

# Recognising Torres Strait Islander Women's Knowledges in their Children's Mathematics Education

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## Abstract

This paper discusses women's involvement in their children's mathematics education. It does, where possible, focus Torres Strait Islander women who share the aspirations of Aboriginal communities around Australia. That is, they are keen for their children to receive an education that provides them with opportunities for their present and future lives. They are also keen to have their cultures' child learning practices recognised and respected within mainstream education. This recognition has some way to go with the language of instruction in schools written to English conventions, decontextualised and disconnected to the students' culture, Community and home language.

## Introduction

This discussion paper is the first attempt by the author to put into words her early learnings and understandings of Torres Strait Islander women's involvement in their children's mathematics education. She is not at the same state of awareness nor understanding of Aboriginal and Torres Strait Island Peoples in Australia and therefore does not consider herself an "expert" on their ways of "Being-Knowing-Doing" as described by Veronica Arbon (2008, p. 29). To do this would be offensive and a substantial breach of trust and respect to purport to be an expert about such matters that she has not experienced. What she is attempting to do is to take small steps to learn about Torres Strait Islander women's involvement in their children mathematics education in the context of the Torres Strait Islands so as to work with this community in environments for mathematics learning. She is non-Indigenous, of Scottish/Irish Catholic heritage, a university educator of Early Childhood mathematics and researcher working with Aboriginal and Torres Strait Island Communities on ways to enhance the educational opportunities of their young people.

As a beginning point, the paper provides a general overview of some important features related to how women conceptualise their role in their children's mathematics education. It then discusses Torres Strait Island home languages and the learning of mathematics using formal mathematics language where possible in the context of Torres Strait Islanders' community and culture. However, an important caveat is needed here before progressing further with this discussion. The author recognises the term *Indigenous* as problematic because it collectivizes distinct populations of people whose experiences have been vastly different under imperialism (Smith, 1999). There is no disrespect intended where this term has been used.

## Sharing Aspirations for Their Children

Torres Strait Islander parents share the aspirations of Aboriginal Communities around Australia, that is, they are keen for their children to receive a good education, one that includes literacy and numeracy (Schnukal, 2002, 2003; Mette Morrison, personal communication). Whilst there is literature that focuses on education in the Torres Strait Islands (see Schnukal, 2003 for comprehensive bibliography of Torres Strait Education) and women in the Torres Strait Islands (see for example Gaffney, 1989; Osborne, 1997) literature that focuses explicitly on the involvement of women in their children's mathematics education in the Torres Strait Islands is limited. Because of this limitation, the paper will explore beyond this region to develop understandings of how women conceptualise their role in their children's mathematics education and its associated language. It will also seek explanations of "both ways" environments as describe by Kathryn Priest et al., (2009) and Veronica Arbon (2008). Briefly, both ways is "where there is a blend of mainstream and Indigenous cultural knowledge being taught" (Priest et al., 2009, p. 118). This understanding will be addressed more fully later in this paper. But first important questions need to be posed.

How does a holistic definition of mainstream education accord with Indigenous Australian contexts? How does mainstream education accord with Australian Aboriginal learning systems as described by Karen Martin (2007, p. 18) given that Indigenous cultures are not homogeneous (Priest, 2005)? How does mainstream education acknowledge the influence of parents, extended family, Elders and community? These important questions are also raised by Canadian Indigenous people (Assembly of First Nations, 2005) who are calling for learning systems that are holistic, that is, culturally relevant regulations and curriculum.

cultural values, beliefs, traditions and language must be interwoven in all early learning and child care programming. Culture has been acknowledged to play a key role in developing physically and emotionally healthy children with high self esteem that it must become an integral component of the everyday operation of these programs. First Nations clearly stated that Elders need to be involved as advisors and teachers in the development and implementation of First Nations early learning and child care programs. (p. 10)

McTurk, Nutton, Lea, Robinson and Carapetis (2008) highlight in their report of *The School Readiness of Australian Indigenous Children* the heterogeneity of Indigenous cultures. Indigenous people live across different geographical locations and live different lifestyles in communities, “awareness and understanding of the complex and delicate nature of the social and cultural issues at play within and between these communities is critical” (Clancy & Simpson, 2002, p. 54-55) if both ways education is going to work. What is similar however, is that they share similar aspirations for their children (Yunupingu, 1997; Mellor & Corrigan, 2004). Lester (2004, cited by Priest, 2005) emphasises these aspirations stating that indigenous families want their children to access quality education so that they can gain the knowledge, skills and capacity to succeed in education, employment and in their present and future lives. However, this does not mean that they give up their cultural identity. They do not. Indigenous parents see as paramount that their children’s cultural identity as an Indigenous person is sustained and maintained (Lester, 2004 cited by Priest, 2005).

### ***Mainstream Education and the Recognition of Cultural Identity***

Veronica Arbon (2008) questions the assumptions underpinning Western mainstream education as beneficial for Aboriginal and Torres Strait Islander people which assumes that it enables them to better participate in Australian society. She asks “how do we best achieve outcomes for and with Indigenous people conducive to our cultural, physical and economic sustainability as defined by us from Indigenous knowledge positions?” (p. 118). How does a mainstream education written to English conventions provide children with the knowledge and skills to participate in daily social life, if it does not recognise the cultural identity of Indigenous children as it should (Priest, 2005)? How can the over reliance on applying narrowly defined Euro American westernised ways of thinking about children’s learning be challenged? Priest (2005 cf. Fasoli, 2004) and Arbon (2008) state that this view is now brought into question with calls for both ways education where mainstream knowledge and practices is blended with Indigenous cultural knowledge of learning. Taylor (2003) explains this further by stating that both ways education must work within an “intercultural space” (p. 45). That is,

. . . the meeting of two distinct cultures’ through processes and interactions which retain the integrity and difference of both cultures and which may involve a blending of elements of both cultures but never the domination of one over another. (p. 45)

It is crucial therefore that cultural knowledges and experiences of Indigenous people to be valued and respected and given the currency in the same way that non Indigenous knowledge is (Taylor, 2003) for both ways education to work.

The document *Preparing the Ground for Partnership* (Priest, 2005), *The Indigenous Education Strategic Directions 2008–2011* (Department of Education, Training and the Arts, 2007) and the *National Goals for Indigenous Education* (Department of Education, Employment and Work Relations, 2008) provide explicit ways to blend Indigenous cultural knowledge and mainstream knowledge so that Indigenous children receive the best possible literacy and numeracy education to enhance their opportunities for further education, training and employment.

A key theme from the above documents is the need to provide children with the best start to education and, the importance of contextualising literacy and numeracy to their community and culture (see Priest, 2005 for a detailed review). Here, community describes “a culture that is oriented primarily towards the needs of the group. This cultural orientation perceives that the whole community must be strong in order to adequately meet the needs of the individual” (Priest, 2005, p. 12). Karen Martin (2005) describes culture as about

being related . . . it is being related to people, to the sky, the salt water, the animals, the plants, the land . . . that is how we hold who we are . . . it is that we related to everything else . . . what is happening to our people now is we are not experiencing that relatedness . . . it is important that we pay attention to our responsibilities and keep our relatedness strong . . . we need that relatedness back . . . we need to represent the stories of our relatedness (cited by Priest, 2005, p. 12)

Put another way, Martin Nakata (2007b) states that contextualising to culture is about that which already exists, that is, Torres Strait Islander community, cultural context and home languages (including the sky, the sea, the land and spiritual values) and “Indigenous knowledge systems” (Nakata, 2007a, p. 2). Continuing, Ezeife (2002) cites the work of Hollins (1996) who states that Indigenous people belong to “high-context culture groups” (p. 185). That is,

High-context cultures are characterized by a holistic (top-down) approach to information processing in which meaning is “extracted” from the environment and the situation. Low-context cultures use a linear, sequential building block (bottom-up) approach to information processing in which meaning is constructed. (p.185)

What this means is that children who use holistic thought processing are more likely to be disadvantaged in mainstream mathematics classrooms. This is because westernised mathematics is largely presented as hierarchical and broken into parts with minimal connections made between concepts and with the children's culture and community. It potentially conflicts with how they learn. If this is to change the curriculum needs to be made more culture-sensitive and environmentally and community orientated so that parents can be involved in their children's learning.

### ***Recognising Women's Cultural Learning Practices***

Kathryn Priest (2005) states that for many years Indigenous women around Australia have struggled with gaining recognition for their cultures' child learning practices. A contributing factor to this issue is the typical characterisations, or the Euro American westernised view of Indigenous women's involvement in their children's education. Such involvement has reflected a deficit view of parental involvement in education. Indeed, the portrayal of parents as problems to be overcome and as uninvolved in their children's learning, upholds a particular view of parent participation in education (Jackson & Remillard, 2005). Now, according to Priest (2005, p. 19) Indigenous women in Australia are speaking out about what they want for their children, calling for recognition of their cultural knowledges and to be treated "on an equitable basis with Euro-American 'western' culture". Priest (2005) cites the work of the Warrki Jarrinjaku ACRS Project Team (2002) to explain

the growing recognition of the need to have a 'both ways' approach to service design and delivery (Warrki Jarrinjaku ACRS Project Team 2002). An ideal 'both ways' environment places equal value and respect on quality of practices from both Kardiya (non-Aboriginal) and Anangu and Yapa (Aboriginal) cultures. (p. 123)

Whilst there is a growing recognition of Anangu and Yapa cultural knowledges, more work in the mainstream is needed to acknowledge, respect and learn about these knowledges (Priest, 2005). This issue for Indigenous women is not isolated to Australia.

In a study of African American mothers' involvement in their children's mathematics education Jackson and Remillard (2005) found that such characterisations have a strong tendency to privilege traditional westernised visible and invisible practices of education and schooling. As a consequence and because of stereotypical views of parental involvement in their children's education, they were confronted with challenges in relation to their children's education. This did not mean that the parents were not involved in their children's learning. They were. The parents took it upon themselves to create opportunities to support their children outside of school. By thinking proactively and strategically, the parents were strong advocates about their children's futures and the opportunities they wanted them to experience in their adults lives. That is, they used their daily lives and family activities as spontaneous opportunities to engage in discussions about mathematics and its associated language, informal and formal.

### ***The Language of Mathematics – One way? No, both ways!***

The previous discussion talked about both ways learning environments and the importance of recognising and valuing Aboriginal and Torres Strait Islander Peoples' cultural knowledges, community and home languages. Such recognition by non Indigenous people is crucial if they are to work with Indigenous Peoples in their communities to enhance the mathematics education of children and young people.

What is crucial here is the recognition that Aboriginal and Torres Strait Islander children be provided with quality education that recognises in explicit and implicit ways their culture, community and home language and that they are used as sustained entry points into all areas of the children's learning. Such an education needs to be both ways as described by Priest (2005) and Arbon (2008) earlier in this paper, and with the recognition that Anna Schnukal (2002, 2003) emphasises, "culture is still predominately oral with all important knowledge transmitted orally and in context" (p. 52).

The significance of recognising oral language is highlighted by Paul Herbert in his presentation at WIPCE in 2008

Language is the conveyor of culture, through culture we add meaning to things based on symbols. When language disappears our symbols go with it leaving a group of people searching for symbolic meaning.

These symbols are what we identify ourselves with. Without these symbols we are to an extent lost.

A strong point made in Shirley Brice Heath's (1983) work emphasises that from when we are infants language determines how we come to know and to be in the world. It is what binds communities, parents and children together "the adults which the children will one day become repeat the processes with the next generation of children" (Zeegers, Muir & Lin, 2003, p. 55). What happens then at the point of departure from home language when children are required to speak Standard Australian English in classrooms?

### ***The Paradox: The Official Language of Instruction***

As the official language of instruction, English is learned by Torres Strait Islander children as a second, third or fourth language (Shnukal, 2002). It dominates the Torres Strait Curriculum which is written to English conventions (Shnukal, 2002) even though it is being perceived by students as a “foreign language expressing alien and uncomfortable modes of thought” (p. 12). This point raises the question: How are children to find meaning in the symbols of Standard Australian English when their first languages are more likely to be Kala Lagaw Ya, Meriam Mir or Yumplatok? (Yumplatok is the current term used in the Torres Strait Islands for Torres Strait Creole, personal communication Mr Dana Ober, 2009).

Standard Australian English dominates the Torres Strait Curriculum as Schnukal (2002) has argued elsewhere, even though it is being perceived by students as a foreign language. Children’s mathematics learning is further confounded by curriculum material that is decontextualised and lacking any practical purpose and connections to the children’s culture and environment thus further reinforcing this perception.

Anthony Ezeife (2002) states that the differences between these two issues, decontextualised material and children’s culture and environment, or put another way, mainstream and Indigenous cultural knowledge, would surface and influence the children’s learning. He explains,

If the instructional method favours the learning styles of students from Western cultures (as seems to be the case in contemporary formal school settings), then these students would perform quite well, while the performance of the disadvantaged students from indigenous cultures would not be as good. However, if indigenous students are given the opportunity to learn through an instructional medium that favours their learning or cognitive styles, then the likelihood is that learning would be facilitated and enhanced. (Ezeife, 2002, p. 180)

A more culturally sensitive way to enhance Indigenous children’s learning would be to educate using culturally and environmentally based education that is contextualised to their culture. The effect of this process would be that children’s have the incentive to learn for understanding because they can find meaning and links to their own cultures, their home languages and in the symbols used.

For children the mathematical concept may not be the difficulty, rather, it may be the language that is used to express it. For example, two categories of common nouns in English cause difficulty for Yumplatok speakers.

The first is the count and mass (unbounded or non-count) distinction, so called because count nouns are thought of as units which can be pluralised, whereas mass nouns (e.g. “sugar”, “wood”, “flour”, “cattle”, “information”, “destruction”, etc.) are thought of as substance and cannot be pluralised, except with specialised meaning. Thus, “two sugars” does not mean “two grains of sugar”, but “two lumps/spoonfuls of sugar”. Mass nouns take the quantifiers (“how/too) much/little”), whereas count nouns take “(how/too) many/few”. There is not such distinction in Torres Strait Creole. All common nouns in Torres Strait Creole can be pluralised by using a number, the plural marker *dem* or a quantifier:

*wan bred*: one loaf of bread; *tri bulmakau*: three head of cattle;

*dem ud*: pieces of wood; *amass plawa*: how many tins of flour (Schnukal, 2003, p. 55).

Children who are speakers of Yumplatok are more than likely unaware of the circumstances with which English nouns can and cannot be pluralised and are uncertain of which quantifier to use (Schnukal, 2003). This uncertainty is likely to be influential to how they come to learn formal mathematics that is written and spoken to English conventions.

To further illustrate, puffing up shoulders and stating “he’s big this kind way” means tall, while stating “I go . . . I go, go . . . I go, go, go”, means “I went a very long way” (Nakata, 2002). Again, the problem may not be a mathematics or cultural issue but a language issue. Therefore, it is about having a specialized understanding of how children express their world as they see themselves in it—with verbalization the key to understanding concepts rather than simply having them manipulate objects that are not context related (Nakata, 2002; Shnukal, 2002). Torres Strait islander children’s require explicit teaching via interactions with their teacher and other children and adults so that they become aware of the different grammatical structures from Standard Australian English.

### ***Concluding comments***

This paper has discussed the aspirations that Torres Strait Islander women have for their children. It has also emphasised the significance of recognising the cultural identity, home language and community of Australian Aboriginal and Torres Strait Islander women. This recognition by mainstream education is crucial if both ways education to going to succeed. Further, if Indigenous children are to have opportunities in their current and future lives, such recognition is deemed in this paper to be of importance. The paper takes the position that Torres Strait Island children’s learning of mathematics can be enhance if there is a deliberate and explicit blending of Torres Strait Island cultural knowledge and mainstream western knowledge taught. Too many documents cite that the mathematics that Indigenous children are learning in school is isolated,

disconnected and of little or no relevance to their daily life, their culture and home language. Whilst some effort is being made, more is needed to enhance the lives of young Torres Strait Islander children and recognition of the child learning practices of their parents.

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