita on revival of language and culture. Revival in that country comes not just from one government funding source but is embedded in multiple streams of government and business activity, including schooling. By contrast, in the same year the Australian Government, through the Indigenous Languages and the Arts program, invested about $18 m in language projects—or less than 70c per capita. Yet in Australia the funding supports more than 100 different languages as opposed to the comparatively homogeneous cultural environment of New Zealand's Māori language.

RO: As the KACC progressed with its language work, Patricia's own bloodlines played a crucial role in helping the community unite. Much of the community that now identifies as Yugambeh saw itself as coastal people—descended from one family and linked to the Southport area. The other half saw itself as inland people—linked to the community at Beaudesert, 50 km inland, known as the Mununjali people. My mother was able to walk in both communities. Her father was from the Beaudesert communities. Her mother was from the coastal community. Further, she had grown up in the household of her grandmother, Jenny Graham (1859–1943) who was regarded as the matriarch of the entire Southport Aboriginal community, meaning all of the Southport community were Jenny's descendants. Jenny's own brother was well known in both Southport and Beaudesert. Patricia would continue to remind communities in both towns how close their bloodlines were.

KACC was formed only from the descendants of Jenny Graham—the families of Southport. This effectively excluded half of the Yugambeh people, including Jenny's own siblings and their extensive families. As the language work of Patricia and her sister progressed, it became obvious that the two communities were closely intertwined and were part of the same language group. However, her people had to be convinced

4 Technology now

This project was a philanthropic project within Google. At the time of the development of Woolaroo at Google, staff were allowed to work one day a week on a project of their choosing, donating their time and expertise to a good cause approved by Google and thus supported in kind. Woolaroo was one such project. The project covered low resource languages and linked images to words in these languages, providing a

resources for people around the world to learn these words and talk about them.

It is often philanthropic work that is most beneficial to our community projects as they are more understanding of the human value in these projects. The Google staff had a vested interest in making us feel comfortable and trusting them in the use of our languages. As this is a pilot program, and given the response of communities to previous actions by Google (see [5] Chapter 2 Nothing About Us Without Us) as well as during language reclamation work, Google had a vested interest in engaging with community's needs and ensuring they were happy with the work as it progressed. We had control to take words down or change them as needed which is important in terms of controlling how our language is perceived by others (as discussed in [18]). Given the focus on "naming" the images, the issues of knowledge sharing was minimal and data sovereignty was maintained in this simple domain through community editing. Hence, there was no need for material to be under private access or hidden, it was all designed for the public, and community decided what went public.

We were working with a division of Google with instant email access to those running the program. They had to approve all changes in the system, and they approved within 24 hr, so the project was well managed and well resourced, However, this may have changed since as the pilot is completed. Again, this is a common experience where a good pilot is all we get funded, after that we are back to the start.

Woolaroo was a chance to get our material online and people talking the language again, that is why we do this work. We understand there are concerns, but if we do not support those putting language online and celebrate and share it, then it will die. While the internet is not the cause of the demise of our languages, it may provide a way to revive it, as it shows value in our languages where they are used online, and social media can link people who want to re-learn their language even when isolated from their people, sharing text and audio.

Much of our language work is social, gathering people together, usually face-to-face to discuss culture and language, but most who come are focused on the social, not the long-term outcome for our languages. What we need are more resources for those activities that create language material or learning. For instance, we need workshops for what word we will use for those object that has developed since our languages were prohibited (eg social media—what do we call that?)

5 Reflection

The factors that continued to have significant impact, in the form of clear outcomes of these processes, or the difference

to the programs without these developments that showed in Yugambeh were: Digital resources available; Developing relationships with academics; linking to community leadership, past and present; starting the story in a way for all community to engage; government support such as infrastructure; and how the language was grown. Another issue was what language material is available more generally that relates to ongoing community discussions.

5.1 Digital resources

KACC worked under a division of Google which provided the digital expertise and maintained the app. The community members provide the knowledge directly into this system. Google merely provided the avenue for us to share our language in a more structured way. However, there are many more technologies developing which could assist our work. Tools that exist in English but not for Low Resourced Languages such as speech-to-text and text-to-speech, as well as translation tools, are being developed for some First Nations languages using material collected from the community. Peter-Lucas Jones and Te Hiku Media has developed an automatic speech recognition (ASR) model for the Te Reo language of Aotearoa [9]. This was developed over many years of collecting archival audio and requesting contributions from community members on radio.

Such technologies not only allow our languages and the learning of these languages to be more robust and shown more respect, but they also allow our developers to engage in more innovative work. We can be "the makers of AI" [9] to provide for employment for our people and also gains for the discipline. When projects arise that allow community control we need to grab the opportunity, wary of losing control, but also appreciating the opportunities for our languages.

Woolaroo is only an example of what can be done in reclamation. It is not an end in itself and we are not sure what further work will happen with this. Certainly, the work did not include any collaboration across the different languages, we all worked in our own silos. However, it was an attempt by Google to provide a transcultural approach [24] and develop a language agnostic tool. The first author is now working on many languages in southern Queensland, finding ways for community to share them either locally or on the internet, or in session on zoom etc. The access to the language creation needs to continue locally and to include more people than those comfortable to work online. The second author has been developing language agnostic tools for many years and is now looking at how tools developed for one language can assist others, for instance text-to-speech from strong languages can support learners in languages never audio recorded which are phonologically similar.

5.2 Relationships with academics

The first steps involved returning once again to the State's leading academic body—the University of Queensland. Patricia inquired as to the best way to revive her language—the one she had heard spoken in Beaudesert and Southport as a child, and still shared at times mixed in with English words. However, the attitude at the university was that the language was lost, so she should work with a 'close' language Bundjalung, from further south.

RO: But the word Yugam—as in Yugambeh—means no. And Patricia and her family simply said "No - we won't be learning Bundjalung."

CK: It is interesting to note that this way of naming a language is similar to many other languages in Queensland and New South Wales, such as Wakka Wakka, Kabi Kabi, Yuggera, Jandai, Kamilaroi, Wiradjuri, Gamilaroi, etc also are 'saying no' in their respective languages. It is a useful exercise to consider why this may have been used by people who often met strangers in their travel and may not have known each others' language.

RO: That response from the sisters' interaction with university academics lead to a change in strategy. "We had no academic qualifications," Patricia recalls. "We felt they did not take us seriously because we were just community people." To deal with this prejudice, both women become mature age students. Patricia graduated with a Bachelor of Anthropology and Government, Ysola a Bachelor of Aboriginal Studies and Diploma of Museum Management. While this gave them weight in the academic world, more importantly it proved to each of them that they were in every way as clever as the people who had previously dismissed them for their lack of tertiary qualifications.

As the language work unfolded, it became apparent that more research was needed. Ysola found work at the John Oxley Library which is the reserved section of the Queensland State Library, where she was able to sift through the earliest research and records about her Aboriginal ancestry. This uncovered a myriad of characters and ancestors that were part of their Yugambeh story. It made the couple understand the scale of the community that they were part of, and most importantly the network of family connections that were still in place.

It also revealed some crucial language resources. These included a number of significant language lists/dictionaries that had more than 2500 words between them. They found a recording of an Aboriginal man called Joe Culham (1883–1868) compiled in the 1960s that captured the pronunciation and intonations of the language. And they found songs and snippets from community individuals who were happy to help.

CK: The existence of archival recordings is invaluable for regaining how to pronounce words that might only otherwise

be in written format. There were often written by people without specific linguistic training, according to how they heard it, in the phonetic orthography of their native tongue.

One of the major language lists was gathered in the coastal part of the Yugambeh community with sources including Patricia's grandmother Jenny Graham. A larger, more academic wordlist was compiled by an English Teacher who worked with an Aboriginal man from the inland part of the community. The similarities between the words confirmed what the family trees and oral histories already indicated. That is, the communities were linked by language, lore and bloodline.

5.3 Community leadership

When Patricia began working with language groups around Australia in the 1980s, she noted different approaches being taken to language revival. Some communities were insistent that the language resources, typically word lists, should be shared only with the Elders. In time, they argued, the Elders would teach their own families, who would eventually teach their children. Only after the Indigenous community could speak their language, would it be opened for use by the non-Indigenous members of the community.

Unfortunately, this method invariably failed. Elders were either unable to learn their language, or unable to clearly communicate their language to the next generation. In any case, most languages in Australia have suffered loss of usage, rather than increase in use.

Perhaps it was this learnt experience that influenced the board of KACC to recommend language be shared with all community, to use and enjoy. And it aligns with the words of Aboriginal leader Charles Perkins, who was quoted in 1989 as saying "My expectation of a good Australia is when white people would be proud to speak an Aboriginal language." [8].

This approach means our languages can be part of our shared heritage with other Australians. To develop this, we first developed a shared heritage amongst the Yugambeh. One part of this is uniting work was the pilgrimage that became known as The Drumley Walk.

Billy Drumley was a Yugambeh man who carried ceremonial scars on his body that an old man of Beaudesert told me he received on Stradbroke Island. As a younger man Drumley had been a champion sportsman, known for boxing, cricket and athletics. But his story as a sprinter was the stuff of movies. Newspaper clippings showed that in 1988 a foot race event of 110 yards was held over three evenings in Southport. It was held at night to show off the power of gaslight, which was a technology that was being marketed at the time. The prize purse for the event was an incredible 50 pounds, so naturally it attracted competitors from far afield.

But the most amazing part of the story, was that the final was won by Billy Drumley.

Billy Drumley became a community leader (1853–1951) who was well known by many families in the Yugambeh community. He was born in the northern regions of Yugambeh country, lived at Southport and spent his later life living in Beaudesert, where he was well known. He was the elder brother of Patricia's grandmother, Jenny Graham. Drumley's legacy was to be a uniting factor between the coastal and inland communities of the Yugambeh group.

RO: Many Elders, whenever they spoke of Uncle Drumley, like my mother, spoke with definite pride. Their body posture would change ever so slightly, as they were recalling someone who should be revered.

I had first heard about him when I was a child. My mother would recount in rapt terms stories of this man she called "Uncle Drumley." He had been something of a hero to my mother and the other Aboriginal children of her generation. I remember one day—I think mum was in the kitchen chopping carrots—and I proudly explained how I had won a ribbon in a footrace at the local primary school. My mother seized on the opportunity. "You should be a good runner," she said. "Your Uncle Drumley was a champion runner."

And no matter the topic, it seemed that Uncle Drumley was an Aboriginal relative who had shown the way for young men years before—even though we had never met him. His cross-country treks from Beaudesert to Southport to visit his little sister Granny Graham—where my mother lived, was significant in proposing a way to unite our people.

He would set off from his hut on the outskirts of Beaudesert and walk across the paddocks towards Tamborine Village. Sometimes the stories of his travel would feature Tamborine Mountain.

RO: This was a magic place to me, because I knew from other stories that it was the home of the little people—little spirits who might sit on a log near your campfire and talk to you—or not—just as long as you knew they were there.

And on arrival at Southport, Billy Drumley wouldn't carry on with fanfare. He would just set to work cutting wood in one of Patricia's cousins' yards, until the children gathered around to see the visitor from across the country. He would always bring presents. Sometimes he would bring buneen—porcupine—for the kids. Years later I asked Patricia what it tasted like. "Greasy chicken!" she replied. "It was delicious.". Drumley had been born around 1853 during the times of conflict. The Native Police force, renown for their bloody dispersals of Aboriginal groups were operating in south-east Queensland during most of Drumley's youth. His birthplace was in the country near Beenleigh, north of Southport where his mother Warrie was working as a domestic with the Haussmann and Appel families in the 1850s.

The prominence of these families has been speculated to be the reason both Drumley and his sister Jenny Graham were

able to sidestep many of the laws that defined Aboriginal people and achieve outcomes for their families. Reverend Haussmann's was one of the most influential missionaries in the State's history, serving in the region from 1838 until his death in 1866 with the role of converting Aboriginal people. The Appel family included John George Appel who served in the Queensland parliament as Home Secretary and Minister for Mines.

5.4 Starting the story for all community to engage

When we try to set up classes in language, in school or in community, there is often opposition that we are not prepared enough and we will teach the children wrong, or the children will pronounce words wrong. These are false issues, as all children and teachers make mistakes, and this is a start to the language use, it should not be missed. Other Aboriginal people in our communities use language teaching as a power tool. When people say "I am the only one who speaks it and can teach it" this is not helpful in sharing the language.

For Aboriginal people, knowledge starts in the children's stories we teach, to provide the background for future knowledge of country, animals, and how people live together. As we grow older, these stories grow with us and so our understanding of the world around us grows as a whole. So can language learning grow. For example, we had Burleigh Heads co-named its Yugambeh name, Jellurgal. This place is the spiritual home of Jabreen, our creation ancestor. So we tell everyone the Aboriginal dreaming story of the place. Jellurgal has over 350,000 visitors per year. It is the most visited National Park in Queensland. The Yugambeh story of the area attracts people to the country, and they listen as we tell them more about our people and grow the story. Another story that grew for Yugambeh was the annual walk held in honour of Billy Drumley.

RO: I wanted to do something to honour our Aboriginal leader Billy Drumley who had clearly meant so much to my community. And in 2005 I set off from the main street of Beaudesert to re-enact his walking journey through the countryside to Southport. I had originally thought it would be a solo walk, but soon I had a group of friends, relatives and even staff members from the local councils who wanted to make the trip. For the inaugural walk, which became known as The Drumley Walk, eight of us gathered in the main street of Beaudesert, beside a wooden flagpole at the local ANZAC Cenotaph that Drumley had carved to celebrate the end of the Great War. We were sent on our way by the town's deputy mayor and a small group of Elders, Aboriginal and non-Aboriginal who shared some memories of the man. We took three days to reach Southport, even though Drumley would complete the trek in just a day, even in his eighties. At the end, in Brighton Parade near the property where Jenny Graham had lived, we finished to a low key barbeque and 20 community members who gathered to congratulate us for the event.

It was a small beginning, but it stirred the imagination of a community, and the event grew. Within three years the main street of Beaudesert was closed as more than 300 people came to start the walk. Elders shared memories of Drumley and other community leaders. Children spoke of stories that their grandparents had shared. Overnight camps were organised. Over the next decade the finish grew into a community festival with more than 1000 people attending. It was to celebrate an important man of the Aboriginal community.

CK: In language revitalisation it has been community events that are important, the implementation of ideas into action that engages more people to feel part of the work and the revival brings community behind the project [19].

Eventually the approach of the Gold Coast 2018 Commonwealth Games took community energies away from the annual event. But The Drumley Walk had served its purpose. The family links between Beaudesert and Southport had been recognised and celebrated. The descendants of Jenny Graham had no doubts about her links to her brother Billy Drumley, who lived his latter life in the Beaudesert community. And the entire Aboriginal community had come together to celebrate their culture.

5.5 Government support

When we seek funding, there is support at state level for teaching in schools, but there are many restrictions to our work that remove us from the way our ancestors have taught language forever, by teaching on country and teaching with the season. For instance, in setting up grants we are asked to fulfil key performance indicators of numbers of language speakers, numbers at events, etc which do not address the well-being that comes from speaking of our language. When developing curriculum this is not flexible to the changing timing of seasons. When we want to train as a language teacher, often we are required to do our practical in an existing class teaching our language, yet this may not be set up yet. Bilingual schools such as those in the Norther Territory have nearly all been closed due to insufficient consideration of the benefits:

At the end of 2008 the Northern Territory Government, supported by the Commonwealth Government, all but closed bilingual education in remote Indigenous schools by determining that the language of instruction for the first four hours of school must be English. This decision could spell the death of the remaining endangered Indigenous languages in Australia. Yet it was taken without apparent regard for the evidence from research on how monolingual children learn a second language, or on the positive value of bilingual educa-

tion, or the language rights of Indigenous peoples, or the evidence from schools which had abandoned bilingual education [17, p. 6]
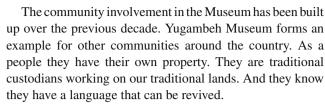
Even for achieving Federal funding, there is no measure of fluency level before and after funded programs. To share what are successful methods, we have community language conferences where we go to share our ideas. Members of our communities can explain how a project or program worked for them, so others can assess if it will work in another context. It is this understanding of context and process that are crucial for the transfer of successful programs to other regions.

It was with Federal government assistance that the members of KACC were able to rent a small building in Beenleigh, at the northern end of the Gold Coast in 1994. It had previously been a car workshop and a church. In 1995 they opened the Yugambeh Museum, Language and Heritage Research Centre, as an arm of KACC. The official opening was performed by Neville Bonner, a well-known local community member who had been Australia's first Aboriginal Federal Senator from 1971 to 1983. This was attended by Aboriginal people from all sections of the Yugambeh language community.

The Yugambeh Museum became an important place for the community to gather and share research. Although it survived on very little funding, it facilitated the creation of exhibitions and posters that told the local Aboriginal history. Individuals pieced together their own family stories from the clippings and articles that began to accrue in the centre. Birth certificates, death certificates, marriage certificates were all sifted through to create the family connections that helped people realise their interconnectedness.

The KACC also staged several large community events that enabled family groups to re-connect. These were held at Southport and Beaudesert and helped reinforce the group's collective history. These were simple steps that helped the community learn about their own history, and answer questions that the colonization process had muddied the answers to.

RO: I started working for the Yugambeh Museum in 2007 after my Aunt Ysola passed away suddenly and I realised that the Yugambeh Museum may well falter if Patricia was left to carry on alone. The Museum had attracted the attention of a local state public servant, Kevin Burton, who was working on a community renewal project. He championed the Museum's case to the federal Indigenous Land Corporation, to buy the property. He then approached eight State and Federal Departments, and the Gold Coast City Council to put funding into the project. It included a small parttime wage for less than a year's work. This required that I leave a prestigious job as a reporter and producer at Channel Nine and begin a temporary job at the Yugambeh Museum.

The community involvement in the Museum has been built up over the previous decade. Yugambeh Museum forms an example for other communities around the country. As a people they have their own property. They are traditional custodians working on our traditional lands. And they know they have a language that can be revived.

RO: Using my journalism training and ability to present my case, I built the profile of the organisation amongst the funding bodies and surrounding community organisations. We accessed arts grants and expanded the exhibitions and publications that the Museum presented. In 2011 I secured funds to construct a new exhibition centre and create media and training rooms for community use. And it was about this time that digital technology became available to those in community language work.

The Museum was already one of the first Australian language centres to have a website capable of selling products. We had developed this to service The Drumley Walk. But now we had community demand increasing for language information due to our increased exposure. The Museum had published a dictionary. But this didn't stop people calling my number asking for Yugambeh words to use in speeches, emails or speeches.

RO: If I had the funds, I would have provided every household in southeast Queensland with a dictionary for free, and then a second one for when they lost their first one. Unlike many communities who are averse to sharing their data online, we do this deliberately and do not see a need to worry about our wordlists being stolen, as we want them shared with everyone. When I saw a local companies get their own app, I realised this technology was within the grasp of the Museum. Up until this stage, apps had been spoken about in broad terms in the media as wildly expensive technology that only large organisations could justify.

After a conversation with a local app developer, the Museum determined $5000 would create an app that could hold all the dictionary words we needed, and be free for users to download onto mobile phones anywhere. The workload was essentially re-typing the existing dictionary information into a Microsoft Excel spreadsheet and loading up pre-recorded voice recordings of every individual word. We included lists of animals, birds, emotions and body parts. The app was taking shape and was within budget.

However, it needed something to launch it. It was suggested that we adapt the Japanese Haiku, which is a form of poetry that features just 17 syllables, in a three-line format. Line one was five syllables, line two was seven syllables and line three was five syllables again. And it typically linked to seasons.

Local schools, who were constantly enquiring about ways to engage their students with language, would be able to access this with minimal cost. Children and adults alike could play with the words to create meaning. And as we only had a

wordlist and many of the words were five syllables on their own, it would not be a rigorous task. There were qualms about the cultural propriety of it. Were the Yugambeh not simply acquiring another culture's intellectual property to benefit their own—something Aboriginal communities had been victim of for generations?

However, the people of the region in Japan where the Haiku derived from, are always proud to share their technique (personal communication by Japanese linguist State Library of Queensland). This is in stark contrast to the reaction of those who have been denied their language, and who have seen others use it without credit to the significance of places and words. When language should be shared to all those on country, it is being closed and lost.

The app was launched in 2013 and later that year hundreds of children throughout the region were creating Haiku poems and playing with Yugambeh words in a culturally safe way. The app simply used material that was already in the public domain. While there is often anxiety in our communities when language is shared through an app, there was no public push back, except by people who couldn't make it work on their phones.

We soon had members of other communities asking if we could add their wordlists to the app. So in 2015, the Yugambeh Museum expanded the app and launched Australia's first multi-language app. It featured seven Indigenous languages (Yugambeh, Jandai, Gunggari, Kabi Kabi, Wakka Wakka, Yugarabul and Gudang) and a list of greetings from more than 150 languages and dialects. We were able to attract a number of partners including the Gold Coast and Logan City Councils, State Library of Queensland, a theme park and a not-for-profit partnership broking organisation.

The theory of the app was simple, and its use was widespread. But there were technical issues that emerged over time as the software behind the phone operating systems became more and more advanced. The app operating systems were constantly updating. This meant constant upkeep by technicians hired by the Museum. It was not so much the cost of this work but finding people with the expertise to solve the technical issues. It was also difficult to make it work on android devices. We worked around this by making a web-based version available for use on computers and all phones. But it was an ongoing headache. And finally the continual operating system updates necessitated a complete revamp of the app—just as the Gold Coast 2018 Commonwealth Games was arriving in town.

The simple app that we had started out with in 2013 was now much more complex to manage and required a far larger budget to maintain than had been the case at the start of the journey. The next digital adventure our community embarked on was a project called Woolaroo—developed in collaboration with Google Partner Innovation.

Google's product translates photographs taken from a mobile device into the chosen Indigenous language. It is limited to just 600 images with words from each language, pre-chosen by Google as the most requested words. This was a great opportunity to work alongside some of the cleverest technical engineers in the world. But it was a two-way communication process. The Google team also learnt some home truths about the perception some Australian Indigenous communities had about their company, and Google is now researching what communities want for future investment in language work, to ensure they understand the community experience.

RO: At a language conference people talked of having been invited to upload their words to a Google site, only to discover that this gave Google copyright to their language. Regardless of whether this was true or just the perception, I explained that I would need to combat these perceptions if I was to develop a product with them that would be embraced by Indigenous communities.

The Google team, led by Chris Rollings from Google's Sydney office, understood this issue. The final product they developed was one that did not require financial resourcing from the Indigenous language groups involved, and little human resourcing beyond the initial set up and adding further words when community had the time to do this. And all intellectual property rights remained with the source language group. The experience gave people working in our community an opportunity to tell their story to a worldwide audience. Also, our language workers had to use techniques for word building to develop the Yugambeh language to describe the modern products and inventions in the Google wordlist.

5.6 Growing language

Many of the 600 words pre-selected by Google did not have a historical Yugambeh equivalent. Yugambeh language workers such as Uncle Allan Lena explained he was already word building. The Woolaroo consultation process renewed his confidence and put the words into wide usage. Word building has been done by Yugambeh people since first contact and is essential for languages to remain relevant and usable. This process shows no disrespect for the language, nor does it lose our ties to our traditions. It does provide an opportunity to make our language more relevant to the world we live in, restarting the growth of the language.

Uncle Allen: Our dictionary doesn't list a word for shoe. So when kids ask me what to call it in Yugambeh, I have been saying Jinung gulli—a foot thing.

So this became part of Woolaroo. Yugambeh language teacher Shaun Davies has recently completed a Bachelor of Applied Linguistics and Languages at Griffith University focusing on Yugambeh. He researched most of the words cre-

ated for Woolaroo. He spoke to locals, but also looked to other communities as he developed word building techniques.

Shaun Davies: I am teaching my nephew who is almost four years old to speak language and the process we followed for Woolaroo is exactly what I have been doing with him. For example, the freezer is jirun bin—frosty place. The phone is gulgun biral—voice thrower. Toast is ngun buren—warm bread. It reinforced to me the importance of word building for Yugambeh to survive and be passed on.
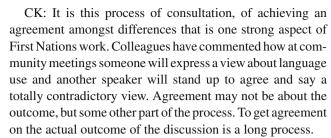
An early example of word building was cited by William Egan Hanlon, who recorded more than a thousand words in Yugambeh language from Aboriginal people he lived with in the Logan and Southport areas from the late 1800s to the early 1900s. Hanlon [7] noted what he called an "ingenious" compilation of a Yugambeh word to describe a foreign object "the whiteman's gun." Translated phonetically, Hanlon spelt the word Mee-boolaidooloolpee derived from:

> mee, eye; boolai, two; doolool, a loud noise or "bang"; and the terminal "pee," denoting cause or agency. Thus "mee-boolai-doolool-pee" means a double-eyed banger, and, as their most vivid acquaintance of this firearm, in the early days, was with its barrel muzzles (round like two eyes), pointed at them, followed by a "bang," the coinage is entirely appropriate [7, p. 241]

One important aspect is the ongoing objection from many in community as to who has the right to share language, and who can it be shared with. This can be a barrier to the growth of our language, or a way of preserving the knowledge it embodies. in fact the work of language revitalisation can be very arduous and the people who do this work are often labelled fanatics [25]. Also the languages that we are reviving have little connection with the languages of the past as we have to create many new words to talk about our world today. However, we talk about the natural environment with our own words and try and adapt that way of thinking to the new phrases we develop.

RO: We have noticed that people often engage in language work, in our workshops and gatherings, more as a social activity, without striving for the outcome of reclamation. This may be as they have given up hope. However, this social cohesion is an important aspect of language reclamation and strengthening. Whether online or face to face, we need to develop more opportunities for our communities to share what we know and how we speak, that is what we are funded to do in our Language Centres.

We allocate resources to those activities that create language material or learning, not to own the language but to ensure some consistency to the way it is spoken, the grammar used and the use of the language in our life. We do not see our role as controlling who speaks it, but we will control what resources are made public based on what the bulk of our community support.

CK: It is this process of consultation, of achieving an agreement amongst differences that is one strong aspect of First Nations work. Colleagues have commented how at community meetings someone will express a view about language use and another speaker will stand up to agree and say a totally contradictory view. Agreement may not be about the outcome, but some other part of the process. To get agreement on the actual outcome of the discussion is a long process.

We need those who fund and support language work to wait for that process to end, not just hear the "I agree" and think all is decided. We need to open technology for more people so they are part of a process which they will then value, respect and have some control. This is work promoted by the LT4All initiative by UNESCO [22] and is an ongoing process. For this we need community to engage and have the time and the space to develop our differences and our agreed path. We also need more First Nations developing the technology for us to use.

5.7 Language root material

Perhaps the most significant concern with the Woolaroo project was the limited material it could support. It was a word list and is not sharing how we talk to each other, how we talk about county. Maybe technologists in dealing with words as items of translation, miss the bigger picture of creating meaning. The Yugambeh language is related to Bundjalung which is further south, however, has a different spelling system for its words for historical reasons. Hence, the language reclamation work has often proceeded separately, as people wanted to retain the spelling they knew.

It is a decision by the community, how they grow their language and how much they "borrow" missing words or grammar etc from their neighbours. Therefore, one aspect that arises in language work, as much as Native Title claims as the two are related, is language boundaries. There are many part-speakers of Yugambeh from different regions of NSW and Queensland who take different approaches to how their language relates to their neighbours and how distinct their language is from these.

The work is partly positioned at the beginning of a project by Rory O'Connor to look north to our Queensland neighbours to develop common tools and support for language growth. But it is also at the beginning of work by Cat Kutay to look across Australia as other phonologically similar languages for more support from language technology and sharing knowledge between languages. Similarities in vocabulary, language structure and meaning may help us gather a larger resource base for promoting our languages.

6 Conclusion

The path of digital resources for language has provided challenges and benefits for Yugambeh. There is no doubt embracing app and web products has massively increased the language's availability for the entire community, Aboriginal and non-Aboriginal. It has assisted an explosion in language taught in schools and the inter-generational passing on of knowledge as people gather their Elder's stories. Many people in southeast Queensland now use language on a daily basis thanks to digital technology. This means our people have the opportunity to hear our language in the mainstream.

The Woolaroo product from Google Partner Innovation still works as designed. And even though that company recently retrenched 12,000 employees, or more than six per cent of its global workforce, there were still Google staff dedicated to maintaining Woolaroo in 2024.

As a negative, digital products, unlike their printed counterparts, may cease functioning due to changes in technology or maintenance costs, as was the case of the Yugambeh language app. Also, it is not just technology that changes. The board of the Kombumerri Aboriginal Corporation for Culture decided in 2021 to stop functioning as a federally funded language centre. The Yugambeh Museum has closed its doors to the public and no longer has ongoing income to perform language work. This means the KACC has no capacity to continue involvement in digital assets.

But luckily the federal department which funded the KACC for the last 2 decades has now negotiated for another Indigenous organisation to take over their language work. The new body engages the same staff and community members that worked on the original digital products. It is expanding its footprint in the digital language space, but with a careful eye to avoid the mistakes of the past. Thus the corporate memory created by Yugambeh traveling down the digital path has been kept intact.

And perhaps these are the take home messages for any community considering engaging in digital assets. A community that learns how to use technology for language revitalisation will be able to continue this journey regardless of changes in the platforms or community politics over time. And by doing can reach a much greater audience. Also, another aspect that is important is to pool our resources. We have many very different languages and cultures in Australia. We can only get stronger by sharing our experiences, our technology and our understanding of what we can gain control of to support our language work.

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Declarations

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