

## **Changing Views of Culture, Learning, Teaching, and Knowledge: Fiji In-service Primary Teachers.**

**Govinda Ishwar Lingam  
Gillian Boulton-Lewis  
Jo Lunn Brownlee  
Narsamma Lingam**

### *Abstract*

This paper explores in-service primary teachers' views and beliefs about culture, learning, teaching and knowledge. Fifty Bachelor of Education in-service primary teachers at a university in Fiji participated in the study. The analysis reveals a mix of old and new beliefs about culture, learning, teaching and knowledge. The influence of globalization of technology is a contributing factor towards the changing views. To keep the indigenous epistemologies alive and valued like the Western epistemologies, more effort is needed to integrate these in formal education. This has implications for the future professional preparation of pre-service and in-service teachers.

### **Introduction: Pacific Epistemology**

Schools around the world are expected to promote economic, cultural and individual development although they are often challenged in these expectations, particularly in developing countries. As part of an increasingly globalised world, children in Fiji are exposed to different types of knowledge. In Fiji, it seems that formal education is the main way in which such changes are taking place (Thaman, 1995, Nabobo-Baba, 2006a). It is important for indigenous epistemologies to be valued, particularly in the context of Fijian education, which receives substantial support from external aid.

Indigenous epistemology refers to 'the way custom or culture is the- orized' (Nabobo-Baba, 2006b: 73) and forms part of the *vanna* (community) in Fiji. It involves a focus on significant learning (which includes knowledge, values, beliefs, skills and behaviours) required by the community. This paper examines beliefs about learning, teaching and knowledge held by pre-service primary teachers and analyses the impacts these beliefs have on creating the stock of knowledge that teachers take to the classrooms and its evolution.

### **Pacific Epistemology: Ways of Knowing in the Pacific**

Thaman (1995) points out that traditional Tongan education is informal, provided within the household and the wider community, through myths, legends, dance, poetry, proverbs and rituals, as opposed to book and school learning. The emphasis is on the 'here and now' as opposed to 'there and then' and the abstract approach that underpins education in the West. It is group oriented rather than individual oriented. Similar ways of knowing have been identified in Fijian culture. Nabobo-Baba (2006b) states that Fijian indigenous epistemology involves belonging, relationships, connections between the three worlds of earth-heavens-afterlife, cooperation, and boundaries (hierarchy within the clan). While critical reflection is the key to indigenous ways of knowing (for example, analysing clan ceremonies through planning for provisions), it is not culturally appropriate to critique something that does 'not belong to them' (Nabobo-Baba, 2006b: 130). This could explain why students are more likely to receive information from teachers passively, rather than question authorities or experts.

Nabobo-Baba (2006b) describes Fijian ways of knowing as involving silence and respect for elders, which has an impact on beliefs about learning. Truth is absolute and 'divine' and so elders and teachers are to be revered and not questioned. Religious and community leadership are crucial influences on how teaching and learning is perceived. Phan (2008a, cited in Phan 2010) argues that alongside such absolutist ways of knowing exists a communal and social approach to knowledge and knowing such as is evident in discussion in group work.

Generally the Pacific view of the world is one where people are an integral part of the environment as opposed to being masters of it. This presents a conflict between the ways of knowing evident

in the formal work in schools and students' culture. Nabobo-Baba (2006b) and Thaman (1995) argue that we need to analyse indigenous ways of knowing that underlie learning in traditional societies, to achieve a synthesis of the best of Pacific and Western cultures for the sake of learners. While the contrast between modern schooling and Pacific cultures is great, it is not inherently and inevitably an unbridgeable gap. Thaman proposed that the main bridge must be fostered through the preparation of teachers.

Interesting cultural differences in values, beliefs and practices also affect achievement between Indo-Fijians and ethnic Fijians in the Fiji context. Setsuo (2004) states that in Indo-Fijian culture education is respected and valued highly and parents believe that helping students to strive for academic excellence is important. Phan (2010) notes that Indo-Fijians are more individualistic and competitive, possibly as a result of the social experiences of being marginalised within the Fijian community. Over time, their experience of degrees of 'poverty, landlessness and racial discrimination' has promoted a focus on education as a means of lifelong survival (Phan, 2010: 421). Education is mainly seen as a way to promote survival, although Indo-Fijians are more likely to perceive education as a means to 'wealth, privilege and social status' (Phan, 2010: 421). That individualism and competitiveness might result in rote learning to achieve high grades is not really discussed. On the other hand, Setsuo (2004) observes that ethnic Fijian parents encourage children to become good members of the community. For that reason a large amount of time and money is devoted to contributions to ceremonies and church, sometimes at the expense of children's schooling.

### **Changing Epistemologies**

The Pacific region is experiencing changes in ways of knowing within the context of education. While traditional approaches to teaching and learning are culturally embedded, there is also a move towards more Western ways of knowing that encourage learners to be problem solvers and constructors of knowledge, rather than relying on omniscient external authorities. Teacher education promotes Western ways of knowing, while teachers' cultural identities are focused upon strong interpersonal connections and communities. Thaman argues that schools do not reflect this collective epistemology but rather adhere to the western individualistic approaches to teaching and learning. If this is the case, it can present a problem for

formal schooling in the need to bridge the gap psychologically and epistemologically between western and indigenous epistemologies.

### **Western Epistemology: Conceptions of Learning and Ways of Knowing**

Most of the research on conceptions of learning and teaching has been conducted in Western settings (see, Boulton-Lewis, 2004, for a review). These conceptions ranged from quantitative conceptions of learning usually associated with surface learning strategies to qualitative conceptions, which are associated with deep strategies and an intention to understand.

In a review of conceptions of teaching and learning, Boulton-Lewis (2004) found that there is usually a strong relationship between conceptions of learning and teaching and the approaches that lecturers and students adopt. A teacher with a quantitative conception of learning is more likely to adopt a transmissive approach to teaching whilst a teacher with qualitative conceptions will want to facilitate understanding. In western epistemology, conceptions of learning and teaching have been shown to be influenced by ways of knowing, sometimes referred to as personal epistemology (Chan & Elliott, 2004).

Brownlee, Berthelsen and Boulton-Lewis (2010) summarise literature showing that over the last 30 years, a strong research culture has developed in personal epistemology. Personal epistemological beliefs are those held by individuals about the nature of knowing and knowledge (Hofer & Pintrich, 1997). According to Kuhn and Weinstock (2002), individuals first hold absolutist beliefs about knowing. This means that knowledge is viewed as 'right or wrong'; it does not change and does not need to be examined because the 'right' information is transmitted from a source to the individual. Next, individuals with multipist epistemological beliefs consider knowledge to be based on personal opinions because they view it simply as absolute and transferable. From this perspective they believe knowledge can be constructed but that it is not necessary to base it on evidence. Knowledge for a person with such beliefs is considered to be personal, intuitive and unexamined. Finally, individuals with evaluativistic beliefs acknowledge that knowledge is personally constructed. However, an evaluator weighs up evidence to construct understanding. For a person with this perspective

knowledge is evolving, tentative and evidenced-based.

This individual approach to epistemology stands in contrast to the collective, communal epistemology of the Pacific. The personal epistemology research has also demonstrated that core beliefs about knowing and knowledge influence learning. Brownlee (2001) found that student teachers with evaluativistic beliefs were more likely to use deep approaches to learning that were focused on meaning-making. Relationships also exist between personal epistemology and teachers' beliefs about children's learning. Brownlee, Boulton-Lewis and Berthelsen (2008) showed that childcare workers' epistemological beliefs were related to beliefs about children's learning.

The current study was undertaken to determine beliefs about culture, learning, teaching and knowledge held by iTaukei and Indian Fijian primary teachers who were studying in the Bachelor of Education (B.Ed) Primary programme at a university in Fiji. Since there is a paucity of research literature in the area, this study was designed to contribute valuable information to build literature in this critical area of teacher training.

### **The Study<sup>1</sup>**

The following research questions helped guide the study:

- a. What are the cultural beliefs about learning?
- b. What are teachers' conceptions of children's/adults' learning?
- c. What is good teaching?
- d. What are teachers' beliefs about knowledge?
- e. Does children's culture influence your teaching?

A criterion-based sampling methodology was used for the study. A sample of in-service primary teachers enrolled in the degree programme was interviewed to establish the cultural views of learning, teaching and knowledge. The focus was on primary schools and teachers because that is where serviceable bridges should be created between dissonant cultural beliefs and where foundations are laid for further schooling.

<sup>1</sup> The study meets the technical requirements for doing ethical research with human participants and was approved by the University of the South Pacific's Postgraduate Research Committee.

### Sample

A purposive sampling technique was adopted for the study. Participants for the study were undertaking a flexi school at the USP's Lautoka Campus during the December 2012 holidays. The participants for the study included 21 Fijian and 29 Indian Fijian in-service teachers; by gender there were 28 females and 22 males. Their average teaching experience was 14.86 years. Twenty-four were from rural and 26 from urban schools nationwide. Sandberg (2000) suggests that for phenomenographic interviews, after 20 or so interviews the number of conceptions reaches saturation. Likewise, Douglas (1985) 'estimated that in-depth interviews with twenty-five people were necessary before he reached the saturation point' (cited in Maykut & Morehouse, 1994: 63). Lincoln and Guba (1985) suggested that a carefully selected sample of 12 would be sufficient. Based on these suggestions, samples included should be sufficient for an initial Fiji study. Hence, the numbers here allow issues to be identified for Fijian, Indo-Fijian, male and female teachers from rural and urban schools in Fiji.

### Interviews

The interview method was considered the most suitable means of gathering data for the study. Interviews, each lasting approximately 30 minutes, were audio-taped. Interview questions focused on ascertaining in-service teachers' perceptions on learning, teaching, culture and knowledge. The teachers were asked the following four sets of open-ended questions in individual semi-structured interviews:

1. How do you think children learn? Can you think of a time when you noticed a child had really learned something? Tell me about the best ways of learning for you? Is this how people generally learn in your culture?
2. What is good teaching? How does a good teacher want the students to learn? How can you help your students to achieve good learning outcomes?
3. What is knowledge? Why does that represent knowledge?
4. How do these beliefs influence your teaching?

### Analysis

The verbatim transcriptions of the tape-recorded interviews were analysed inductively using a thematic approach to investigate how student teachers' beliefs about culture, learning, teaching, and knowledge were described and manifested in their teaching. A within-case thematic analysis was used (Brownlee, et al., 2009; Johanson, Brownlee, Boulton-Lewis, et al., in press). Peer debriefing, in particular dialogic reliability checking, was used to ensure credibility of the data analysis by randomly selecting twenty interviews for detailed crosschecking. Dialogic reliability checking took place as the researchers checked through the codes for each of the twenty interviews, and then discussed any disagreements (Akerlind, 2005). When themes had been determined from these, the remaining interviews were searched for any additional themes and illustrative quotations.

### Results

It was possible to describe the emergent themes under four main headings: cultural and personal learning, children's learning, teaching, and beliefs about knowledge. Under the theme of cultural and personal learning descriptions of Fijian and Indo-Fijian learning, conflicts and the influence of technology are included. The theme about learning includes beliefs about how children learn. Teaching and beliefs about knowledge includes descriptions of approaches to teaching and technology and parent involvement. The final theme focuses on teachers beliefs about knowledge.

#### *Cultural and Personal Learning*

Teachers' views about learning are described in terms of their learning culture and also personal learning experiences.

##### *a. Cultural learning*

The descriptions teachers gave of learning in their culture were consistent to some extent with the predictions from literature. Most ethnic Fijian teachers described cultural ways of learning that depended on practical learning, on singing, on group discussions and consensus:

*In my culture ... people learn by doing... for example if you want to learn how to weave a mat you will first observe how it's done and then you yourself practice what you have seen, from continuous practice it becomes perfect. [222F]*

The Indo-Fijian teachers also described similar collaborative and practical ways of learning although these teachers were more likely to talk about learning individually as well and the importance of formal learning for them:

*We learn by interacting and reflecting and sharing... [38I]*

*In my culture I would say yes, because when they sit around ... attend special functions they talk about a whole lot of things. They sit after, you know after the programme the prog session is there, they sit and like talanoa? ... [65I]*

*Individual learning in particular. In our culture, there's a lot of respect on books and knowledge and they ask questions – they ask teachers in the classroom ... I learn a lot from my parents, the Indian culture, and children learn from religious leaders... [68I]*

Two of the quotations above show that as well as learning individually, in Indian culture and learning, books, knowledge, authorities and religion are important.

The next quotation raises an interesting point about the clash between learned religious beliefs and science concepts being taught in schools and universities:

*... it makes it hard for us to accept what is being taught because we have that is being laid as a foundation in our life, e.g., Science says that we come from animals and that what we learn from church and home is that what we believe is that God created us and it contradicts. (261F)*

The most interesting finding, however, in terms of culture, was that technology is influencing learning and teaching, and is also changing, in particular, some ethnic Fijian cultural ways of learning:

<sup>2</sup> *Talanoa* is a Fijian word for a discussion session.

*In the Fijian culture I think that learning as a group is what we adopt ... whereby in these modern times ... we are exposed to new technological advances [and] people tend to live individually and learning becomes like the computer is your friend. You learn anything from the computer, you just ask the computer, the internet and everything whatever you want to ask and the answer will be given to you. (74F)*

*Currently there is a mix ... in our [Fijian] culture now because there are some people using radio through changing and singing using Radio and TV. (73F)*

The last quotation is an acknowledgment of culture in transition and a mixing of old and new ways of learning of learning with technology.

#### *b. Personal learning.*

When teachers were asked how they personally went about learning, as might be expected, they generally described learning as it is reflected in their views of cultural learning. The personal way of learning most frequently mentioned by teachers, both ethnic Fijian and Indo-Fijian, was by interacting with others. This consisted of discussion in groups, asking fellow teachers and friends, and observing:

*Getting into group work, listening to other people's views and comparing them to mine. (62F)*

*Learn from other teachers. (60I)*

Interaction with others was often mixed with other means of learning such as searching the Internet, other electronic devices, resources such as books and notes, and asking a lecturer. In these situations there was an element of independent searching for information using a range of available means:

*With my group of friends for study, we all pitch in our ideas and opinions about questions and together find a better solution. If we have questions that we can't solve we either search it in the internet or we ask our Lecturers during class. (69I)*

A few teachers mentioned the process of application or reflecting on their own:

*And I just go into the library and sit down and study on my own and when I attend lectures then I know where are my weaknesses and I always concentrate well and then I do some practice with the problems and I am able to solve it, thus I know I have grasped the concept. (31F)*

Through all these responses, mention of technology as a way of independently finding and confirming information was frequent for all sub groups - Fijian, Indian, urban and rural teachers. This is summed up by the next quotation:

*I used to read [books] now I use the computer. (67F)*

In summary cultural and personal learning for most ethnic Fijians is practical in nature and takes place often in group settings. Indo-Fijian teachers described learning as both group and individual in nature. However, globalisation and technology are influencing the way both younger ethnic Fijians and Indo-Fijians are learning and allowing individuals to learn independently.

### *Children's Learning*

The teachers described children's learning as active and collaborative, and through imitation and being directed by others.

#### *a. Children's learning as active and collaborative*

Most of the teachers interviewed, both Fijian and Indo-Fijian, believed basically that children of the age they were teaching in primary school learned best by seeing, doing and listening, and particularly in group work. This represents a view that children should be active in their learning:

*Children learn by being actively involved ... learn by doing things ... learn from looking and their friends. (57F)*

There were modifications and additions to the idea of active learning through beliefs about seeing, doing and listening. One of the most interesting was the frequent mention of the influence and use of technology.

*Doing, listening and seeing ... every day in the morning I*

*ask the children, so one group is in charge of international news, one is for local, one is for sports, one is for weather, so they watch TV and they learn from the internet, gathering up all these news. (55I)*

*Students who have access to the internet at home, they come and share -- and I have been giving them some research work to go and do. (58F)*

#### *b. Children's learning through imitation and being directed.*

Some teachers believed in children learning through observation and being directed. This suggests a quantitative and hence transmissive approach to children learning by acquiring facts and skills. A few still held to the belief that learning was by 'imitation or cramming' (59F), 'taking notes, copying and imitating' (68I).

*Through experience, we have seen that children, they only learn when we teach them and ask if they have understood. (25I)*

*They can't learn individually, they need support. (35I)*

Teachers' views about children's learning as quantitative in nature were also evident in their responses about how they knew when learning had occurred. The most commonly expressed views of knowing that learning had occurred were by testing and observing performance or by children's affective behaviour. The testing and observation are objective, mostly teacher-centred ways, of determining whether children have achieved expected outcomes. Facial and other affective behaviours are subjective ways of determining whether the child seems to be happy with what was taught or learned.

*Can see they have learned when they follow correct procedures, e.g. in science experiments. (55I)*

*Know alphabets ... says I know how to do this. (58F)*

*By assessment and scaffolding. (61F)*

*Smile on his face, says he has done it on his own. (56F)*

In summary the predominant conception of children's learning involved children as active learners in, for example, group work, although imitation and being directed by others was also considered as an important way to learn. It is interesting to note that not all the teachers held views about children's learning that were consistent with their ideas about good teaching. There was obvious conflict in some of the interviews when they talked about good teaching; this is discussed below.

### *Teaching*

The views of teaching that emerged during the interviews included teacher-centred, mixed and child-centred approaches. The role of technology in teaching, and parent involvement in teaching were also discussed.

#### *a. Teacher-centred views about teaching.*

Many of the teachers talked about telling and transmission as constituting good teaching. The two quotations below are typical of a teacher-centred transmission view of teaching:

*Where you have achieved your outcomes and the children are happy. (54I)*

*Good teaching to me is when your student knows, understands and has grasped what you have been telling him. That's good teaching. (58F) 12*

#### *b. Mixed views about teaching.*

Many teachers held mixed views, which seemed to be conflicting. For example, one teacher indicated a transmissive view of teaching:

*Parents, they are depending on me to feed them [the children] with knowledge in school' (62F).*

This transmissive view conflicts with the teacher's view that learning is best through group work, socializing and interacting.

Another teacher indicated that 'good teaching is reflecting on

what we are doing and imparting to students' (38I). But this teacher also wants students to interact, talk a lot and share ideas.

#### *c. Teaching as child-centred.*

Other teachers' descriptions mention strategic variety: guiding children, group work, independent learning, changing teaching styles depending on what works, and teaching for values.

*I believe in the new teaching now where the teachers guide the children, lead them, trying to bring them from their learned knowledge so that we don't spoon-feed the children. (61F)*

*So a good teacher ... tries to create activities and group work that all individuals try and grasp knowledge. (24I)*

*Make the child learn the whole concept and also make the child to apply it to the real situations. Not only give the notes and let the children familiarize themselves, could they apply it also. (28I)*

In summary, the categories above indicate that teachers hold views ranging from teacher to child-centred conceptions of teaching and that some teachers hold mixed beliefs about teaching.

### *Technology and Teaching*

Many of the teachers noted the effect of aspects of technology on their teaching. Television, the internet, mobile phones and other technological devices are becoming more available in schools and communities, even in rural areas in Fiji. This is helping children to be innovative and to take greater charge of their own learning. It is also causing some teachers concern in that they are aware that children know more so they need to keep up and improve their teaching and make use of new technologies themselves:

*[This] new system is really helping us ... They have seen a programme, they have innovative ideas in their own programmes in their school and the exposure they get to ICT and innovation. (54I)*

*I used to tell the teachers, you upgrade yourself or your children will just go over you because they know lots and lots of things and you have to be far from them. (58F)*

*In older days teachers used blackboard and chalk method, now we have the use of internet and multimedia, where we slot in the USB and everything is shown on the projector. As we go on, our teaching and learning should be modified, we should be able to change in such a way that the child is able to learn more and come up with his own ideas. (60F)*

In summary, teaching was described in terms of the extent to which it was teacher-or child-centred with a focus mostly on child-centred perspectives. It is important to note that many teachers held mixed beliefs in both transmissive and child-centred approaches to teaching. The role of technology in helping children to become more independent and in challenging teachers' power in the classroom is also an interesting theme to emerge in this study.

#### *Beliefs about knowledge*

Beliefs about knowledge, or personal epistemology, were expressed mainly in terms of information or skills. These beliefs could probably be described as absolutist or pluralist (cf. Kunh & Weinstock, 2002). For example:

*Knowledge to me is to know all the information or how you handle information in this world. (59F)*

A few talked about understanding and researching ideas. The aspect of values was raised in terms of knowledge being power and precious. These few could probably be described as holding evaluativistic beliefs and would be more likely to focus on understanding and meaning-making in their teaching and learning:

*Knowledge is something that you know about an object, about a topic ... If you have any doubts, like I said, we can also do some extra research on that to check it out. (54I).*

Most of them also talked about functional aspects of knowledge in terms of survival, its use in everyday life, helping them to achieve goals, and affecting their work and future:

*Knowledge is something you like to acquire, from books, from teachers. You can enquire from the Internet and Libraries or information ... it is for a better life. (61F).*

*Knowledge is something that is precious, you carry it with you, and it'll help you to survive in this world ... that you carry with you and helps you to survive. (63F)*

*Knowledge is to have power. (74F)*

In summary, teachers described a range of personal epistemologies. Of interest is the strong focus on knowledge as it relates to survival. There is also some evidence of the influence of technology in the beliefs about knowledge when, for example, they talk about research, but it is not as evident as it is in their descriptions of children's learning.

#### *Discussion*

The findings from this pilot study present a fascinating hybrid of indigenous and western epistemologies: of traditional ethnic Fijian and Indo-Fijian culture, of changing views about learning and how these can be implemented in teaching. We argue that this hybrid indigenous epistemology 'bridges traditional and nontraditional forms of knowing' and in doing so helps to 'decolonize the mind and, even more, the heart' (Nabobo-Baba, 2006b: 8). This should promote effective teaching and learning in the classroom if the focus on indigenous epistemologies help to strengthen Fijian ways of knowing and knowledge (Nabobo-Baba, 2006b).

#### *Culture and learning*

Most of the Fijian teachers described cultural and personal learning that depended on practical learning, on singing, on group discussions and promoting consensus. The Indo-Fijian teachers were more likely to talk about learning individually as well and the importance of formal learning for them. Setuno (2004) indicated that in



Indo-Fijian culture education is respected and valued highly and parents believe that helping students to strive for academic excellence is important, whereas the focus for ethnic Fijians was on encouraging children to become good members of the community.

The teachers in this study believed that children in primary school learned best by seeing, doing and listening, and particularly through group work. However, some teachers believed in directing what the children should learn. Nabobo-Baba (2006b) also described learning through the senses (seeing, feeling etc.) and through direct transmission as important in indigenous epistemology. Some teachers' views about children's learning were at odds with their ideas about good teaching.

### *Teaching*

While most teachers described teaching as active and child-centred rather than transmissive in nature, many teachers held mixed views about teaching, which might suggest that a new hybrid epistemology is beginning to emerge. This hybrid reflects teachers' indigenous epistemologies of silence and transmission of knowledge (Nabobo-Baba, 2006b) mixed with the Western epistemologies that are more child-centred and active in nature. It may be important that these teachers reflect explicitly on their indigenous and Western views of knowing and knowledge to develop a new and hybrid philosophy of learning and teaching.

The influence of globalisation and technology was also noted in the study, even among rural children and teachers who might be expected to have limited access. The fact that some children can and do find information themselves allows them to be independent learners. This has become a cause of concern for some teachers, and motivation for others. The same may be true for parents, where they may find the need to keep abreast of technology and remain informed.

Luke (2005) suggested a need to shift our educational discourses to focus on critical analysis of global trends, especially as we try to blend Pacific and global ideas of teaching and learning. This calls for new teaching and learning styles where teacher authority may have to be increasingly shared with new 'techno advanced' kids in the classroom. New technologies are helping children to be innovative and to take charge of their own learning, and are perhaps reflected in the teachers' view of teaching as active and

child-centred. Some teachers are already expressing unease at the possibility that they are themselves falling behind in the race, unless they hone their own skills to benefit from the possibilities technology puts at their fingertips.

### *Beliefs about knowledge*

From their own epistemological perspective, most teachers described knowledge as a given (absolutist) or as personal perspective (subjectivist) in terms of information or skills (Kuhn & Weinstock, 2002). Some described knowledge as being about evaluating competing ideas, including research, which suggests an evaluativistic epistemology whereby they would be more likely to focus on helping children to construct their own understanding in the classroom. However, of interest is the strong focus on knowledge as it relates to survival.

Pacific epistemology is about 'a compelling need to develop and to master skills for preservation and lifelong survival', with education as 'a phenomenon that elevates social and economical mobility' (Phan, 2010: 420). This view of survival was also expressed by Thaman (2001), in terms of cultural survival.

### **Towards a Hybrid Epistemology: Western and Indigenous Epistemologies**

The results present a mixture of the old and the new: of traditional Fijian and Indian cultures, of changing views about learning and how these can be implemented in teaching. The influence of globalization and technology is strong, even among some rural children and teachers who might be expected to be limited in their access. This mixture of western and indigenous epistemologies might suggest an emerging hybrid epistemology, similar to Hahambu, Brownlee and Petriwskiy's (2012) notion of a culturally-connected perspective on teaching and learning in Papua New Guinea.

Fiji and Papua New Guinea indigenous epistemologies share some cultural similarities. Hahambu et al. (2012) show that elementary teacher educators held beliefs about teaching and learning that did not match with western epistemology being advocated in the elementary education reforms. This western epistemology is described as learner-centred or constructivist ways of knowing and learning (O'Sullivan, 2004). On the other hand, indigenous epistemologies

focuses more on what are described as learning-centred perspectives, in which directed teaching and active approaches are promoted, often with a focus on collaborative learning (O'Sullivan, 2004). Hahambu, et al., argue for a new epistemology for elementary education in Papua New Guinea, which they describe as a culturally-connected perspective of teaching and learning. This approach recognises both Western and indigenous perspectives and advocates a culturally sensitive way of knowing and learning that draws on both. They also argue that it is important to involve teacher educators in this process of creating a hybrid epistemology, by promoting explicit reflection on beliefs about teaching, learning and knowing.

It is important for indigenous epistemologies to be valued, particularly in the context of teacher education, in order for teachers to support this epistemological bridge between western and indigenous epistemologies. Student teachers should be encouraged to read about and reflect on what they believe about culture, teaching and learning, so that they develop an explicit epistemology that they can apply in practice. It is also important for teaching and learning at the university to make use of, and make evident, the resources available online. This should help teachers to feel more confident with e-technology, enthusiastic about using it in their teaching, and willing to encourage children to explore for themselves. Opportunities to provide and maintain technological equipment in schools should be utilized. Giving teachers and children access to online information should facilitate teaching and learning, and in some cases makes up for unavailable paper-based resources.

## References

- Akerlind, G. (2005). Variation and commonality in phenomenographic research methods. *Higher Education Research and Development*, 24(4), 321-334.
- Boulton-Lewis, G. M., Marton, F., Lewis, D. C., & Willis, L. A. (2004). A longitudinal study of learning for a group of indigenous Australian university students: Dissimilar concepts and strategies. *Higher Education*, 47(1), 91-112.
- Boulton-Lewis, G.M. (2004). Conceptions of teaching and learning at school and university: Similarities, differences, relationships and contextual factors. Invited article for Special Issue of *European Journal of School Psychology*, 21(1-2), 19-38.
- Boulton-Lewis, G.M., Lewis, D. & Willis, L. (2001). Changes in conceptions of learning for Indigenous Australian university students. *British Journal of Educational Psychology*, 71, 327-341.
- Brownlee, J. (2001). Knowing and learning in teacher education: A theoretical framework of core and peripheral epistemological beliefs. *Asia Pacific Journal of Teacher Education & Development*, 4(1), 167-190.
- Brownlee, J., Boulton-Lewis, G. & Berthelsen, D. (2008). Epistemological beliefs in child care: Implications for vocational education and course design. *British Journal of Educational Psychology*, 78, 457-471.
- Brownlee, J., Berthelsen, D., & Boulton-Lewis, G. (2010). Toward self-authorship in child care students: Implications for working with children and their families. In M. B. Baxter Magolda, E. G. Creamer & P. S. Meszaros (Eds.), *Development and assessment of self-authorship: Exploring the concept across cultures*. Sterling, VA: Stylus.
- Hahambu, C., Brownlee, J., & Petrivskij, A. (2012). Elementary teacher education in Papua New Guinea: Towards a culturally connected perspective of teaching. *Australian Journal of Teacher Education* 37(4), Article 8. Available at: <http://tro.econ.edu.au/ajter/vol37/iss4/8>.
- Chan, K. W., & Elliott, R. G. (2004). Relational analysis of personal epistemology and conceptions about teaching and learning. *Teaching and Teacher Education*, 20(8), 817-831.
- Dahin, B. & Regmi, M.P. (1995). Conceptions of learning among Nepali students. Paper presented at the 6<sup>th</sup> European Conference on Learning and Instruction in Nijmegen, the Netherlands, August 26-31.
- Hammer, D. (2003). Tapping epistemological resources for learning physics. *Journal of Learning Sciences*, 12(1), 53-91.
- Hofer, B., & Pintrich, P. R. (1997). The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning. *Review of Educational Research*, 67(1), 88-144.
- Kuhn, D., & Weinstock, M. (2002). What is epistemological thinking and why does it matter? In B. Hofer & P. Pintrich (Eds.), *Personal epistemology: The psychological beliefs about knowledge and knowing*. Mahwah, NJ: Lawrence Erlbaum.
- Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic Inquiry*. London: Sage Publications.
- Maykut, P., & Morehouse, R. (1994). *Beginning qualitative research: a philosophical and practical guide*. Washington, D.C.: Falmer Press
- Nabobo, U. (2001). Education and indigenous Fijians: Challenges – the year 2000 and beyond. *Direction: Journal of Educational Studies*, 23(1), 56-74.
- Nabobo-Baba, U. (2006a). Teacher education in the Pacific Islands: New landscapes and challenges-Where are we going? Paper published in the proceedings of APERA Conference 2006, 28-30 November, Hong Kong.
- Nabobo-Baba, U. (2006b). *Knowing and Learning: An Indigenous Fijian approach*. Suva: Institute of Pacific Studies, University of the South Pacific.
- O'Sullivan, M. (2004). The reconceptualisation of learner-centred approaches: A Namibian case study. *International Journal of Educational Development*, 24(6), 585-602.