Pacific–Asian

Education

PACIFIC CIRCLE CONSORTIUM

Pacific-Asian Education

Pacific-Asian Education

Volume 21, Number 2, 2009

CONTENTS

The articles in this issue of *Pacific/Asian Education* are drawn mainly from papers presented at the 32nd Annual Pacific Circle Consortium Conference held in Samoa in 2008. *Pacific Insights* is a collaborative work that began with the vision of the editorial team of Bridget O'Regan and Carol Mutch in Christchurch, New Zealand. We, the new editors from the University of Auckland, are very pleased to be involved in the final stages to bring this issue to publication. We would like to thank the authors for their patience and perseverance in bringing their stories, and voices of Pacific peoples to the printed page.

Yap's education system combines the old with the new

Suzanne Acord
College of Micronesia Yap Campus in the Federated States of Micronesia

Introduction

Twelve years have passed since I first arrived on Yap. I lived on the island from 1998-2000 as an eager and idealistic Peace Corps volunteer. I taught English and opened a library in the rural municipality of Maap. Maap School sits atop a green hill and overlooks the overwhelming Pacific Ocean. The hills are thick with coconut, papaya, mango, and pandanus trees. Stone money lined the front of the school and traditional huts provide shade during faculty meetings and lunch. Students filled the library during lunch and recess in their *thus* and bare feet. They mimicked my unusual American behaviors and giggled when I noticed. Coconuts were sold at recess to raise money for the school. Weekly culture days provided lessons on local agriculture, crafts, and traditional architecture. In the 1990s, I lived with host families, tended the taro patch, and pulled weeds from the village roads to experience Yapese culture. I arrive now under different circumstances. I have been tasked with training teachers from Yap and the outer islands of Yap at the College of Micronesia Yap Campus. Many of these teachers have years of teaching experience, but because of a new initiative in the Federated States of Micronesia (F.S.M.), they must return to school to earn their teaching certificate. Some are as bitter and exhausted as I was when I, too, returned to 'teacher school' under similar circumstances.

I was lured to Yap in the fall of 2010 by the thought of village schools, enthusiastic students, and teachers who are just trying to survive, like every other teacher in the world. I am humbled the first day of classes when I meet my students who have come as far as Woleai to meet the requirements of the education program. Some share that they have left their families and teaching positions hundreds of miles behind to take classes at the College. They arrive at class in their loincloths, lava lavas, and with giant woven baskets. I understand that they have no land on the main island of Yap, that they live in what is basically a shantytown provided by the Yapese. Their reefs, coconut trees, breadfruit trees, and banana trees are in Ifalik, Fais, and Ulithi. These trees in Yap do not belong to them. They belong to the Yapese, the people of mainland Yap. Teachers from the outer islands rely on canned foods and rice from the overpriced stores and sometimes from the kindness of landowning Yapese. Despite their years, sometimes decades, of teaching experience, they student teach in schools in Colonia, the only town in Yap. They are placed in Colonia because the village schools teach mostly in Yapese. Student bodies in Colonia consist of Yapese, Outer Island, Filipino, and a few American students. Hence, English is the primary language of instruction.

The teachers from mainland Yap are not finding the education program a breeze either.

They work during the day and attend school in the evenings. Taro patches and hungry families await the women who will steal a few moments of time in the evening to complete their course requirements. They spend the few cents they earn to take taxis to and from the evening classes that are miles from their villages.

On the first day of class, my students intently chew their betel nut even though it is prohibited in the classrooms. I already know that an attempt to ban betel nut is a losing battle, so I gently ask them to spit outside rather than in the trashcans. Some watch me introduce myself with skepticism, some with desperation, and others with curiosity. How strange I must seem to this wise and wide selection of teachers. My own insecurities lead me to believe that they are questioning my age, my ethnicity, my clothing, and my syllabus. I assure them that I seek to draw on their strengths and experiences throughout the semester. I share that I have taught in Yapese classrooms and that I have lived in the village. I express my empathy regarding the fact that numerous foreign powers have attempted to transform their culture and education system. One of those foreign powers is of course the U.S.A. The irony continues to unfold as I attempt to convince the students to accept me and trust me. Am I just another American attempting to Americanize Yapese schools? The teachers express great apprehension when they learn I will visit their schools to observe them, a key requirement of the program. I earn a few laughs when I share that I will attempt to blend in as much as possible in their classrooms.

If the teachers do not earn their certificates, they will lose their jobs. If the F.S.M. schools do not acquire accreditation, they will lose their funding from the U.S.A. Yes, *No Child Left Behind* (NCLB) has reached across the International Date Line into former U.S. territories. This fall, some schools will open, but without teachers. It is already a challenge to find qualified teachers to fill the many classrooms in Yap. Yap is considered very remote and teacher's pay is extremely low. State salaries were frozen over ten years ago due to the ongoing budget crisis. According to my teachers, a teacher's salary is around U.S.$300 a month. Some classrooms have no teachers. The students sit and wait for a teacher from a neighboring classroom to take attendance. What is to become of Yap's schools if the current teachers lose their jobs because of NCLB? Does the U.S.A. prefer a classroom with no teacher to a classroom with an under qualified teacher? This is one of the many dilemmas Yap's schools are facing today. That is where I am hoping to be useful. I need to somehow persuade my teachers to believe that our classes are worthwhile despite the time, distance, and effort involved. How can I do this while remaining sensitive to Yapese culture? After centuries of imperialism, the Yapese continue to speak their language, participate in traditional tasks, and value their strong sense of community.

In 2001 and 2006, I returned to Yap to carry out interviews and to explore Yap's archives. I interviewed members of the traditional councils, the former director of education, the director of the Historical Preservation Office, and I gained access to all resolutions passed in Yap's legislative branch. These resolutions were a rare and fortuitous find. My experiences in Yap's education system over the past decade, along with archival research and interviews, helped to devise my guiding question for this article: Why and how does Yap perpetuate tradition through a Western education system?

Foreign encroachment in Micronesia

This section examines the history of foreigners in Micronesia, specifically on education experiences under each imperial power. The Yapese, along with other Micronesian states, recognize the impact of imperialism on their cultures, as seen in their pursuit of independence and in their hybrid constitutions. While living in Yap, I became aware of the fact that the state of Yap uses law to maintain its rich culture. I ultimately came to understand that Yap uses Western legislation and traditional leaders to ensure that Yapese customs continue to flourish. This legislation includes stipulations to perpetuate tradition through the Western style education system. Whether or not everyone would like all traditions to flourish is another question. Members of the lower castes and the outer lying islands may well support the abolishment of many traditional discriminatory practices.

Is this new system an example of hybridity, which is often discussed by postcolonial theorists? Or is it simply a result of cultural change, natural changes that occur in every culture (Benhabib, 2006)? Postcolonial theorist, Homi Bhabha (1994), who coined the term *hybridity*, describes this heterogeneity as "the native rewriting of the colonial text, in those hybrid moments when the colonized produce not a copy of the original but misappropriate it, thereby…exposing its ambivalence, and denying its authority" (Prakash, 1997, p. 499).

Bhaba (1994) describes hybridity as "almost the same but not quite" (p. 123). Although the Constitution of the Federated States of Micronesia looks very similar to the U.S. Constitution, the integration of the protection of tradition and land is clear through numerous constitutional articles. Likewise, Yap adopted an American style for its constitution, but provided chiefs with ultimate authority. Although Edward Said describes all cultures as "hybrid, heterogeneous," it is obvious that the F.S.M. would not exist in its present form had it not been for American imperialism (Kennedy, 2000, p. 106). Yap adopted an American style for its constitution, but chiefs hold veto power over all legislation they deem to be inconsistent with traditional practices. Chiefs are from the highest castes and one may assume that these traditions are beneficial to maintaining chiefly power. To add, Yap's education system might appear to be Western from the eyes of an outsider, but the state managed to weave Yapese tradition into this system.

Yap, Kosrae, Pohnpei and Chuuk are member states of the F.S.M., but they each have their own distinct culture and language. While the F.S.M. consists of numerous cultures, traditions and languages, all of the states have undergone similar changes in culture and island life due to foreign occupations.

The Spanish occupation of the Caroline Islands began in the late 1800s and quickly took on a religious tone (Navy Department, 1948, p. 69). Pope Leo XIII eventually declared that Spain should rule the Carolines. Hence, Spain was the first official occupying force in Yap. In 1885 Spain raised its flag, but only ruled for 13 years (Boecker, 1993). Although the Spanish were not entirely welcome on Yap, a significant portion of Micronesians, especially the Yapese, were converted to Catholicism by the Spanish Missionaries. Lingenfelter (1975) estimates that 80% of the Yapese were converted to Catholicism. Today, American and Yapese priests preside over the Catholic

churches in Yap and provide sermons in English, Yapese, and the languages of the outer islands. One of the most prestigious K-8 schools in Yap is operated by the Catholic Church. This school, St. Mary's, encourages a form of syncretism that appears to be appreciated by some Yapese. The school perpetuates Yapese culture through the school and the attached church. The church holds a well-attended yearly Christmas Eve mass. Each Christmas a group of female dancers from alternating villages dances and chants a Christmas story in Yapese while wearing traditional attire. Christianity and more specifically, Catholicism, continue to play a significant role in Yapese society.

The Spanish occupation lasted until 1899 when the islands were sold to Germany (Boecker, 1993). According to a municipal chief of Gagil, the Germans divided mainland Yap into ten municipalities for administration purposes while disregarding local politics (F. Fithingmow, personal communication, 30 December, 2006). These municipalities still exist today, but three hold more power than the others. Prior to the German occupation, villages were frequently at war, which in turn gave castes more or less privilege. The caste system, which is still practised today, was frozen in time during the German administration (Fithingmow, 2006).

The Germans eventually lost control of the islands. A 1920 League of Nations Mandate gave control of the islands to Japan (Navy Department, 1948). Maria Leengrow from Maap, Yap recounts her life under the Japanese occupation:

> *The Japanese made us slaves. We all had certain work to be done each day and could not go home until we had finished. We had to grate copra from early morning, until we each had grated 75…. The soldiers were very hungry. Many would steal our food, usually from our garden or from around our house. (Boecker, 1993, p. 130)*

By the 1930s, Japan decided it best to implement a policy of assimilation throughout Micronesia. They attempted this through forced education, among other strategies (Peattie, 1998). The Japanese forced the Micronesians to attend school and to learn Japanese. Only a very elementary education, consisting mostly of Japanese language, would be provided to the Micronesians, while Japanese students received an education comparable to that of students in Japan (Peattie, 1998). Parents were beaten by school officials if their children were truant from school or underperforming (B. Minginug, personal communication, 29 December, 2006). The most infamous of the Japanese schools was located in the village of Makiy. All students were required to shave their heads to attend and were physically punished for a variety of reasons. Students at this school attended formal schooling in the mornings and were required to garden and make handicrafts in the afternoons and on weekends. The produce and handicrafts were later sold to the Japanese. Some students lived in dorms while others walked many miles each way to acquire their mandatory education. Children from the neighboring islands were forced to move to mainland Yap to attend school (Boecker, 1993).

Japan's loss of the islands was envisioned by the international community as early as 1943 when the Cairo Declaration of December 1943 was signed by the U.S., the U.K., China, and the Soviet Union. In 1947, the United Nations Security Council created what was then known as the Trust Territory of the Pacific Islands ([TTPI] Navy

Department, 1948). The Micronesians viewed World War II as a war of liberation. Most were thrilled that the Japanese regime had come to an end, but they also realized that they were not completely released from colonial rule (Heine, 1974).

The TTPI consisted of the Caroline Islands, the Marshall Islands and the Northern Mariana Islands. The United States Navy was tasked with administering the TTPI. The primary purpose of this endeavor was to "secure Western borders" (Navy Department, 1948, p. 1). Micronesians were never consulted regarding who would rule the islands, as was the case during the Spanish, German, and Japanese administrations. In dé Ishtar's words, "the spoils of war were divided up amongst the victors…without consultation, consideration" (1994, p. 19). Throughout America's reign, Micronesians continued to grow resentful of policies made without the consent of the islanders (Heine, 1974, p. 62).

In 1966, Peace Corps volunteers inundated the islands with English teachers and lawyers to contribute to the Westernization of the islands. The lawyers assisted the new legislative branch and the teachers taught the Micronesians their new national language, English. The TTPI government hoped that the volunteers would be an example of the benefits of democracy (Boecker, 1993). Other teachers and principals were brought in by the TTPI to open and operate American style schools. These schools taught English, Western history, science, math, and American table manners to help prepare students for college (Boecker, 1993). As is the case in many Yapese classrooms today, the structure of the education system seemed to lack relevance to Yapese culture. The controversial Solomon Report (1963) points out that the expansion of the secondary education system in the islands would encourage the islanders to go to college, rather than to "return to their primitive outlying lands" (p. S26).

Tradition in a Western model

What is the most positive characteristic of the F.S.M. constitution? I asked F.S.M. Senator Figir this question. He was elected to the F.S.M. Legislature in 1983. Prior to serving as Senator, he served on the Future Political Status Commission that would ultimately negotiate the Compact of Free Association. To Figir, the F.S.M. constitution's most positive characteristic is its blend of Western and traditional law.

Today, a national chamber of chiefs does not exist, but Yap did create its own chambers for traditional leaders. Article III of the Yap State Constitution calls for a council of chiefs with two chambers; one represents the main island and one represents the outer lying atolls. These chiefs exercise executive, judicial, and legislative powers relating to tradition. The chambers have complete veto power over all legislation that pertains to or that may affect Yapese tradition. Traditional chiefs from each municipality sit on each council while also maintaining their obligations in their municipalities.

Yap attempts to maintain tradition

Yap State Legislator and former Yap Department of Education Director, Henry Falan (personal communication, 20 December, 2006), states

> *When the two cultures [Yapese and American] came together, was*
> *an invitation for change. One school of thought is that tradition is*
> *better…but to me the best is the best of both. The difficulty comes in*

> *[deciding] what do we keep and what do we use. And then we end up debating over petty little things. We should employ the global thinking and implement local actions. Yap can no longer be Yap by itself. The world is one and we are all a part of it.*

These actions were, indeed, taken by Yap in the creation of Yap State. Yap held a constitutional convention in 1982. Falmag, the high chief of Gagil and participant in the constitutional convention, expressed that Yap had a hand in the past and a hand in the future. He encouraged the delegates to be sensitive when borrowing from the outside world. These remarks helped to set the tone of the constitutional convention (D. Foley, personal communication, 28 February, 2007). Tradition and education are two topics that were discussed passionately throughout the constitutional convention. Both later made their way into the Yap State Constitution. Article III provides stipulations to protect Yapese traditions and customs. Article XII goes on to state "traditions and customs of the people of this state shall be taught in public schools as provided by law."

Yapese education systems

As is the case in all cultures, Yapese culture is constantly changing. Education practices are changing, too. Throughout their history, the Yapese have passed down genealogy, history, traditions, and skills orally through dances, stories, and hands-on experiences. Yap Day, a state holiday, is a perfect example of these practices. Dancers from the island's villages dance and chant for two days to celebrate Yapese culture. Citizens from the outer islands do not participate in Yap Day because they are not considered Yapese despite their islands' inclusion in the political state.

Another example of this sharing of knowledge involves menstruation practices, which some have labeled "menstruation taboos." Some believe that menstruation practices represent the "inferiority of women" (Sanday, 1981, p. 91). In Micronesia at least, these are misunderstood practices to outsiders. For example, a picture of two women peeking out of a Micronesian menstruation house is posted on the Micronesian Seminar website, a site that provides information on Micronesian issues, culture and history. The caption for the photo states that women went to these houses to "spare them the embarrassment of showing signs of their condition in front of their brothers." If one looks more closely at these practices in Yap, one can see that women benefited from these practices. Women who were menstruating or who had just given birth were cared for at the village menstruation huts. In the huts, older women would teach younger women relevant skills and would share stories with them. Women would be taught their role in society, how to weave, how to garden, and just about anything else pertaining to women, according to Yapese woman, Bernie Minginug. The use of menstruation huts began decreasing once women began working day jobs outside the village. Time away at the menstruation house was not conducive to forty-hour work and school weeks ((B. Minginug, personal communication, 29 December, 2006).

In Yap, these practices allowed women to pass down knowledge and maintain their health. It is my belief that traditions express and perpetuate values. Is more value

now placed on a forty-hour workweek and a cash economy than on the importance of menstruation practices? Is this a result of a lack of respect for women's societal roles? If so, why aren't women encouraging the chiefs to reinstitute these practices? Perhaps, they too, value their new cash economy. During a social studies education activity, I asked my students to discuss what they believe to be the most significant invention in history. Most responded with, 'electricity'. Electricity is certainly useful for cooking and doing laundry, but paying the extremely expensive electricity bills requires a paycheck. I previously assumed that women's new ability to gain and education and pay the bills would bring them more prestige in the family, but I will prove this assumption wrong in a later section of this article.

Historically, Yapese boys learned skills in a similar manner. They would congregate at canoe houses and men's houses to learn how to fish, build, carve canoes, and weave fishing nets. Knowledge was passed down from the men to the boys. Men's houses are sometimes used for community meetings today, but these meeting places are no longer popular hangouts for boys (Buchun, interview, 2006).

Education in Yap today

Upon arrival to Maap Community School in 1998, I did not immediately realize just how different my school weeks would be from those in the U.S. The students' first language was Yapese and many wore traditional attire. However, my classroom looked very similar to an American classroom. It was furnished with student desks, books, a teacher's desk, a chalkboard, and an overhead projector. Students take the core American academic classes and use textbooks created in the U.S.A. I worked in the library, taught English, and monitored a computer lab with ten new computers. A principal oversaw a team of fourteen teachers and the bell rang throughout the day. When I arrived at school on Friday during the first week, I quickly understood that the school structure transformed each Friday. On Fridays, Maap students participated in culture day where gender and age specific activities were carried out throughout the day. Culture day taught young Yapese traditional skills using island resources as required by the Yap State Constitution. While working at Maap Community School, I observed students learning how to garden, how to construct traditional houses, and how to weave leis and baskets. It was obvious that the state was putting forth effort to create cultural activities as well as Yapese books in the official languages of Yap. Texts in the vernacular have been developed, but this is a challenge because Yap uses five official languages. These books can still be found in classrooms around the state, but those created in the late 1990s are the only culturally relevant books I have seen in classrooms.

As Yap's Director of Education, Henry Falan (personal communication, 21 July, 2008) felt a strong need to indigenize the American style school system. Falan envisioned and later organized a summit that sought to draw on traditional knowledge and leaders to create a culturally relevant curriculum for Yapese students. The summit brought together teachers, chiefs, linguists, and principals who envisioned a Life Arts program for the schools. Life Arts teaches cultural survival skills, taboos, gender roles, how to act respectfully, how the caste system is organized, and local agriculture. First graders, for example, are taught how to respectfully walk through a village. A respectful Yapese

carries a local basket or a twig that signifies peace. The Yapese walk in a single file line and men always precede the women and children.

Traditional leaders, curriculum specialists, and local artists developed a scope and sequence, books, and educational materials. Teachers are provided with teacher friendly materials for their classrooms that include objectives, lesson plans, and suggested activities. Daily Yapese life is depicted in the Life Arts program through watercolor paintings, drawings and Yapese text. This curriculum is surely more relevant to a Yapese child than textbooks created in the U.S.A. The DOE successfully created Life Arts programs through the fourth grade. These efforts were halted when the new governor ousted Falan as Director of Education (Falan, interview, 2008). Today, Life Arts is a subject that is taught daily just as math and social studies are part of the daily schedule. The schools no longer hold culture day on Friday. Instead, students learn cultural skills Monday through Friday and presumably in their villages.

As mentioned earlier, the idea of incorporating culture into the Western style school system was discussed as far back as the Yap constitutional convention. Constitutional convention delegates were concerned that the Western education system was overshadowing traditional Yapese learning. The delegates did not feel as though the DOE had "done enough to teach our children our traditions and traditional technology" (Standing Committee Report, 1982). Delegates also recognized that "teaching traditional skills is crucial to our survival [such as] traditional medicines, navigation, building of fishing traps and the weaving of baskets" (Yap Constitutional Convention Standing Committee Report, 1982).

Yapese villagers can survive using only traditional practices, although the value of Western items continues to increase. The stores and streets always seem to be busier on payday. One of my English students at Maap Community School consistently struggled during our lessons, but according to his classmates and teachers, he was an excellent fisherman and hunter. These skills were valued during our weekly culture days, but were unfortunately not considered crucial during the school's Monday through Thursday activities. I encouraged him to draw on his village experiences during our writing activities, which seemed to keep him interested. The Life Arts program attempts to do just this, increase student achievement in the classroom and village through culturally relevant lessons.

It is now 2010, and I once again seek to contribute to a culturally appropriate curriculum through the educational methods courses I teach at the College of Micronesia. My syllabi require teachers to consider the use of culturally relevant resources in their lessons. In our practicum course, teachers brought and discussed Yapese games, a miniature canoe, local rope, Yapese legends, local flowers, and diagrams of coconut trees. My students explained how the items would be incorporated into their own lessons. I am amazed by the creativity expressed in our college courses, but I am saddened when I observe the teachers in their own classrooms only to find that despite their obvious creativity, they revert back to lectures and rote memorization. The transference between what is discussed in our college classes and what is practised in the field is often conflicting. Teachers in the U.S.A. and in the F.S.M. learn how to create meaningful and engaging classroom environments, but their lack of confidence

and what they believe to be their level of competence prevent them from doing so (J. Kongsvick, personal communication, 6 December, 2010). I have been aware of this dilemma since my first year as a teacher. I initially believed that if I model collaborative, thought provoking lessons for my students, they would then be more willing to incorporate these nontraditional ideas into their lessons. This, unfortunately, is not always the reality in either the U.S.A. or the F.S.M.

The integration of culture into a system modeled after the American school system seems to be accepted by most Yapese. It is obvious that within this hybrid system, conflicts between the old and the new do exist. As an instructor, I have been encouraged to overlook tardy and absent students. The college wants to educate its students in a school that provides internationally recognized transcripts, yet it discourages international norms in academia. I realize that I may be culturally insensitive when marking a student tardy and I may even be reprimanded for doing so, but I choose to honor the meaning of a grade on a transcript given that I am a college instructor. The lack of emphasis on time creates numerous challenges for instructors. Required textbooks are ordered after the semester begins, teacher schedules are created with little time to craft syllabi, and many hours of instruction are lost throughout the semester. The college is not isolated in underemphasizing the importance of time. Students and educators throughout the state disregard the clock. Many of my observations of Yapese living and attending school in the U.S.A. have convinced me that most Yapese students are not prepared for an education or employment abroad. They face tardy and absentee challenges at schools and jobs that require attendance. Students can earn an associate's degree in Yap, but they must leave the island to further their education. Hence, they must interact with the outside world if they would like to improve Yap's infrastructure.

Democracy and education

Prior to my 2006 trip, I was convinced that Yap adopted a Western style government and education system to ensure its release from foreign occupation. I could not imagine why Yap would try to find any other use for these systems. When I learned that a council of chiefs was added as a fourth branch of government, I figured this was Yap's way of manipulating this American style government to meet traditional needs. I never imagined that the Yapese actually value Western introductions. However, after interviews with Henry Falan and numerous Yapese women, I realized that some Yapese appreciate the new democratic government and education system. The new systems allow the lower caste and women to directly participate in education, and consequently, the government. Henry Falan's family is not from one of the ruling castes, but he was elected to the legislature and, thus, makes statewide decisions. Women do not officially attend village meetings, but they do officially vote in state elections and can serve in government office. Henry Falan was the first to debunk my earlier assumptions and soon the women I interviewed confirmed that this American style democracy and Western education system do indeed benefit many Yapese.

The written word was eventually valued in Yap, along with Western education. Today textbooks are used and the new Western laws are on paper. A Western college education is now sought after by Micronesians wishing to gain "admission into a new world in

which power, wealth, and comfort are available to all' (Heine, 1974, pp. 37-38).

Some Yapese return to Yap with college degrees, but those who are low caste are rarely compensated fairly for their skills. Henry Falan describes one scenario where an outer island man returned to Yap after many years of training to be a brain surgeon. The government, however, would not pay him what a mainland Yapese would be paid for the same position because he is from the outer islands. He, therefore, sought work elsewhere. I see this discrimination daily when observing my teachers from the outer islands in Colonia. Mentor teachers are usually Yapese and student bodies consist of Yapese students who have been programmed throughout their short lives to believe that people from the outer islands are inferior to mainland Yapese. The disrespect toward these teachers is obvious. These effective teachers are more than ready to head home to their own islands to teach while teachers on mainland Yap will continue to be in short supply.

Yapese women who live outside Yap openly discussed their unwillingness to return to their homeland. Yapese women cook, garden, clean the village, care for the children, and work a full day for the government or small store. They carry a great burden in Yap, even more so now because of their day jobs. In spite of their efforts, domestic abuse is on the rise and they often receive little help from their husbands. Some Yapese women who do not move abroad refuse to get married because of women's increasing hardships.

Inequality is just one factor leading to Yap's brain drain (H. Falan, personal communication, 20 December, 2006). Many Pacific islands are experiencing this brain drain, which dé Ishtar (1994) describes as being common throughout the Pacific. Pacific islanders are leaving their islands to gain an education and employment in the land of the colonizers. Dé Ishtar asserts that some return to better their country, but most stay abroad.

Education in Yap is compulsory through the eighth grade, but many choose to finish high school. Some go on to the College of Micronesia and others leave the F.S.M. to continue their education. Throughout the F.S.M., high school students and community members are encouraged to take the COMET, the college entrance exam in the F.S.M. The college organizes preparation workshops and advertises the test on the radio stations. Students use their PELL grants to pay their tuition and fees.

However, it appears that there just are not enough jobs to accommodate all of the newly educated. While a Western education is an asset to many, the Yapese undoubtedly use their skills learned on culture day and through family chores more frequently than their high school diploma. One can still survive in Yap through subsistence living. Fishing, gardening, raising pigs, and building thatched roof houses are weekly, if not daily, traditional tasks that are practised in Yap. However, our interdependent world now requires additional knowledge from those wishing to do business with the world. Perhaps a Western education is also necessary to maintain sovereignty.

As an instructor at the College of Micronesia, I seek to learn how to incorporate the old and the new in our college classrooms. I seek to better understand Yapese culture during field observations with teachers. I yearn for my teachers to bring their languages and traditions into the classroom. Like state leaders, I painstakingly pick and choose the

traditions I believe will strengthen our lessons. I do not support discrimination against women or amongst castes in my classes, but I do encourage students to draw on their local resources and talents.

The Yapese have experienced imperialism, destruction, and an influx of Westernization over the past few hundred years at the hands of foreign powers. Yet, the Yapese converse and share traditions in Yapese and continue to value Yapese customs. Yap's political and education systems protect tradition, but at the same time allow non-traditional leaders access to new leadership positions, combining the old with the new. In Henry Falan's words, "the best is the best of both" (personal communication, 20 December, 2006). While I agree with Falan, I wonder who decides what the 'best' is?

References

Benhabib, S. (2006). The claims of culture properly interpreted: Response to Nikolas Kompridis. *Political Theory*, *34*(3), 383-388.

Bhabha, H.K. (1994). *The location of culture*. London: Routledge.

Boecker, R. R. (1993). *Yap State History*. Colonia, Yap: Yap State Department of Education.

Constitution of the Federated States of Micronesia. Retrieved from: http://www.fsmlaw.org/fsm/constitution/constitution.htm

Constitution of the State of Yap. Retrieved from: http://www.fsmlaw.org/yap/constitution/index.htm

dé Ishtar, Z. (1994). *Daughters of the Pacific.* Australia: Pinifex.

Heine, C. (1974). *Micronesia at the crossroads: A reappraisal of the Micronesian political dilemma.* Honolulu, HI: University of Hawaii Press.

Kennedy, V. (2000). *Edward Said: A critical introduction.* Polity Press: Cambridge.

Lingenfelter, S. (1975). *Yap: Political leadership and culture change in an island society.* Honolulu, HI: The University Press of Hawaii.

Micronesian Seminar. (n.d.). *Life 100 years ago.* http://www.micsem.org/photos/life_100/07.htm

Navy Department. (1948). *Handbook on the Trust Territory of the Pacific Islands.* Annapolis, MD: Hoover Institute.

Peattie, M. R. (1998). *Nan'yo: The rise and fall of the Japanese in Micronesia, 1885-1945.* Honolulu, HI: University of Hawaii Press.

Prakash, G. (1997). Postcolonial criticism and Indian historiography. In A. McClintock, A. Mufti, & E. Shohat (Eds.), *Dangerous liaisons: Gender, nation, and postcolonial perspectives* (pp. 491-500). Minneapolis, MN: University of Minnesota Press.

Sanday, P. R. (1981). *Female power and male dominance: On the origins of sexual inequality.* Cambridge: Cambridge University Press.

Solomon Report. (1963). A report by the U.S. government survey mission to the Trust Territory of the Pacific Islands. Washington, DC: US Government.

Yap Constitutional Convention Standing Committee Report. (1982). No. 34, 15 April.

Literacy begins in the fale

Judy Pouono
National University of Samoa

Abstract

The problem of illiteracy is of growing international concern in Samoa as elsewhere. This article demonstrates that selected family members of a *fale* (traditional Samoan family residence), can be trained to begin the learning process in oral and writing skills with young children, both in English and Samoan. In addition, the *matai* (chiefs) who are responsible for family and village affairs, can be the facilitators of this sustainable project in their own families first, then their designated districts, where young and old alike can learn from each other in familiar settings.

Introduction

In Samoa, almost every family owns a *fale* (a traditional house). Its usual shape is oval, but some are rectangular. There are many posts representing the many branches of the extended family. Samoan protocol demands that one knows where to sit. The *fale* is open, with no windows or doors: no secrets are kept there. One is free to enter or leave as one pleases. It is the meeting place for residents and guests alike; living room; dining area; banquet hall; family entertainment or recreational arena; or, when the stars dot the heavens, the sleeping quarters of those who dwell within. Now I add another function: a literacy centre of excellence.

My interest in literacy issues began more that thirty years ago in my home country of Trinidad and Tobago when I discovered that one of my surrogate grandmothers could neither read nor write. What I found most humiliating was the fact that some of my peers were laughing hysterically at this matriarch of the family who was reading a copy of our daily newspaper upside down. Mummy K always spoke to us in perfect English, so I was utterly devastated when I discovered that dark secret. To add insult to injury, some of her children were teachers. I often wonder what alternative choices she would have made had she been able to read and write.

My late father told another interesting but sad story about illiteracy. During a discussion on banking services, he mentioned that he left a particular bank because, while waiting in the queue one day, he overheard a teller abusing an older client because he could not sign his name; all he was able to do was mark an 'X.' When he reached the teller, my father told him that he wanted to close his account and take the funds to the bank next door. The alarmed teller referred the matter to the manager. This happened in the 1940s and in those days, such actions were seen as slightly radical. When the

manager asked my father the reasons for his sudden decision, he replied "It is not these poor people's fault that they cannot read and write. If you explain the transactions to them, they would understand. Some of them did not choose to be illiterate." While the two individuals I have written about were able to survive, I am sure that something was missing in their lives, but at that time, their survival did not depend on literacy as we know it now. However, today's world paints a totally different picture.

In December 2003, I visited my homeland of Trinidad and Tobago after an absence of thirteen and a half years, and I was impressed with the television advertisement showing a woman in her late thirties who was telling her audience that her life had been at a standstill because she could not read and write. She sought the assistance of the friendly literacy centre in her area, had just completed her Caribbean Examinations Council Examinations (CXC, formerly called "O" Levels from the University of Cambridge), and was now on her way to begin formal classes in nursing: a career that was going to change her life forever. She was also advising the young and the old to visit their literacy centres if they felt that they had problems. In an informal discussion with Mrs Jessie Kesraj, a retired primary school principal who tutors at a centre, she confirmed that the centres were really making a difference in the lives of those who wanted to pursue lifelong ambitions. She added that centres were set up so that they were within the reach of the local residents, though some chose to go to a nearby village if they felt slightly embarrassed by learning to read at a later age. It is my view that establishing literacy centres can be established here in Samoa but in a slightly different way.

The focus of this article is to show that in Samoa the literacy centre can be the family *fale,* and that supplementary work can be done there to improve literacy skills in English and Samoan, thereby improving the quality of life and choices for many in this country. In this way, the extended family unit can provide a strong foundation for developing literacy.

In order to appreciate this article, it is necessary to look at the history of the islands, the socio-economic status, the political makeup, and the educational sector as well as the major cultural changes that are affecting the country and which could have an adverse impact on the nation as a whole, if left unattended. I will use some of my teaching experiences here in Samoa to elaborate on various points. This article is intended for anyone who is interested in literacy issues, and I hope that the ideas discussed here spark discussion about ways to move forward.

The *Samoa National Human Development Report* (So'o, Va'a, & Lafotanoa, 2006) describes Samoa as "a group of volcanic islands which extend for 362 kilometres on an east-west line in the central Pacific in an area bounded by latitudes 13 and 15 degrees south and longitudes 168 and 173 degrees west" (p. 23). Samoa is made up of two large islands, Upolu and Savaii. Upolu is 1,114 square kilometres, while Savaii, also called the "Big Island", is 1,820 square kilometres. In addition are two smaller islands, Apolima and Manono (Meleisea, 1987a cited in Faoagali, 2005, p.16).

The population of the country is 176,710, with 52% males and 48% females. The per capita income was USD$2, 200 in 2004. Twenty-two percent of the total population live in the Apia Urban Area, while 29.8% reside in the North West of Upolu. Those living in

the rest of Upolu make up 23.7%, while 24% make Savaii their domain. The age groups are as follows: 54.7% are aged between 15–64 years, while 40.7% are between the ages of 0–14 years. The group 65 years and over makes up 4.5% (So'o et al., 2006).

The people of these islands have a homogenous language and culture and any variations in such are hardly recognizable to be of any significance. Of the total population in 2001, 99 percent identified themselves as Samoans, the other 1 percent were non-Samoans. (So'o et al., 2006, p. 23)

Samoa gained independence from New Zealand in 1962, after being ruled first by the Germans from 1900–1914 and then by New Zealand from 1914–1962 (Ioka, 1995). A visitor travelling to Samoa can still see the remnants of German rule in the architectural style of some of the prominent buildings in town or residential dwellings on the outskirts. The profound influence of New Zealand can be also seen in the education sector, as during the 1960s to the 1990s, great strides were made in education to cater for the needs of a growing population (Ioka, 1995). New Zealand has had a dominant input and impact on the educational curriculum of the country, and continues to do so up to the present time. Between 2001-2004, for example, the New Zealand Government, through NZAid, provided NZ$6 million for secondary curriculum revision, materials production, and teacher training.

Samoa has two official languages: Samoan and English. English is used mainly in tourism, trade, business, and in education, while Samoan is used for communication, cultural and traditional ceremonies. It must be emphasised that as a country, Samoa does many things using its own set of norms, values, and traditions. Traditional Samoan society is made up of family groups who live in villages, and these villages make up districts. Each district has a group of *matai*, who are the key decision makers for all village affairs: "village health, education and development programs" (Ioka, 1995, p. 10). The lifestyle is communal, where group decisions are made. In addition, there is also an oral tradition where information, including extended family genealogies, is disseminated by word of mouth. Wendt (1989) explains "the individual … was inseparable from the (family) *aiga*/village/tribe, which were inseparable from … the universe" (cited in Ioka, 1995, p. 14).

Samoa has a Westminster system of government. In 1991, universal suffrage allowed anyone over 21 to vote. However, only the *matai* can stand as prospective Members of Parliament. There are 49 seats in the legislative assembly, with two for individual voters who represent the interest of the descendants of non-Samoans. There is a Criminal court and a Lands and Titles court, the latter catering for disputes involving customary lands and family titles. "The Constitution … blends custom and tradition, and democratic institutions and practices" (So'o et al., 2006, p. 27). Conflicts may arise when village rules clash with the established laws of the country.

The United Nations has classified Samoa as a developing country. The nation depends heavily on remittances from its people residing abroad, overseas government loans and foreign aid. "Unemployment is on the rise, especially for young people … [It is] difficult to measure unemployment in Samoa because a lot of excess labour is absorbed by the subsistence sector" *(So'o et al., 2006, p. 29).*

Children begin primary school at age five before moving on to secondary school at

about twelve years of age. Parents choose from government, denominational, or private schools, with the choice depending on location, religion, family tradition, examination results, and the quality of teaching or financial resources available. Many students attend the foundation year at the National University of Samoa if they are successful at the Pacific Secondary School Certificate (PSSC) examination. At the end of their foundation year, some students may go on to attend universities in New Zealand, Australia, Fiji, or in a few cases, the United States of America, China, or Japan. This is part of the aid packages by way of scholarships given to the country by donors for the improvement of Samoa's human resources in the hope that the successful graduates will make a positive contribution to their country.

There are problems, however, in academic achievement. The four types of assessment used are the Samoa Primary Educational Literacy Level (SPELL) tests at Years 4 and 6, the National Examinations at the end of Year 8, the Samoa School Certificate at the end of Year 12, and the regional Pacific Senior Secondary Certificate (PSSC) examination in Year 13 (So'o et al., 2006). The PSSC is administered by the South Pacific Board of Educational Assessment, located in Fiji. The results of these examinations have been reviewed in the Samoa National Human Development Report (So'o et al., 2006). In the last five years, examination results in the SPELL tests as well as the Year 8 and Year 12 exams have declined. The quality of teaching, inadequate teaching resources and minimal support for teachers are related and may be causal factors. The quality of assessment in terms of validity and reliability may be other important factors. There is clearly a need to obtain the best answers to these questions through research and policy. (p. 83)

The following tables shows statistics relate to these declining results. The figures indicate the percentages of students who are considered to be at risk.

Table 1: SPELL One Test, English language results

Year	Boys at Risk	Girls at Risk
2000	29%	17%
2001	18%	11%
2002	55%	41%
2003	61%	41%
2004	19%	8%
2005	19%	7%

Table 2: SPELL One Test, Samoan language results

Year	Boys at Risk	Girls at Risk
2000	40%	26%
2001	26%	15%
2002	40%	23%
2003	39%	20%
2004	39%	19%
2005	33%	13%

The SPELL One test is administered to Year 4 students in all Government schools. The test is optional for non-Government schools, but many choose to participate (Ministry of Education, Sport and Culture, 2004a, Part 2, p. 3*)*.

The next set of tables shows comparable results for the SPELL Two test administered in Year 6, and the SSC test administered in Year 12.

Table 3: SPELL Two Test, English Language Results

Year	Boys at Risk	Girls at Risk
2000	51%	35%
2001	60%	36%
2002	63%	38%
2003	68%	42%
2004	69%	44%
2005	69%	45%

Table 4: SPELL Two Test, Samoan Language Results

Year	Boys at Risk	Girls at Risk
2000	24%	11%
2001	23%	10%
2002	27%	11%
2003	24%	7%
2004	17%	12%
2005	18%	7%

Table 5: Year 12 SSC Test, English Language Results

Year	Students at Risk
2000	31%
2001	35%
2002	31%
2003	33%
2004	35%
2005	37%

(Ministry of Education, Sport and Culture, Education Statistical Digest, 2004a, Part 2, p. 4).

It is clear from these statistics that there are problems requiring urgent attention with literacy in school children. Afamasaga (So'o et al., 2006) suggests that while teachers and teaching are central to the quality of any education system, there has been a gross shortage of teachers in school. This could be one of the reasons why students are not getting the attention that they require.

One of the courses offered at the National University of Samoa, is a course entitled *Children's and Young Adults' Literature*. The main purpose of this course is to introduce students to books designed for children and young adults to encourage them to begin reading at an early age and to continue reading throughout their lives.

Approximately 90% of my students are teachers. They range in age and study either full-time or part-time. During discussions regarding problems with reading, they stated that there are many problems, not least of which is that there is a lack of reading material, especially in government schools; some teachers still write on large sheets of paper from which the class reads. In addition, owing to class size, it is impossible to facilitate individual daily reading.

Parents, families, and communities are very proud of their students when they achieve academically, but the students do not have enough support when they go home, in the form of time for additional reading or studying, for example. Additionally, financial constraints and parental attitudes factor prominently in reading skills acquisition. For example, parents do not read to children, as there are no books in the home due to lack of financial resources; cultural obligations often take priority over books. Furthermore, parents feel that it is the responsibility of the teacher to teach reading. Parents do not read because their parents did not read to them, and parents do not see reading as necessary for future employment.

Other contributing factors to the reading problem are that some students do not acquire necessary reading skills because of poor attendance, and pastors' schools do not offer additional reading as done in the past. During other research I conducted recently (Alexander-Pouono, 2005), some of the significant findings were there are few fluent English speakers in the household to assist with reading homework; girls are better readers than boys; there is little time to complete academic assignments due to the number of chores children have to do, those students found reading are often sent to perform extra chores (if you have time to read, you have time to work).

According to Baker (2001),

> *literacy is regarded as a central foundation for personal and*
> *national development . . . to cultivate values, norms of behaviour and*
> *morals, . . . develop powers of thinking and reasoning, enculturate,*
> *emancipate and empower, . . . develop critical awareness, . . . be*
> *central to academic success . . . [and is] regarded as a major key*
> *to self-advancement as well as community group and individual*
> *empowerment. (pp. 319-320)*

Heath (1980, cited in Baker, 2001) believes that literacy is necessary for survival, learning, citizenship, personal relationships, personal pleasure and creativity, employment, community development and political empowerment. Wells and Chang-Wells (1992) suggest that "literacy is needed to empower the mind. . . . [R]educing illiteracy is regarded as a key priority in UNESCO's aims, irrespective of *country, continent, culture or caste*" (cited in Baker, 2001, p. 321).

Literacy means different things to different people. First, the functional skills definition of literacy as used by UNESCO defines a literate person as one who:

> *has acquired the essential knowledge and skills which enable him to*
> *engage in all those activities in which literacy is required for effective*
> *functioning in his group and community and whose attainments in*
> *reading, writing and arithmetic make it possible for him to continue*

> *to use these skills toward his own and his community's developments.*
> *(Oxenham, 1980, p. 87 in Baker, 2001, p. 322)*

The second meaning concerns the construction of meaning itself. Hudelson (1994) defines reading as:

> *a language process in which an individual constructs meaning*
> *through a transaction with written text that has been created by*
> *symbols that represent language. The transaction involves the*
> *reader's acting upon or interpreting the text, and the interpretation*
> *is influenced by the reader's past experiences, language background,*
> *and cultural framework, as well as the reader's purpose for reading.*
> *(p. 130, cited in Baker, 2001, p. 322)*

The third definition offered by Wells and Chang-Wells (1992, p.147) is that "to be literate is to have the disposition to engage appropriately with texts of different types in order to empower action, thinking, and feeling in the context of purposeful social activity" (cited in Baker, 2001, p. 322). Further to these definitions, each culture may have its own use or purpose for literacy. For example, some may use literacy for:

> *promoting abstract thought, rationality, critical thinking, balanced*
> *and detached awareness, empathy and sensitivity; while for other*
> *cultures, literacy is about memorization, transmission of life stories*
> *revealing their heritage, values and morality… for the transmission of*
> *rules of religious and moral behaviour. (Baker, 2001, p. 322)*

This explanation is of particular relevance to Samoa because in traditional ceremonies a family's genealogy is always memorized and recited in classic oratory language. "The concept of literacy is therefore . . . relative to a culture and creed" (Baker, 2001, p. 322).

The skills approach to literacy is exemplified by UNESCO's definition of functional literacy that gives the impression that literacy is merely reading and writing. Reading is described as:

> *the ability to decode symbols … sounds … meaning from those*
> *sounds. Reading is about saying words on a page. Writing is about*
> *being able to spell correctly and write in correct grammatical*
> *sentences. In both reading and writing, a literate person is able to*
> *understand and comprehend the printed word. (Baker, 2001, p. 323)*

Since literacy is classified as a technical skill, included in the skills are vocabulary, grammar and composition, as well as letters, phonics and standard English. Baker (2001) also believes that functional literacy is viewed as "accepting the status quo, understanding and maintaining one's place in society, and being a faithful, contented citizen" (p. 323). It involves being able to read labels and find numbers in a telephone directory. However, filling in forms and following written instructions will require much more than functional literacy (Baker, 2001).

In contrast with the skills approach, the whole language approach "emphasizes learning to read and write naturally, for a purpose, for meaningful communication and for inherent pleasure" (Whitmore and Crowell, 1994, cited in Baker, 2001, p. 324). Furthermore, the whole language approach supports a holistic and integrated learning of reading, writing, spelling and oracy. "The language used must have relevance and meaning" (Baker, 2001, p. 324). Baker stresses that stories should be relevant to a child's experience. Events should be real and natural and instruction should be "intellectually stimulating, personally relevant and enjoyable for the learner" (p. 324).

From my experience in Samoa, this is of profound significance since many students may not use common terms as practised in other parts of the world. As an example, two years ago one of the class assignments for a Business English class was to write a paragraph on "How to make a pot of tea." One student advised using 17 teabags and 7 large spoons of sugar, and "boiling the pot on the fire." When corrections were being made and I expressed my surprise to the class, they explained that a "pot" was a large aluminium kettle and that preparing tea was for about 15 – 20 members of the extended family. I then understood the difference, but I also showed them a teapot for two and gave instructions using an electric kettle. That demonstrated that it was a learning experience for both tutor and students alike, and that an individual's experience allowed them to see the same problem in a slightly different way.

Two other forms of literacy that appear to be relevant are the *Construction of Meaning Approach* and the *Sociocultural Literacy Approach*. The former is a constructivist approach where readers are allowed to bring their own definitions to the relevant text. "Reading and writing is essentially a construction and reconstruction of meaning (Baker, 2001, p. 326). This approach follows Vygotsky's views where teachers can continue the learning process by assisting youngsters to construct meaning from a text, and by challenging and extending the individual's present state of development (Vygotsky, 1962 cited in Baker, 2001).

The sociocultural aspect of literacy, termed enculturation, is the type of literacy which allows for the construction of correct cultural meaning while reading, as well as the discovery of one's cultural heritage (Baker, 2001). In addition, "the social and cultural context of literacy raises the importance of literacy in the mother tongue" (Baker, 2001, p. 329).

How can all of this information help with the final and most important part of this task, which is to show how literacy can be improved in the *fale*? It will require an ongoing effort by all concerned. For planning and promoting literacy in the *fale* of excellence, I would first recommend that a national task force be appointed by the Ministry of Education, Sports and Culture (MESC) comprising a ministry co-ordinator, National University of Samoa and University of the South Pacific reading specialists, media representatives, representatives of relevant non-governmental organizations, interest groups, service organizations (for example, Lions, Soroptimists, Rotary Clubs), librarians, church representatives, designated representatives of relevant government departments, denominational and private schools, curriculum experts (especially those with reading backgrounds), representatives of the various High Commissions here in Samoa, UNESCO and UNDP delegates, funding agencies, school inspectors, principals

of primary and secondary schools, teachers, parents and representative members of the various districts. The Ministry of Education, Sports and Culture should be the administrators. At the village level would be the chiefs, members of the women's committees, as well as the church leaders. However, the real players would be the ones who live in the *fale*, while the centre of instruction would be in the home itself using whatever is found there: books, newspapers, crayons and other items.

The initial plan should be short term, until a more sustainable one can be agreed upon. This means that action can begin now. For example, each family can introduce nightly story time sessions, where traditional tales, myths and legends can be told by the matriarchs/patriarchs of the respective families. Children may also want to give their own version of a story, especially if chants are involved. Another activity could be several weekly reading sessions at a time convenient to the family. This could be just before or after dinnertime, or even on weekends when a longer period of time can be utilized.

Writing activities could be introduced using stimulus material from the family's surroundings. The shape of a house, materials used for building, timber, leaves, cemented areas, stones, furniture, individual rooms, decorations, description of a kitchen using words in both English and Samoan. Descriptions of the family can also be discussed, drawn, and then written.

Additionally, children and adults alike should be encouraged to share problems in informal settings using role play and code switching. There can also be liaison sessions with the respective schools to ensure that the program is being followed. Any language spoken should be correct. Written work can be corrected later.

Newspaper companies can be encouraged to deliver newspapers daily to villages, or some business house or individuals can provide them as part of their service to the community. Adults can read the newspapers aloud to children and then discuss the relevant issues. This would encourage children to think, share ideas, and stimulate their imaginations. Theme weeks can be introduced where families engage in literacy activities based on significant events such as Christmas, Easter, Children's Sunday, Mothers' and Fathers' Days, Teuila Week, World Food Day, World AIDS Day, or other school-based activities.

Families can be encouraged to have learning/homework centers in their families and villages; extended family members who are suitably qualified can assist their relatives with their schoolwork. Families can build up their *fale* libraries, and exchange with their neighbors. I have not recommended computer centers as yet, because that is an additional cost - equipment, (hardware/software), electricity expenses, and maintenance, which some villages could ill afford. Every attempt should be made to assist members of the household, as some need basic survival skills, and peer reading should be encouraged at all levels. Further ideas for improving literacy are the introduction of village libraries; creative writing at all levels; careful attention to grammar – written and spoken; pastors' schools in villages; introduction of local theatre instead of hip hop competitions; spelling bees; word games and friendly early language programs either on radio or television for ages six to eight. All programs should be closely monitored by the respective lead tutors to ensure sustainability of the *fale* literacy program. Given these initiatives and

realistic goals and time frames for their implementation it is possible that the problem of declining literacy rates can be successfully addressed.

References

Alexander-Pouono, J.A. (2005). *Students read only for academic purposes*, Unpublished paper. New Zealand: Christchurch College of Education.

Baker, C. (2001). *Foundations of bilingual education and bilingualism* (3rd ed.). Clevedon, UK: Multilingual Matters.

Faoagali, S. (2004). *Home economics vs food and textile technology: Bridging the gap between the old and new secondary school curriculum in Samoan secondary schools* (Unpublished masters thesis). Christchurch College of Education: Christchurch, New Zealand.

Ioka, K. M. (1995). *Secondary education in Western Samoa: Developments in the English curriculum 1960s – 1990s* (Unpublished masters thesis). University of Otago: Dunedin, New Zealand.

Ministry of Education, Sports and Culture. (2004a). *Educational statistical digest.* Retrieved from: www.paddle.usp.ac.fj/collect/paddle/index/assoc/sam010.dir/doc. pdf

Ministry of Education, Sports and Culture. (2004b). *Curriculum statement: Samoa secondary schools. English years 9 – 13*. Apia, Samoa: Curriculum Development Unit, Department of Education.

So'o, A., Va'a, U., & Lafotanoa, T. (Eds.). (2006). *Samoa national human development report: Sustainable livelihoods in a changing Samoa*. Apia, Samoa: The Centre for Samoan Studies, National University of Samoa.

Acknowledgements

Scientist-teacher workshops as a mechanism for building partnerships and scientific inquiry teaching skills

Erin Baumgartner, Kanesa M. Duncan, Alex T. Handler and Yalap P. Yalap

Abstract

Fellows in the National Science Foundation Graduate K-12 program at the University of Hawai'i facilitated a workshop in Palau to provide scientific inquiry experiences for teachers and to facilitate partnerships between Palauan teachers and scientists. During the workshop, teachers communicated with scientists and gained research experience through field and laboratory activities. Teachers reported successfully building connections with local scientists to help their students conduct environmental research, and follow-up analysis indicated that many teachers effectively implemented workshop components with their students. However, teachers did not report significant gains in understanding scientific inquiry. There was a disconnect between teachers' ability to execute the mechanics of a field study and their understanding of scientific inquiry. In response, we suggest future workshops require more exploration into the theory and rationale of scientific thought to enable teachers to effectively teach science through inquiry.

Key words: Palau; Hawai'i; environment; partnership; GK-12; inquiry

Introduction

Using partnerships to enhance scientific inquiry teaching

Scientific literacy enables people to gather and process information to make well-informed personal and political decisions. To gain scientific literacy, it is necessary to first understand how science works as a discipline so information presented as scientific can be effectively evaluated. Such evaluation and decision making impacts a range of human social and scientific activities, from choosing prescription medication to voting on environmental issues.

Acquisition of scientific literacy is limited when science courses emphasize content over process, as often happens from kindergarten through college in the U.S. education system. Typical student investigations in American classrooms do not incorporate the full discipline of science. Students' experience is generally limited to causal relationships demonstrated through carefully controlled lab activities, representing a small fraction of the practice of professional scientists (Windschitl, Dvornich, Ryken, Tudor, & Koehler, 2007). Thus, inquiry-based learning – the learning of a discipline through the practice of that discipline – is not presented effectively in science courses.

Successful inquiry teaching in science requires both a clear understanding of the

scientific discipline as well as excellent teaching skills to facilitate scientific inquiry thinking by students. Researchers have (1) identified a connection between confidence in learning science and confidence in teaching science (Bleicher, 2007), (2) recognized the importance of making connections to scientific methodology in teacher education (Palmer, 2008) and (3) stressed the need for teachers to gain field-based science experiences as part of their professional development (Dresner & Moldenke, 2002). In the U.S., most teachers of K-12 science have had limited exposure to science research (Committee On Science Engineering & Public Policy, 2007); their scientific experience is typically acquired through traditional content-based classes. Thus teachers may have an excellent grasp of scientific content without truly understanding the discipline. This is especially true for elementary teachers, who are often responsible for covering all subject areas. Conversely, the majority of faculty members in scientific fields at American research universities are comprised of scientists who, while experts in their field, lack training in or access to current information about effective teaching methods (DeHaan, 2005). Thus the disconnect between scientific disciplinary practice and what is taught in classrooms occurs at the post-secondary level as well.

A significant reform effort aimed at improving education in the disciplines of science, technology, engineering, and mathematics (STEM) in the U.S. is the National Science Foundation (NSF) Graduate Teaching Fellows in K–12 Education (GK–12) program. This program, established in 1999, supports fellowships with associated training that enable graduate students in the STEM disciplines to work in partnership with K-12 teachers. These partnerships provide joint mentoring opportunities in which each partner gains complementary expertise needed for teaching through scientific inquiry. By working with graduate fellows to build scientific experiences for students, teachers gain scientific disciplinary knowledge. The graduate fellows in turn gain teaching and communication skills from their teaching expert partners.

The GK-12 program at the Ecology, Evolution, and Conservation Biology (EECB) program at the University of Hawai'i -Manoa (UHM) has a structure that emphasizes the mutual mentoring partnership aspect envisioned by NSF. The EECB GK-12 fellows are partnered with teachers or education outreach professionals to build individualized projects. These projects are based on the fellow's research background and target the specific learning goals of the teacher. The fellows also participate in an education seminar course offered by the Curriculum Research & Development Group (CRDG) at UHM. This seminar course provides background training in current pedagogical research and teaching techniques, particularly scientific inquiry teaching strategies. The course helps facilitate the development of inquiry-teaching skills of the fellows, and through collaboration, those of their teacher partners. All fellows emphasize aspects of ecology, evolution, and conservation biology covered by their own research, including the tools and techniques they use to do that research in the form of lab and field activities that incorporate scientific inquiry instructional strategies in which they have been trained. Thus, all EECB GK-12 projects also emphasize scientific inquiry and the nature of science. These aspects of science are often not covered in U.S. science classes, yet they are fundamentally important for students' understanding of science (Abd-El-Khalick, Bell, & Lederman, 1998; Bybee, 2000; 2002; McComas, 2004).

The EECB GK-12 model has been successful in forming effective science education partnerships between teachers and researchers in Hawai'i, and it has helped build inquiry-teaching skills of both fellows and teachers (Kaneshiro, Baumgartner, & Gartrell 2006; Young et al., 2005). By developing projects based on their own research interests, fellows are attempting to create an education model that could be of use in other settings. We envisioned the Palau Environmental Education Workshop (PEEW) as a mechanism for sharing the Hawai'i GK-12 model in a new environmental and cultural setting that would provide an opportunity for GK-12 fellows to apply their teaching skills in a novel way.

Project purpose

The PEEW project brought University of Hawai'i GK-12 fellows and staff together with scientists and natural resource managers in Palau to collaborate on biological research and educational programs for Palau's K-12 students and teachers. By establishing a venue for these parties to work and learn together, we hoped to facilitate the establishment of collaborative relationships between educators and scientists in order to enhance research and education efforts in Palau, similar to the successful partnerships established by EECB GK-12 in Hawai'i. The two key aspects of the GK-12 model that we hoped to explore through the workshop were (1) the importance of partnerships between researchers and educators and (2) the need for science instruction through inquiry.

Ideally, participation in scientific inquiry through research opportunities allows students to problem-solve, gather and organize data, and test hypotheses (Baumgartner, Duncan, & Handler, 2006; McComas, 2004; Tinker, 1997; Wormstead, Becker, & Congalton, 2002). Students engaged in scientific inquiry build high-level thinking skills by tackling problems that lack simple answers (Barell, 2003). This process builds deep lasting knowledge because students must formulate questions, develop and test hypotheses, gather and organize information and synthesize evidence-based explanations. Students must also effectively communicate what they are doing and be able to connect their ideas to existing bodies of knowledge. These activities are vital to the scientific inquiry approach (Young, 1997) and encourage development of skills needed by all citizens to be effective decision-makers (AAAS, 1990; Hurd, 1997). Inquiry instruction promotes critical thinking skills and ownership of knowledge (Bransford, Brown, & Cocking, 2000; Handler & Duncan, 2006; White & Frederickson, 1998). Scientific inquiry also emphasizes objectivity and reflection on the epistemic process of knowledge building. The challenge for many teachers is to effectively facilitate scientific research in the classroom when they were not trained in science disciplines and therefore lack experience with or understanding of scientific processes and ways of thinking (Moscovici & Nelson, 1998; Wee, Shepardson, Fast, & Harbor, 2007).

Partnerships are a means by which effective inquiry-based instruction can take place (Baumgartner et al., 2006), and student-scientist partnerships have been used in many successful research and education programs (Donohue, Lewis, Brice & Schmidt, 1998; Means, 1998; Moss, 2003; Rock & Lauten, 1996; Tinker, 1997; Wormstead et al., 2002). True partnerships are long-term, carefully planned, interdependent relationships

that are beneficial to all parties (Evans, Abrams, Rock, & Spencer, 2001; Tinker, 1997; Wormstead et al., 2002). As with any student research experience, the partnership value is limited if students do not have opportunities to experience the full scientific process (Barab & Hay, 2001; Means, 1998; Moss, 2003). For this reason, the scientific inquiry skills of the teacher are important when partnerships are used as part of the science curriculum; teachers must understand the full process of science if they are to participate in providing their students with an authentic research experience. Therefore, when partnerships are used as professional development experiences for teachers, they must also include opportunities for the teachers to engage in research practice.

Partnerships are most successful when they use a fluid approach (Songer, Lee, & McDonald, 2002) in a place-based format (Barab & Hay, 2001; Donohue et al., 1998; Wormstead et al., 2002). Through PEEW, we wanted to share with our Palauan colleagues this fluid, locally-based, inquiry-driven partnership model, while at the same time gaining their feedback about the model. Palau was considered an ideal environment for testing Hawai'i's GK-12 model of environmental education because the two island communities share many ecological and social concerns. Both island chains are considered to be ecological hot-spots and provide great opportunities for the research of diverse flora and fauna (Eldredge & Evenhuis, 2003). Similar to Hawai'i, tourists and scientists from all over the world travel to Palau to enjoy tropical reefs and warm waters. Unfortunately, modern development practices in both Hawai'i and Palau have accelerated ecological degradation, with native biota being lost at ever-increasing rates (Burney et al., 2001; Cowie, Allison, Howarth, Samuelson, & Evenhuis, 1996). However, while Hawai'i's marine and terrestrial environments have both been dramatically altered by anthropogenic forces (Athens & Ward, 1993; Burney et al., 2001; Wickler, Athens, & Ward 1991), Palau remains one of the most biologically diverse locales in all of Micronesia and boasts a terrestrial ecosystem that appears to be highly intact (Cowie et al., 1996). By bringing researchers and teachers from both island groups together to talk about these two unique systems and about plans to sustain them, we hoped to provide opportunities for investigation of broad topics like biocomplexity, conservation, social-ecological systems and land/coral reef management.

Methods

Fellow selection

The fellows who participated in the workshop were selected from the 2004-2005 cohort of GK-12 fellows. To be eligible for a fellowship, students must first be admitted to the Ecology Evolution & Conservation Biology (EECB) program, which is a competitive, multi-disciplinary specialization. One of the requirements for admission to EECB is acceptance by one of the ten graduate departments encompassed by EECB. Therefore, before they may apply for a GK-12 fellowship, students have already been accepted into a UHM science department and into EECB. Thus, GK-12 students and tend to be among the highest caliber of graduate students in the UHM College of Natural Sciences. Participants for PEEW were selected from the GK-12 fellows to represent a cross-section of research expertise; fellows included a marine botanist specializing in

macroalgae as well as terrestrial and marine zoologists specializing in fishes, seabirds, insects and mollusks.

Workshop planning

We coordinated the project so that all participants could learn together about Palau's biology and culture from local scientists and educators. The GK-12 fellows provided their perspective and experience combining scientific inquiry with scientific research. This framework was designed to offer the opportunity for partnership building as participants worked together. It was also structured so that the fellows could develop their teaching skills in a new setting. The goal was for fellows to build upon what they had learned through their Hawai'i based partnerships in addition experiencing the wider applications of their skills in different environmental and cultural settings.

Under the supervision of project organizers, fellows planned the workshop during a series of meetings in Hawai'i. Throughout this process, Hawai'i and Palau project coordinators remained in contact to synchronize onsite planning. The first of the Hawai'i meetings provided fellows with background information on the ecology, natural history and culture of Palau, which they needed to structure the workshop. Fellows met with a representative of the Palauan Conservation Society (PCS), who gave background information on the Palauan environment and conservation priorities and presented a slide show of Palauan environments and organisms. Fellows were also given selected background reading on Palauan environmental issues and asked to reflect on how they might develop a workshop highlighting those issues, which would be most relevant to the Palauan educators.

During the independent planning phase that followed the initial meetings, fellows were instructed to prepare potential activities intended to share the scientific inquiry teaching skills they had been developing and practicing in their Hawai'i-based projects. Fellows independently modified and planned lessons from their own projects to meet the pre-established, primary objectives of enhancing inquiry-based teaching and facilitating partnerships. In planning their lessons, the fellows also considered the specific environmental issues upon which they had been asked to reflect previously.

Following the independent planning stage, the fellows came back together under the supervision of the project coordinators to align workshop goals, establish a common structure, and consolidate their independently planned activities into that structure. Together, the fellows selected target concepts from their CRDG education seminar that they considered key to scientific inquiry. They planned the workshop format in two phases: (1) an initial series of field trips to sites of environmental interest around Palau and (2) a series of concept and skill-building activities in a classroom setting. The second phase also contained embedded opportunities for the teachers, assisted by the fellows, to develop an inquiry-based project for their K-12 students in partnership with local scientists. Fellows worked together to plan the lesson sequence and organize their activities within the workshop framework. They provided advice and feedback to one another on their activities, and they determined primary teaching responsibility for each phase of the workshop. At the end of the session, each fellow had a set of tasks to prepare before the final group planning session.

This final meeting session occurred approximately two weeks prior to the start of the workshop. Fellows compiled their edited activity materials into workshop packets. During this meeting, activities were also modified or adjusted and the workshop schedule was finalized. Fellows spent this session reviewing logistical concerns and preparations for the workshop. The project coordinators established plans for an initial session with a PCS representative on-site in Palau to answer questions that fellows had about the unfamiliar environment and culture. One week prior to the start of the workshop, one of the project coordinators traveled to Palau to finalize workshop arrangements with PCS and Ministry of Education (MOE) representatives.

Workshop implementation

Through an announcement by Palau Ministry of Education officials, we made the workshop available to any teacher working in Palau. We did not limit registration to any particular group, and teacher participants represented a range of experience from novice teachers with only one year of experience to 30-year veterans. The majority of participants were elementary teachers, although one high school teacher and one school administrator also attended the workshop.

The eight-day workshop began on a Monday morning (Table 1). Following self-introductions by all participants, government officials and the director of the Belau National Museum provided an orientation on the intersections of Palau's history, culture and environment. The five-day immersion portion of the workshop began in the afternoon with the first field activity. All field activities involved scientists, fellows and teachers together in an experience of Palau's natural environment. These site-based experiences included a visit to the state Mariculture facility where fish and giant clams are raised, a hike through Ngardmau forest to Ngardmau waterfall, a visit to Ngardok Nature Reserve followed by a visit to a nearby Bai (traditional meeting house), and a drive along the compact road being built around Babeldab island. Participants also visited the Palau International Coral Reef Center (PICRC), snorkeled at a nearby reef and swam in one of Palau's world-famous jellyfish lakes. Interspersed with these trips were short activities led by Palauan scientists and GK-12 fellows to help all participants build a foundation of knowledge needed for the more formal sessions scheduled later in the workshop.

The formal classroom portion of the workshop took place over three days during the second week of the workshop. During these sessions, fellows conducted activities that immersed the teachers in scientific inquiry experiences. These experiences were integrated with the previous site-based experiences and modeled strategies for inquiry-based environmental study. Throughout this phase, the fellows also worked with the teachers to develop questions and models for conducting place-based environmental projects with their students. On the final day, teachers worked in groups to test their project ideas and then presented their experiences to one another. In their presentations, the teachers described how they planned to conduct environmental education with their students in the upcoming year. All workshop participants, including the local scientists, provided suggestions and discussed logistics for collaboration with each another.

Table 1: Overview of PEEW, including background activities to immerse participants in the Palauan environment on days 1-5 and skill-based activities led by GK-12 fellows during the workshop on days 6-8. Days 6-8 also included opportunities for teachers to build and test ideas for student environmental education projects.

Day	Activities	Concepts addressed	Skills	Program collaboration
1	Opening of workshop at Ministry of Education	Introduction to Palau culture environment, government politics & policies		Ministry of Education, Palau Conservation Society (PCS), Palau National Congress, Belau National Museum Bureau of Marine Resources
	Mariculture facility visit	Fishery issues		
2	Hike to Ngardmau waterfall	Invasive species (terrestrial flora & fauna)	Species identification, Field safety	Palau Conservation Society
3	Ngardock Nature Preserve & compact road	National environmental issues & watershed connectivity		Environmental Quality Protection Board, Peace Corps
	Evening lecture	Biogeography		Planet Blue Kayak Tours
4	Visit to Aquarium	Marine research & education in Palau		Palau International Coral Reef Center (PICRC)
	Rock Islands & coral sites (Nikko Bay)	Ecology & coral bleaching	snorkeling, observation	
5	Teacher training center	Ridge to reef connections (terrestrial, stream, marine)		PCS, PICRC, Peace Corps
	Rock Islands & Jellyfish lake	Marine lakes & evolution of jellyfish		
6	Fishing practices survey	Integrating local knowledge with scientific database	Constructing a useful survey	Ministry of Education PCS
	Ant identification	Invasive species, ecology, identification	Microscope, hand lens, insect trapping	
7	Learning styles	4-MAT teaching strategy	Learning & teaching styles	Ministry of Education
	Bean sampling	Abundance estimates	Mark & recapture	
8	Organism surveys	Systematic survey of environment	Transects and quadrats	PCS, PICRC, Peace Corps
	Water clarity	Comparison and measurement	Secci disk, dilution	
	Tagging lesson	Labeling, naming, tagging, change over time	Identify, classify, tag, measure & map	

During the course of the workshop, fellows met regularly with project leaders to debrief the day's activities and to make any needed adjustments to the schedule in response to the needs of the participants. For example, one of the Palauan scientists took a more active role in the workshop than had been anticipated, and some of the fellow's planned activities were shortened to provide more time for him to present information and lead a discussion with the teachers about local environmental issues. Based on

conversations with the teachers who had expressed particular interest in learning about ecological monitoring techniques, the fellows also developed and incorporated a session on using transects and quadrats for sampling different types of environments. In addition, the fellows modified the workshop to accommodate cultural differences. During an activity to plan and conduct a sociological survey about resource use in the community, teachers shared that in Palauan culture children do not ask questions in the home, and family knowledge is considered wealth that is not readily shared beyond the familial unit. This was a different context from the one in which the activity had originally been conceptualized, and the fellows and teachers also worked together to plan culturally appropriate modifications to the activity for use in Palau.

Assessment of workshop goals

To gauge the impact of the workshop on the two primary goals (facilitation of partnerships and increasing awareness of scientific inquiry in teachers), fellows and teachers completed surveys before and after the workshop (Appendix 1). Target questions for teachers included items about knowledge of scientific inquiry teaching, awareness of environmental issues, and connections with local scientists. Target questions for fellows included items about planning, their goals for the teachers, and their perceptions of the workshop's impact on the teachers. At the end of the workshop, teachers were also asked to complete an additional survey about the value of the workshop to them as educators, the usefulness of various activities, and the parts of the workshop needing improvement. Pre- and post- survey responses were categorized and compared for each question.

Fellows also completed daily journals using a set of standard prompts to provide information about workshop implementation. To gain information about the long-term impact of the workshop, we distributed follow-up surveys to the Palauan scientists and teachers near the end of the school year following the workshop. To determine if workshop activities and partnerships were being continued, the year-end follow-up surveys included items about the long-term changes in teaching practice by teachers, collaboration between teachers and scientists, and suggestions for improvement given their extended perspective.

Results

Including the seven fellows and three program coordinators, 33 individuals participated in at least one portion of the workshop. The full workshop sequence was completed by 17 teachers and six scientists. Teachers completed and returned 17 pre-assessments, 15 post-assessments and 16 evaluation surveys. All fellows completed pre and post questionnaires in addition to daily journals. The year-end follow-up survey was completed and returned by nine teachers and five scientists.

Building partnerships between scientists and educators

The workshop increased interactions between participating teachers and researchers. Prior to the workshop, when asked the question "Who could you partner with to teach about Palau's environment?" teachers listed an average of 1.6 scientific organizations

with whom they could partner. Only one teacher listed a scientist by name, and that person was the primary Ministry of Education (MOE) science resource contact for educators in Koror. When asked the same question at the end of the workshop, teachers listed an average of 2.9 organizations with whom they could partner and five teachers listed an average of two scientists by name. The fellows' journals also confirmed the positive interactions facilitated by the teachers and one scientist in particular, as illustrated by comments made by three fellows:

> *The most positive thing about today was the involvement of Dr. J. who is a very good speaker, and who seems to command a lot of respect from the teachers.*

> *I think (Dr. J.) did a great job of connecting the teachers to the problem.*

> *I felt like we were definitely able to build partnerships between teachers and natural resource managers.*

We received a 53% return rate from teachers and an 83% return rate from scientists on the follow-up surveys distributed one year after the workshop. These follow-up surveys indicated that connections built between teachers and researchers during the workshop have continued. Four of the nine responding teachers reported contacting a scientist they met during the workshop for assistance with a class project. Some teachers even went beyond the scope of the workshop, involving local elders and other community members in their projects, thereby fostering a true spirit of community collaboration. Teachers that did not use external assistance during the year cited a lack of time or administrative support as the primary reason. Three out of five scientists responding also reported that they had been contacted for assistance, all by multiple teachers. One of the two scientists who did not report being directly contacted for assistance by teachers stated that she had encountered teachers in the community who informally discussed their work with her. She also stated that she perceived an increase in networking between the scientific and educational communities in Palau following the workshop.

Building scientific inquiry skills

In answer to the question, "What does inquiry mean to you?" 15 teachers (88%) identified discrete terms (such as hypothesis or experiment), or broad concepts (such as analyzing data through graphing) related to scientific methodology in their answers before the workshop. After the workshop, 14 teachers (87%) identified the same types of scientific inquiry concepts. Only one teacher (6%) described inquiry as having anything to do with teaching before the workshop, and none of them identified inquiry as a teaching strategy following the workshop. The proportion of teachers unsure of the meaning of "teaching through inquiry" remained consistent before (12%) and after (13%) the workshop.

In answer to the question, "What are the skills needed to facilitate science as inquiry?" most teachers responded with discrete activities that students would conduct,

such as graphing and recording. Pre-workshop, 88% of teachers could identify student activities to support scientific inquiry, and following the workshop, 93% of teachers could do so. Teachers were not so successful in identifying teaching skills they would need in a scientific inquiry classroom. Prior to the workshop, only one teacher (6%) identified specific teaching strategies needed to conduct scientific inquiry instruction, and there was no significant change after the workshop, with only one additional teacher (13%) able to identify of scientific inquiry teaching strategies. The teacher responses to the inquiry questions in the pre/post surveys are summarized in Figure 1.

Figure 1A: Percentage of teachers responding as indicated to the question, "what does inquiry mean to you?" on pre- and post-workshop surveys. Pre n = 17; Post n = 15.
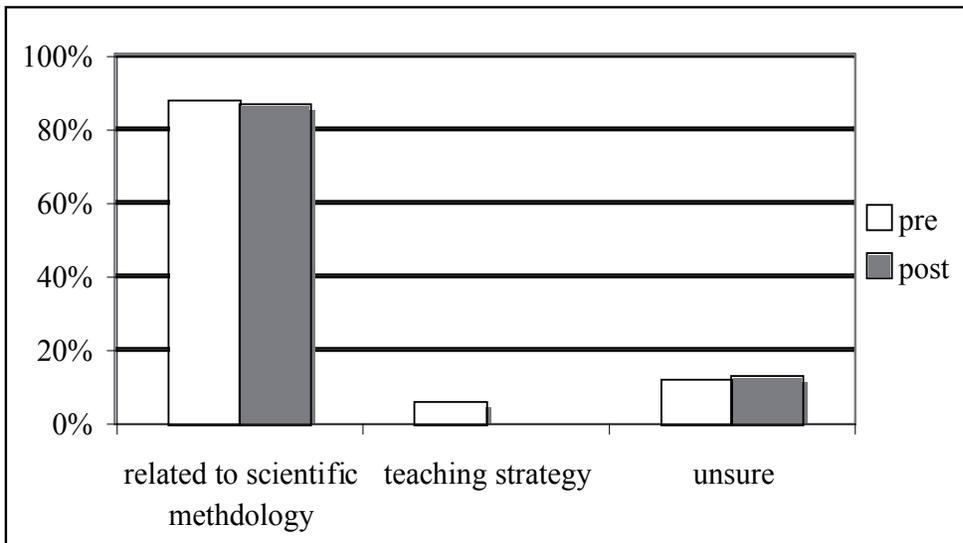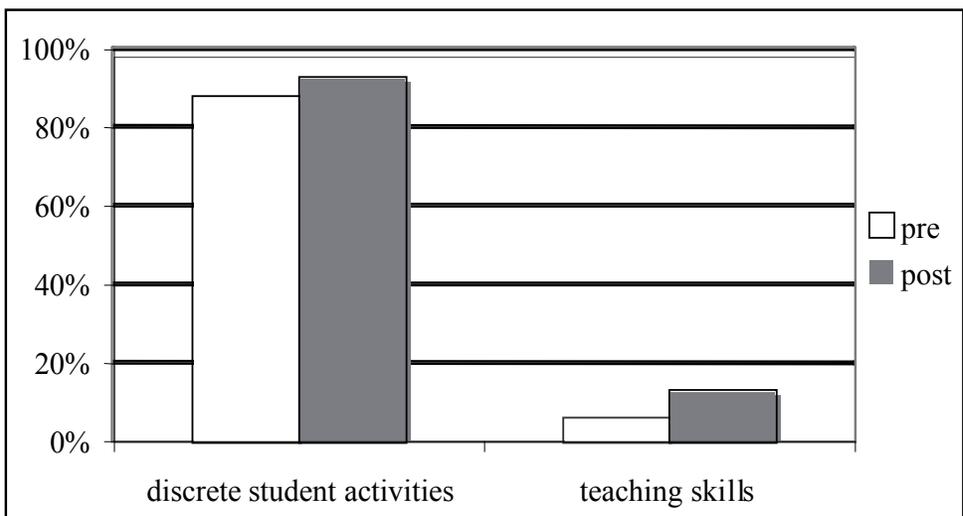

Figure 1B: Percentage of teachers responding as indicated to the question, "what skills are needed to facilitate science as inquiry?" on pre- and post-workshop surveys. Pre n = 17; Post n = 15.

The fellows' journals reflected how challenging it was to convey scientific inquiry-teaching skills to others. This is illustrated by the two comments below:

> *It was difficult to explain to the teachers what the goal of the workshop was that we were trying to help them set up science projects to do with their students.*

> *I think this is a really challenging part of the workshop for the teachers it's challenging them to take the initiative and develop projects in a way that they've probably never done before.*

Despite the struggle, the fellows felt the workshop initiated a positive change in the teaching of scientific methodology. Fellows shared activities and worked with teachers to develop a research project that the teachers could conduct with their students.

> *I think this was finally the "aha" moment where the teachers really figured out what their project was going to be and how they were going to pull it off. I think it was a really critical piece of the puzzle for the teachers.*

> *The teachers really got into the techniques. Once we showed them how to lay a transect and count a quadrat, they all started talking about doing it with their kids.*

All of the teachers who returned year-end follow-up surveys indicated that they had used techniques and activities they learned in the workshop with their students, and eight of the nine teachers (89%) indicated that the workshop changed the way they approach their teaching. The only teacher who did not feel her teaching had changed indicated that she had been using scientific research methods in her teaching prior to the workshop.

Discussion

The overall goal of the workshop was to provide teachers with strategies they could use to present their students with high-quality scientific experiences. In an attempt to meet this goal and to examine the usefulness of the GK-12 model in Palau, the fellows used their own scientific and education expertise to facilitate partnerships between teachers and local resource managers and to engage participating teachers in processes that teachers would later use with their students. The Hawai'i GK-12 model utilizes partnerships between teachers and local scientists to accomplish effective instruction, and it bases scientific experiences on interacting with and posing questions about the local environment. We followed this same model with our colleagues in Palau, bringing teachers and scientists together to learn from one another and to share ideas.

Based on responses to questionnaires, teachers were able to identify teaching activities that support scientific inquiry teaching, but they did not gain a solid understanding of science as inquiry. From these results, it appears that the workshop was much more effective at building partnerships and providing exposure to new environments. In addition, teacher responses during the workshop and responses from teachers and

scientists one year after their experience showed that partnerships between teachers and scientists in Palau were generated and at least partially maintained.

One question of interest, then, is why the goal of partnership building was more successful than the goal of scientific inquiry skill building. A partial answer to this may be that partnership formation is a relatively straightforward task, and the development of inquiry teaching is not (Loucks-Horsley, Hewson, Love, & Stiles, 2003; Park Rogers et al., 2007; Stiles & Mundry, 2002; Wee et al., 2007). Fellows attempted to provide instruction in scientific inquiry by identifying aspects of instruction that they felt supported inquiry teaching and providing activities to model those skills. The resultant workshop emphasized the mechanics of scientific inquiry, but neglected the philosophy and theoretical underpinnings. Without a complete picture, teachers focused on individual components that contribute to scientific inquiry teaching, like field trips and data collection, but were not provided with enough information to gain a larger understanding of how those activities contribute to students' scientific thinking. In addition, while the mechanics of conducting scientific inquiry activities were directly taught in the workshop, there was no direct discussion of the philosophical and theoretical background. Although fellows assumed that teachers would gain an understanding of scientific inquiry by engaging in it, it appears more explicit discussion was needed to really build awareness of the teaching strategy.

The structure of the workshop was also more conducive to partnership building than to helping teachers gain a conceptual framework for teaching science as inquiry. All activities during the workshop emphasized and provided ample time for networking between scientists and teachers. The teaching skills development portion of the workshop was much more abbreviated. The workshop was organized with an initial series of environmental immersion experiences followed by a more academic component of activity planning and development. Both fellows and teachers expressed some dissatisfaction and boredom during the second portion of the workshop, which was not as invigorating as the field-based component. Integrating the environmental immersion and classroom components together would have helped to alleviate this problem. A more integrative approach would also provide more time to spend on scientific inquiry skills.

The primary recommendations provided by teachers and resource managers in the year-end follow-up surveys were for ongoing support during the year and for additional follow-up workshops. There is a need and interest, therefore, in continuing scientific inquiry activities in Palau, and a more formal system to help connect teachers and scientists following the workshop could help meet the need expressed by teachers for support throughout the year. All teachers and scientists responding felt that the number one priority for continued efforts should be follow-up workshops. This is something that could be conducted by Palauan scientists, educational specialists and experienced teachers, and it should be built into future workshops.

In future workshops, a more targeted approach could also help reduce some of the challenges we faced. We did not target any particular group of teachers, and the fellows pre-planning meetings were focused on working with a mixed group of K-12 teachers. In practice, however the workshop was comprised primarily of elementary teachers.

Because the make-up of workshop participants was not clearly communicated between organizers ahead of time, the fellows had to adjust their activities to accommodate the group. The predominance of elementary teachers was also challenging for the single high school teacher participating in the workshop; by not having colleagues with whom to collaborate and plan projects he missed out on an important element of effective professional development (Park Rogers et al., 2007). Smaller groups of teachers, specifically targeting elementary, middle, or high school would also be more effective as these groups could collaborate to build projects and share ideas to support the facilitation of scientific inquiry.

Providing targeted activities for smaller groups of teachers would also ease the logistics of dealing with a big group. For example, on multiple field trips we lost large amounts of time waiting for buses and boats to shuttle participants back and forth to field sites. Field trips can be managed more effectively with smaller groups, providing more time *in situ* to focus on skills development and using scientific inquiry, rather than just experiencing the environment as a reference in which to frame the subsequent classroom activities.

Summary

Overall, teachers were able to successfully identify and plan environmental studies they could conduct with their students, and they identified local scientists who could help them implement these projects. All participant groups saw the facilitation of partnerships between the Palauan teachers and scientists as one of the most positive accomplishments of the workshop effort. And, although teachers did not gain an understanding of scientific inquiry in the concrete sense, the teachers' experience with the instructional models was positively received and they reported utilizing workshop components in their classrooms, which indicated at least a small shift in thinking about the best ways to conduct science education.

The partnerships between teachers and scientists in Palau, coupled with opportunities to conduct environmental studies, may prove to be an effective tool to help increase the scientific inquiry-teaching skills of teachers in Palau, as it has in Hawai'i. The opportunity to apply the content and skills presented during the workshop with their own classes was indeed valuable for the teachers. All of the teachers responding to year-end surveys indicated that they had tried the strategies and activities with positive results, and they intended to continue their efforts in the future. The teachers acknowledged that they were continuing to use the techniques and that the workshop had led to some changes in their approach to teaching. As one teacher stated, "the workshop opened the door to new ways of teaching." However, if teachers are to gain a more thorough understanding of scientific inquiry as a teaching strategy, and of the importance of using that strategy, they need to be exposed to scientific inquiry theory and have a chance to explore the nature of science more extensively than occurred in this workshop.

Acknowledgements

References

American Association for the Advancement of Science. (1990). *Science for all Americans*. New York: Oxford University Press.

Abd-El-Khalick, F., Bell, R. L., & Lederman, N. G. (1998). The nature of science and instructional practice: Making the unnatural natural. *Science Education, 82*, 417-436.

Athens, J. S., & Ward, J. V. (1993). Environmental change and prehistoric Polynesian settlement in Hawaiʻi. *Asian Perspectives, 32*, 205-223.

Baumgartner, E., Duncan, K. M., & Handler, A. T. (2006). Student scientist partnerships at work in Hawaiʻi. *Journal of Natural Resources and Life Sciences Education, 35,* 72-78.

Barab, S. A., & Hay, K. E. (2001). Doing science at the elbow of experts: Issues related to the science apprenticeship camp. *Journal of Research in Science Teaching*, *38*, 70-102.

Barell, J. (2003). *Developing more curious minds*. Alexandria, VA: Association for Supervision and Curriculum Development.

Bleicher, E. (2007). Nurturing confidence in preservice elementary teachers. *Journal of Science Teacher Education, 18*(6), 841-860.

Bransford, J. D., Brown, A. L., & Cocking, R. (2000). *How people learn: Brain, mind experience and school*. Washington, DC: National Academy Press.

Burney, D. A., James, H. F., Burney, L. P., Olson, S. L., Kikuchi, W., Wagner, W. L., Nishek, R. (2001). Fossil evidence for a diverse biota from Kauai and its transformation since human arrival. *Ecological Monographs, 71*(4), 615-641.

Bybee, R. W. (2000). Teaching science as inquiry. In J. Minstrell & E. H. van Zee (Eds.), *Inquiring into inquiry learning and teaching in science* (pp. 20-46). Washington, DC: American Association for the Advancement of Science.

Bybee, R. W. (2002). Scientific inquiry, student learning, and the science curriculum. In R.W. Bybee (Ed.), *Learning Science and the Science of Learning* (pp. 25-35). Arlington, VA: National Science Teachers Association Press.

Committee on Science Engineering and Public Policy. (2007). *Rising above the gathering storm: Energizing and employing America for a brighter economic future*. Washington DC: National Academies Press.

Cowie, R., Allison, A., Howarth, F. G., Samuelson, G. A., & Evenhuis, N. L. (1996). *Impacts of construction of the Palau compact road: Survey of the non-marine fauna of the island of Babeldaob*. Honolulu, HI: Bishop Museum Press.

DeHaan, R. (2005). The impending revolution in undergraduate science education. *Journal of Science Education and Technology, 14*(2), 253-269.

Donahue, T. P., Lewis, L. B., Price, L. F., & Schmidt, D. C. (1998). Bringing science to life through community-based watershed education. *Journal of Science Education and Technology, 7*(1), 15-23.

Dresner, M., & Moldenke, A. (2002). Authentic field ecology experiences for teachers. *American Biology Teacher, 64*(9), 659-663.

Eldredge, L. G. & Evenhuis, N. L. (2003). Hawai'i's biodiversity: A detailed assessment of the numbers of species in the Hawaiian Islands. *Bishop Museum Occasional Papers, 76,* 1-28.

Evans, C. A., Abrams, E. D., Rock, B. N., & Spencer, S. L. (2001). Student/scientist partnerships: A teachers' guide to evaluating the critical components. *American Biology Teacher, 63*(5), 318-324.

Handler, A. T. & Duncan, K. M. (2006). Hammerhead shark research immersion program: Experiential learning leads to lasting educational benefits. *Journal of Science Education and Technology, 15*(1), 9-16.

Hurd, P. D. (1997). *Inventing science education for the new millennium*. New York: Teachers College Press.

Kaneshiro, K. Y., Baumgartner, E., & Gartrell, J. (2006). *The GK-12 program in Hawai'i: Using the native biota for science education: Annual report.* Washington, DC: National Science Foundation.

Loucks-Horsley, S., Hewson, P. W., Love, N., & Stiles, K. E. (2003). *Designing professional development for teachers of science and mathematics (2nd Ed)*. Thousand Oaks, CA: Corwin Press.

McComas, W. (2004). Keys to teaching the nature of science. *The Science Teacher*, *71*(9), 24-27.

Means. B. (1998). Melding authentic science, technology, and inquiry-based teaching: Experiences of the GLOBE program. *Journal of Science Education and Technology, 7*(1), 97-105.

Moscovici, H., & Nelson, T. M. (1998). Shifting from activity mania to inquiry. *Science and Children*, *35*(4), 14-17.

Moss, D. M. (2003). A window on science: Exploring the JASON project and student conceptions of science. *Journal of Science Education and Technology, 12*(1), 21-30.

Palmer, D. (2008). Practices and innovations in Australian science teacher education programs. *Research in Science Education, 38*(2), 167-188.

Park Rogers, M., Abell, S., Lannin, J., Wang, C. Y., Musikul, K., & Dingman, S. (2007). Effective professional development in science and mathematics education: Teachers' and facilitators' views. *International Journal of Science and Mathematics Education*, *5*(3), 507-532.

Rock, B. N. & Lauten, G. N. (1996). K-12th grade students as active contributors to research investigations. *Journal of Science Education and Technology, 5*, 15-17.

Songer, N. B., Lee, H. S., & McDonald, S. (2002). Research towards an expanded understanding of inquiry science beyond one idealized standard. *Science Education*, *87*(4), 490-516.

Stiles, K. E., & Mundry, S. (2002). In R. W. Bybee (Ed.), *Learning Science and the Science of Learning* (pp. 137-151). Arlington, VA: National Science Teachers Association Press.

Tinker, R. F. (1997). Student scientist partnerships: Shrewd maneuvers. *Journal of Science Education and Technology*, *6*(2), 111-117.

Wee, B., Shephardson, D., Fast, J., & Harbor, J. (2007). Teaching and learning about inquiry: Insights and challenges in professional development. *Journal of Science Teacher Education, 18*(1), 63-89.

White, B. Y., & Frederiksen, J. R. (1998). Inquiry, modeling, and metacognition: Making science accessible to all students. *Cognition and Instruction*, *16*(1), 3-118.

Wickler, S., Athens, J. S., & Ward, J. V. (1991). Vegetation and landscape change in a leeward coastal environment. *Paleoenvironmental and archaeological investigations, Fort Shafter Flats sewerline project, Honolulu, Hawai'i*. Final report submitted to U.S. Army Engineer Division, Pacific Ocean Corps of Engineers. Honolulu, HI: International Archaeological Research Institute.

Windschitl, M., Dvornich, K., Ryken, A. E., Tudor, M., and Koehler, G. (2007). A comparative model of field investigations: Aligning school science inquiry with the practices of contemporary science. *School Science and Mathematics, 107*(1), 382-390.

Wormstead, S. J., Becker, M. L., & Congalton, R. G. (2002). Tools for successful student-teacher-scientist partnerships. *Journal of Science Education and Technology, 11*(3), 277-287.

Young, D. B. (1997). Science as inquiry. In A. Costa and A. Liebmann (Eds.), *Envisioning process as content: Towards a renaissance curriculum* (pp. 120-139). Thousand Oaks, CA: Corwin Press.

Young, D. B., Baumgartner, E., Gruner, D. S., Rodman-Bergman, L. M., Lutzow-Felling, C., & Adams, D. N. (2005, July). *Developing effective university-school partnerships in science education: The national science foundation's graduate students in K-12 education program impact in Hawai'i.* Proceedings of the Pacific Circle Consortium 29th Annual Conference. Sydney, Australia.

Appendix 1: Evaluation tools

Fellow pre-questionnaire:

What do you expect to do during the Palau workshop?
Why did you want to participate in the trip?
What do you hope to get out of your participation in the Palau workshop?
What did you do to prepare for this trip?
What challenges do you anticipate?
What do you hope the Palauan educators will get out of their time with you?

Fellow post-questionnaire:

What do you think was the biggest benefit you gained?
What adjustments did you have to make during your time in Palau (what did you NOT
    anticipate/what were the surprises?)
What do you think was the biggest challenge you faced?
What do you think the Palauan educators gained from their time with you?
Would you want to participate in a trip like this again?

Teacher pre/post concept questionnaire:

What does science as inquiry mean to you?
What are the skills you need to facilitate science as inquiry?
What are the main issues relating to the environment in Palau?
How would you teach about the Palauan environment to your students?
Who in Palau could you partner with to teach your students about the Palauan environment?

Teacher evaluation survey:

How useful was the workshop? Rank 1-5, with 1 least and 5 most useful.
What did you find most useful?
What did you find least useful?
Did you get any new ideas for how you could teach your students about the Palauan
    environment? What were they?
Would you want to participate in a workshop like this again?
Who else in your community would gain from a workshop like this?

Fellow's daily journal prompts:

What was the best and worst thing about today?
What surprised you, what challenges did you face, and how did you cope?
What is the most interesting story you could tell about today?

Teacher follow-up survey:

Have you used any of the ideas you got from the workshop in your classroom?
Has your participation in the workshop changed your teaching at all? How?
Have you remained in contact with any of the local resource managers to gain
    assistance in doing environmental activities with your students?
What would be your recommendations for follow-up?

Resource manager follow-up survey:

Have any teachers from the workshop contacted you for assistance?
What, if any, long-term impacts do you see in Palau from the workshop?
What would be your recommendations for follow-up?

What is a Pasifika research methodology? The 'tupua' in the winds of change

Meaola Amituanai-Toloa
University of Auckland

Abstract

When Pasifika researchers in New Zealand embark on a research project, two questions come to mind. The first question is, what perspective should one take for the project? Second, how does one apply that perspective to the project? This paper describes the perspective of a Samoan researcher while contemplating undertaking a research project. Having settled initially on the viewpoint the research will take, the paper describes how this perspective is then applied to the research process. The paper argues that using a methodology that is responsive and culturally appropriate to a Pasifika audience can yield good outcomes for future directions. In addition, the employment of such a methodology can illustrate the richness of things Pasifika that other people can look upon as relevant and ethnic specific thus dispelling the myth that only Western methods are valid and reliable.

Introduction

As a Pasifika researcher and more specifically a Samoan researcher, I tend to ask myself before conducting any research, from which perspective should a particular work come from and how would I apply such a perspective to a research project. The rationale for self questioning stems from the fact that there is almost always the presence of a dilemma when codified protocols taken from the dominant research paradigms are applied to research in indigenous communities (Carjuzah & Fenmore-Smith, 2010). This is a similar dilemma for minority communities such as the Pacific Islanders in New Zealand who live alongside the indigenous community, the *tangatawhenua* (people of the land), and the majority community.

Another reason for self questioning is underpinned by the purpose of the research and who will benefit from it. Echoing Deloria Jnr (1997) sums up the rationale for doing research work: "Every society needs educated people, but the primary responsibility of educated people is to bring wisdom back into the community and make it available to others so that the lives they are leading make sense" (p. 4.) However, it is not as simple as that quoted because bringing 'wisdom' back into the community does not involve just the 'bringing back' but it also involves how that wisdom should be brought back. Moreover, it takes a culturally knowledgeable and a linguistically knowledgeable person to do that. Searching for a methodology in order for that to happen requires

reflection, reminiscing, remembrance, retrieval, and love.

Looked on by the Pasifika community as an educated person, my prime responsibility is to give back what I have learned or found in order for Pasifika people not so much to be educated because they already are in their own ways of knowing and ways of acting, but rather, to be made more aware and informed of relevant outcomes pertaining to their values and their ways of life so that their lives in New Zealand are changed for the better.

The existing literature on indigenous methodologies, ways of doing things and ways of acting are majorly premised on the underlying beliefs and assumptions of Western research paradigms which do not reflect the values and beliefs of research participants such as Pasifika people and are, therefore, incompatible (Carjuzah & Fenmore-Smith, 2010). Some have also argued that articulating research through Western frames of knowing can result in disfigurement and or trans-figuration (Grande, 2008) because of the presence of intellectual colonialism, which, for educators and researchers, hinder a commitment to social justice and ethical interactions.

Indigenous scholars such as Tuhiwai-Smith (1999), Grande (2004), and Wilson (2008) have set the groundwork for critiquing dominant paradigms and establishing an Indigenous research paradigm. For example, Smith (1999) emphasizes that the term *research* is defined in a context of European imperialism and colonialism. She examines the historical context and philosophical basis for Western research and how it differs dramatically from indigenous worldviews, and she critically examines the historical underpinnings and philosophical framework that establishes Western knowledge as superior. In order to create institutional change, the curricula, textbooks, instructional strategies, practices and policies, and research protocol need to be decolonized. Wilson expands on Smith's decolonizing methodologies that are associated with Western paradigms by establishing a uniquely indigenous paradigm based on indigenous ways of knowing and relating.

A decolonizing pedagogical model was established by Grande (2004). The model embraces indigenous ways of knowing and is termed *Red pedagogy*:

> *Specifically, a Red pedagogy necessitates (a) the subjection of the processes of Whitestream schooling to critical pedagogical analyses; (b) the decoupling and dethinking of education from its Western, colonialist context, including revolutionary critical pedagogy; and (c) the conceptualization of Indigenous effort to reground students and educators in traditional knowledge and teachings. (Grande, 2008, p. 244)*

Red pedagogy seeks to transform institutional practices and structures. Adopting Grande's model would not only change pedagogy, but would impact scholarship and research protocols as well.

Guba and Lincoln (1994) named four of the dominant paradigms, two of which are positivism and post-positivism and are based on similar definitions of reality. The former, promotes one true reality that can be uncovered, the latter, supports one true reality which can never be seen fully. In critical theory, the third paradigm, reality is

perceived to be shaped by many cultural and social values and is, therefore, more fluid. Constructivism, the fourth paradigm, promotes a variety of fluid realities. In both critical theory and constructivist methodological approaches, socio-cultural factors influence the methodology. In all four of these dominant research paradigms, knowledge is seen as individually constructed which starkly contrasts Wilson's paradigm. Wilson places researchers as the interpreters of a shared knowledge which belongs to "the cosmos" (Wilson, 2008, p.38).

Many research methods support a particular paradigm (Guba & Lincoln, 1994). As mentioned earlier, some indigenous scholars may try to impose an indigenous methodology within a dominant paradigm. The result is not always effective, since it is nearly impossible to remove the underlying epistemology and ontology upon which the paradigms are built. Wilson (2008) explains, however, that "On the other hand, if one starts from an Indigenous paradigm, then one can choose to use any tool from within that paradigm that may be effective" (p. 39).

The methodology described in this paper fits Wilson's (2008) explanation because, it began from a Pasifika paradigm and the chosen tool to use from within that paradigm proved effective for the purpose of the doctoral work. The decision to use a Pasifika paradigm for the doctoral work was a fit that was Pasifika and a tool that was also Pasifika. Methodologies, ways of doing things, ways of acting, especially for Pasifika, have not been written about enough in the existing literature. Seldom, studies that focus on Pasifika use Pasifika methods. In that sense then, the methodology used in the cultural study was culturally appropriate and linguistically reliable.

In recent times, other models and methodologies about the different aspects of Pacific island life not normally looked at, have emerged from current research. For example, some Pasifika researchers have used *Talanoa* (Vaioleti, 2006) in the Tongan context to examine informal conversations between researcher and participants and or between participants and participants. These different aspects of Pasifika life tend to increase awareness of Pasifika researchers and postgraduate students alike about the things that Pacific Island people use for everyday living and the differing ways they use these resources that they can bring to their own work. Others have used *kakala* (the opening of fragrances; Thaman, 1999) and others have adopted *tuivaevae* (the making of a Cook Island quilt made of different patterns and designs; Maua-Hodges, 2000) and still others have used *fa'afaletui* (weaving; Tamasese, Peteru, & Waldegrave, 1997) which are all relevant and culturally responsive to Pasifika people.

There have been a few, for example, the *fonofale* (meeting house; Pulotu-Endemann, 2007), the *poutu* (the main pillar in a Samoan house; Wendt-Samu & Pihama, 2007), and others (for example, Tu'itahi, 2007), which are now seen as building on this recent trend and one which emerging Pasifika researchers are catching on to for their own work. One reason for this trend is most probably due to the lack of fit of western models that can adequately describe Pasifika and what they hold dear to their hearts. Another reason might be that examples of Pasifika models set and written about by Pasifika researchers, like the ones mentioned above in the area of methodology,are now taken on board by postgraduate students writing their masters and doctoral theses. For example, Pasifika postgraduate students on masters and doctoral work have adopted

ethnic specific methodologies by examining those ways of knowing and ways of acting recalled from past experiences or while growing up. These ways of acting and ways of knowing are what Amituanai-Toloa described as 'knowing' that is shelved for future use. The word 'knowledge' is ledg[e]ing what we 'know' (Amituanai-Toloa, 2005).

Postgraduate work supervised by the author and currently in progress is continuing this trend with examples such as the *fa'asinomaga* (identity) model which looks at family and church settings and interactions in a *fono* context, the *ulu* (breadfruit) model to focus on bilingual education and the teaching of Samoan language in secondary schools in New Zealand and the *palusami* model which examines the transition experience of children who had been educated in bilingual settings in primary settings but now move to secondary schools. Others have used ancient Samoan proverbs that are relevant to their work for content and also to structure the thesis and title the thesis chapters (for example, Natanielu, 2010). The common thread, which runs through these works, is the retrieval of processes or ways of acting and knowing which were 'ledged' to be made more articulate and visible in a contemporary western setting.

Whatever the reasons, there is a strong indication that the New Zealand born and island nation born Pasifika people, particularly in the case of Samoans, are taking this seriously in their work and, hence, are making more explicit the Pasifika ways that were not normally employed in such areas of work previously in academia. These students, in addition to being connected and being empowered by identifying with research that use Pasifika methods, have realised that they have a rich culture and that if they want people to understand who they are, where they come from and where they are going, their perspective as Pasifika people would be the first place to launch from. However, in understanding those three aspects, they must be able to make connections with something that is familiar and meaningful to them.

The model described in this paper is no different. The model originated from a Samoan riddle which required an answer. The riddle goes:

> *O le tagata e sau i le nu'u o tane, ona sau ai lea i le nu'u o fafine,*
> *ona sau ai lea i le oneone uli ma le papa, ona toe sau ai lea i le nu'u*
> *oneone sina, ona o'o mai ai lea i le vai.*

> *There is a man who comes to the land of men, and then comes to the*
> *land of women, then he comes to the land of black rock and sand and*
> *then to the white sandy land and lastly goes to the water.*
> *(Lutu-Drabble, 2000)*

It was in guessing the answer to the riddle that the researcher began to formulate a methodology. The thinking was: if there is such a man that is travelling from one place to another looking for water, each sequential destination might yield something that is useful for the next destination. In other words, all the destinations the riddle speaks about are part of one entity and therefore each part depends on another. The researcher then looked at each of the literal parts of the riddle, the land of men, for example, in an attempt to analyse what this meant. There are five parts of the riddle that are metaphorically and ambiguously illustrated: the land of men, the land of women, the land of black rock and sand, the white sandy lands and finally, the water.

The researcher remembers riddle guessing as a leisure pastime while growing up in Samoa. She also remembers being agile in guessing riddles thrown at her by siblings. The clue to guessing the riddle was the 'water'. A thirsty man looking for water is a journey no one wants to take especially if the journey is a long one. However, it is also a journey that needs to be taken in order to look for answers. The difficulty encountered in guessing the riddle was not so much the different lands but rather the metaphorical interpretations of those lands. Globally, the interpretation can be the world itself. Perhaps it is a country, a village, or a family. But all these were hindered by the presence of 'water' which the researcher finds ironical because without water, the traveler would not survive. So one asks the question, 'Where can one find water so distantly located if there was no water at all within easy reach?' Are we talking about a top to bottom structure? Or is it a horizontal structure? Is it an object and if it is, is it a big or small object?

Other questions started to emerge. For example, why did the man come to the land of men? Did he come for help or to be with other men? And why did he come to the land of women? Was he looking for a wife? Was he looking for his mother, a sister, a niece, a female cousin, a grandmother? What is the land of black rock and sand? Is it a landmark or a tourist attraction in Samoa? Is it a mountain rolling down to the shore? What about the water? Is it so far away that the man has to overcome those preceding destinations? Questions kept coming but the more the questions emerged, the more was there a need for answers.

Another line of questioning started. This time it was to examine the role of the 'man' himself and of the different contexts the man came to. In addition, the characteristics of the man and the different contexts were examined. What is a man? What role does he play in the *aiga* and village? What of women? What role do they play and how does this role relate to the man's role? What is the black rock and sand? The white sandy lands can be interpreted easily because of the word, 'sandy'. But the water was not so easy to interpret, could it be a well somewhere?

It was a train of thought about the man's role that provided the answer to the riddle and a model emerged. The man protects the family, his wife, and children. He is also the provider for his family. The woman depends on the man for protection and provisions he brings to the family. The land of black rock and sand must therefore be the resources for the family and the water must be the children. It was this line of analysis that the led to a big question came: In a case of an attack from outside, like the man in the riddle, what is strong enough to withstand such an onset? This line of thought enabled the researcher to guess the answer to the riddle: the coconut.

In the following sections of this paper, I describe the rationale behind the interpretation of the riddle and its effectiveness in the process of my doctoral work by focusing on the different parts of the coconut and its relevance in bringing the work together.

The outer kernel of the coconut is the hard crust that is difficult to penetrate. It is thus 'the land of men' because it acts as a protective external layer that keeps the contents of the entity enclosed and protected in preparation for new growth. The inside fibre, 'the land of women' cushions the life that it surrounds with the overarching support of the 'land of men' for further protection and insulation. The 'black rock and sand'

are the raw materials that keep the life source within, that is the 'white sandy lands' and the 'water,' sustained so that when new growth finally eventuates, the white sandy lands and the water merge to become what Samoans call *o'o¹* (arrival). It is the *o'o* that negotiates new growth.

A coconut has always been a metaphor for survival in Samoa. The fact that all its parts are utilised efficiently and effectively for everyday sustenance brings to the fore the importance of attaining knowledgeable procedures and processes in order to quench one's thirst especially in a not so familiar context. It is an extended metaphor because it can be interpreted as contextual strands that make up a whole. Each strand is considered critical when merged in its entirety. However, it is also ambiguous, depending on the reader, because anyone can be the protagonist; its application, therefore, depends to a greater degree on *who* rather than *what*. This is because it is the *who* that determines the *what*.

There are three types of coconuts most common in Samoa; the green coconut; the brown coconut and the black coconut. The green coconut is young and tender and remains firmly attached to the midribs of the coconut tree. On maturity, the green coconut ripens and turns brown. Its usually firm attachments begin to loosen as the midribs that support it begin to brown and droop. After it detaches itself from the tree and falls to the ground where it may well remain for some time, it turns black. For those that fall into the ocean, the process takes longer due to currents that mediate its journey but eventually gets to land. Yearning for growth, it locates itself on what it knows as suitable environment and transforms itself by utilising every part of itself for new growth.

The doctoral work was like the brown coconut. It was not too young for dependency and not too old to settle. In the middle stages of its full life cycle, it vividly remembers itself being green in the not so distant past but wonders anxiously about what is to come in the not so distant future. Consequently, it relies on what is around it to bring out that new growth. However, despite the three different kinds of coconuts, it is actually three-in-one. Hence, the journey into itself begins.

In the context of education, the man in the riddle could be the government, an educator, a teacher, a researcher or any person examining a particular topic. Each has the power to choose what to examine and what to present. In the doctoral study, it was the choice of the researcher to examine the Samoan bilingual reading comprehension achievement within a bigger context using the framework of the coconut to incorporate the extent to which Samoan people and students comprehend English texts.

It is evident that in order to get to the 'water' or solve the problem, there is a process one takes which involves a number of different 'lands' as destinations where one must reach. Each destination has its own context and characteristics pertaining to that context. The man in the riddle, like the researcher, must know about these different contexts and their characteristics in order to understand how to delve into the deeper recesses to get to the water. It is an inward journey and one that requires an examination of the self and its existence. It is also a journey that hopefully in the end can reveal from inside out its contents and causalities and, subsequently provide solutions to what this study aims to find. The doctoral work symbolized the coconut because it represents the visible

layering of what the riddle speaks about. Exposing the layering enables us to see and understand the reality for our Samoan students learning comprehension particularly their complex thinking as they comprehend texts in schools.

Given the topic of the doctoral work and the ethnicity of those who participated in it, it was culturally appropriate, from the Samoan viewpoint, that before discussion went further, to take hold of an idea that is familiar, mentally visible or tangible that could help provide a solid foundation for bridging understanding during constructive conversations. This 'idea' represents a *malae* (forum) where people seeking solutions to encountered issues come together with one goal; to provide and share resources, and to learn from each other those aspects that are pertinent to life and to sustainability.

This 'idea' was found in the incorporation of the Samoan *tupua* (riddle) introduced at the beginning of this paper and reiterated here. The complexities and hidden truths of the riddle promulgates such a *malae* and a context where different minds can meet in order to discuss accessibility of different pathways to the world and minds of Samoan teachers and Samoan students. This work uses the strategy of making connections by "building on the familiar in order to unlock the unfamiliar" (McNaughton, 2002) for the purpose of understanding, of unpacking the riddle by which students whose parents seek a better life in Aotearoa New Zealand somehow fail to find the 'better' education system adequate.

The riddle conceptualizes the principle of hidden knowledge, knowledge that might be found through casual conversations, or inadvertently. However, whilst the use of a Samoan riddle may demonstrate the importance of building on the familiar, the question of familiarity alone is non- existent if those who are in positions to influence student achievement particularly for students such as those in this study, are unknowledgeable about such familiarizations that can eventually provide a foundation or forum for teaching and learning. If those leading do not know the answer to the riddle of the coconut, then it is arguable that Pasifika students and Samoan students will have the same difficulty with interpretation when reading English texts.

The metaphor of the riddle and the model which resulted was used in the doctoral study for two reasons: One was for the purpose of trying to make sense of the reasons bilingual students continue to score at low levels of academic achievement. This study like others mentioned previously, also shows that compared to other students in New Zealand these students achieve less on reading comprehension despite government initiatives to raise their literacy levels. The other reason was to provide research-based evidence on how achievement can be raised and sustained not only for these students but also for the teachers who teach them.

The Samoan *tupua* utilized for the doctoral study emerged out of a desire to incorporate the past in order to go forward and grow for the future. The coconut, as the answer to the riddle is a re-awakening of that past and of things we have grown to take for granted. The metaphor of the riddle as used in the doctoral study reveals the depth of what we could say authoritatively as Pasifika and find with great relevancy and urgency if the decided methods are not blended in with western viewpoints.

I reclaim the word 'coconut' in the knowledge that others that might come after me are not ashamed or feel inferior about bringing to the fore for understanding their

ways of knowing and ways of acting. My reclamation of the word coconut should not, therefore, be seen as a racist slur which has no place in academia. Rather, it is a term I reclaim, for Pasifika that should transcend who we are, where we come from, and where we are going.

References

Amituanai-Toloa, M. (2005). *Ua malie toa. Ua malie tau. Students with silver tongues whip the tail: Enhanced teaching and learning of reading comprehension in Samoan bilingual classrooms* (Unpublished doctoral thesis, University of Auckland, New Zealand). Retrieved from: http://researchspace.auckland.ac.nz/handle/2292/352

Carjuzaa, J., & Fenimore-Smith, J.K. (2010). The give away spirit: Reading a shared vision of ethical indigenous research relationships. *Journal of Educational Controversy, 5*(2). Retrieved from: *www.wce.wwu.edu/Resources/CEP/eJournal/v005n002/*

Deloria, V., Jr. (1997). Red earth white lies: Native Americans and the myth of scientific fact. Golden, CO: Fulcrum Publishing.

Grande, S. (2004). Red pedagogy: Native American social and political thought. Lanham, MD: Rowman and Littlefield.

Grande, S. (2008). Red pedagogy: The un-methodology. In N. K. Denzin, Y. S. Lincoln, & L. T. Smith (Eds.), *Handbook of critical and Indigenous methodologies* (pp. 233-254). Thousand Oaks, CA: SAGE Publications.

Guba, E. & Lincoln, Y. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. Thousand Oaks, CA: SAGE Publications.

Lutu-Drabble, T. C. (2000). *Tusi pese fatuga tuai a Samoa: A songbook of popular old songs, photographs and proverbs of Samoa*. Pagopago, American Samoa: Pago Print Shop.

Maua-Hodges, T. (2000). *Ako pai ki Aitutaki: Transporting or weaving cultures*. Unpublished Research Report of Field Experiences to the Cook Islands. Wellington: Wellington College of Education.

McNaughton, S. (2002). *Meeting of minds*. Wellington: Learning Media.

Natanielu, S. (2010). *Pasifika's next top model: Finding indigenous models of practice* (Unpublished masters thesis). University of Auckland, New Zealand.

Pulotu-Endermann, K. (2007, September). *Fonofale model of health*. Paper presented at the Pasifika Models of Health Promotion Forum, Wellington, New Zealand.

Smith, L. T. (1999). *Decolonizing methodologies: Research and indigenous peoples*. New York: St. Martins Press.

Tamasese, K., Peteru, C., & Waldegrave, C. (1997). *Ole taeao afua, the new morning: A qualitative investigation into Samoan perspectives on mental health and culturally appropriate services*. Wellington: The Family Centre.

Thaman, K. (1995). Concepts of learning, knowledge and wisdom in Tonga, and their relevance to modern education. *Prospects: A Quarterly Review of Comparative Education, 15*(4), 723-733.

Tu'itahi, A. (2007, September). *A Pasifika model for health promotion.* Paper presented at the Pasifika Models of Health Promotion Forum, Wellington, New Zealand.

Vaioleti, T. (2006). Talanoa, a research methodology: A developing position on Pasifika research. *Waikato Journal of Education, 12,* 21-34.

Wendt-Samu, T., & Pihama, L. (2007). *Effective teaching in different cultural contexts: A comparative analysis of language, culture and pedagogy.* Retrieved from: http://www.tlri.org.nz/pdfs/9208_finalreport.pdf

Wilson, S. (2008). *Research is ceremony: Indigenous research methods*. Black Point, Nova Scotia, Canada: Fernwood Publishing.

Endnotes

1   *O'o* is the hardened juice of the coconut. This is the part that growth of a new coconut tree originates from.

Changing Student Teachers' Beliefs: Experiences from Pasifika Early Childhood Teacher Education in New Zealand

Manutai Leaupepe

Abstract

The value of play for children's learning is recognised in Pasifika early childhood teacher education programmes. Yet a study found that not all students entering these programmes have a background where play is highly valued or recognised for its contribution to the development of children's intellectual and social abilities. The article explores the implications of the tension that arises when students bring to their studies deep-seated beliefs that are challenged by the ideas presented in their courses. It considers the wider issues for the Pasifika programmes in teacher education themselves.

Introduction

In Aotearoa New Zealand, the nature of play in early childhood education is based on ideas from scientific studies of human development that value play as a means by which children learn and as the pedagogical vehicle for the delivery of the curriculum. The National Early Childhood Curriculum, Te Whāriki, recognises the significance of play to the holistic development of the child and, as a consequence, promotes learning occurs through play (Ministry of Education, 1996). Play is regarded as the way that children actively inquire into the environment. It is how they "learn strategies for active exploration, thinking and reasoning" (p.16) and how they make sense of the natural, social, and material worlds. How play actually works to produce cognition is of increasing interest to early childhood educators (Dockett & Fleer, 2003; Isenberg & Quisenberry, 2002; Leaupepe, 2010; Rothlein, & Brett, 1987; Sandberg, & Samuelsson, 2003; Wood & Attfield, 2005).

The value of play for children's learning is recognised in the Pasifika early childhood teacher education programmes delivered in the Faculty of Education at the University of Auckland. These programmes were examined in a research study that is discussed in this article. The study found that not all students entering these programmes have a background where play is highly valued or recognised for its contribution to the development of children's intellectual and social abilities. In response to these findings, the article explores the implications of the tension that arises when students bring to their studies deep-seated beliefs that are challenged by the ideas presented in their courses. It considers the wider issues for the Pasifika programmes in teacher education themselves. These programmes have provided opportunities for Pacific peoples to access and gain qualifications (Airini et al, 2010) within the early childhood education sector. However, of those who have entered teacher education programmes, some,

though not all, have experienced an irresolvable tension as they struggle between the deep-seated beliefs acquired as children in their home country and the ideas presented to them in the courses that challenge those beliefs. Such deep-seated beliefs are what Bourdieu refers to as doxic knowledge, beliefs that are so embodied that they are unconscious and unavailable for analysis using self-reflective strategies (Bourdieu, 1990). "We accept many things without knowing them" (Bourdieu & Eagleton, 1992, p.113); these embodied beliefs are just there, they exist and go unchallenged. It is the tacit knowledge that is not thought about, rather "it just is" (Rata, 2002, p.15). The questions that I address in this article are: What happens to those Pasifika students who enter New Zealand teacher education programmes that challenge those deep-seated beliefs? To what extent are Pasifika students willing to change and what are the consequences of such change? What are the implications for the programmers of change-resistant beliefs?

According to Shalem and Bensusan (1999) doxic beliefs are extremely difficult to change and there is considerable debate about how change can occur, if at all. There are different states of beliefs that "correspond to different kinds of beliefs of a varied significance" (p.28). *Trivial beliefs* are beliefs that protect us from having to question everything each time we do something, however, if anything goes wrong, we call them up to duty – we rely on them to help us get back on track. *Medium-term beliefs* are beliefs of a more enduring kind because they imply some kind of continuous reflection (genuine interests at heart, for example: parents for their children). *Deep-seated beliefs* are beliefs we hold in respect to issues of race, gender, and nationalism, to religion, to matters such as death, and to aspirations for quality of life. When called up for inspection, self-reflection, and possible change, it is these kinds of beliefs that are often resistant to self-analysis and change.

Many of the students who enter the Pasifika early childhood teacher education programme are from backgrounds where children were not encouraged to play with the opposite sex. Certain games and activities were often distinguished by gender. One research subject gave an example of such deep-seated beliefs about gender differentiation[1]:

> *In Tongan culture you know there are certain play that boys can only do and certain play that girls can only do, and there were times that boys and girls are not allowed to play together because of boys being rough and for the respect we have for each other. For example, we are playing marbles it would have been rude for me to play marbles, of the way we are kneeling down on the ground, climbing trees with boys because then having exposed ourselves as a child. Some play was limited for us because of the languages we might use in our play. Even now, after I learn about those theorists I still don't let my daughter play certain games, I don't let her climb trees, no climbing trees.*

Despite what the subject has learned in her course about the benefits of play, which include frequent debate about the importance of gender-equality in play, the subject's

own embodied beliefs remain unchanged, indeed are quite firmly fixed in the traditional way. Given that New Zealand education is based on human rights legislation and a liberal-democratic culture that requires and values gender equality, the education system actively encourages gender interaction, the result for this student is an unacknowledged tension as she passively receives the ideas presented in the courses, but actively allows her own views to govern her interactions with children. She may appear in class to have adopted the required knowledge through assessments, an acceptance demonstrated in her assignments. She may also appear to engage in the appropriate practices within the early childhood centres where she undertakes practical experience, but it is a superficial acceptance. The subtle and unconscious messages that she sends to the children through her body language and choice of words reveal that the new learning has not dislodged the deeper doxic beliefs.

Yet this is not the case with all the students. Another subject spoke about the significant changes in her attitudes towards gender relations that occurred as a result of what she learned in the course. Here she refers specifically to the theorists studied in the course:

> *Back home I grew up in a home with the knowledge that girls games are different from boys games. We hardly mix. I've changed my mentality that's the first thing. I've learnt a lot. At my last practicum I practiced that, what I've learned from the theorists, like Vygotsky's theory about imagination and it's amazing how you discover new learning. Children's thinking how they come up with certain play. Like this group of children were playing doctors and nurses, and the boy is a patient and the girls are the nurses and the doctor. They are playing in the family corner, I wouldn't encourage the boy in that area because it's for girls and then I think yes, the girl can be a doctor, it's ok that they are playing together. I definitely wouldn't encourage this kind of play, no, not at all, but now I understand how this type of play and interactions between the boy and the girls can enhance their learning.*

These two examples illustrate the problematic nature of teacher education programmes that involve making major changes to beliefs held by the students. The next section discusses the research study in greater detail.

Research study

In 2007 a small-scale research explored Pasifika early childhood student teachers' views of play (Leaupepe, 2008). The subjects were enrolled in the Pacific Islands Early Childhood Education (PIECE) Diploma of Teaching programme at the School of Pasifika Education, Faculty of Education, in the University of Auckland. They were in their second year of a three-year diploma programme and in the process of completing a teaching qualification that would permit them to work in both general and Pasifika early childhood settings. This particular group consisted mainly of Samoan and Tongan students therefore the research sample is not representative of all Pasifika groupings.

The purpose of the research project was to explore the views of the research subjects concerning the notions of the term 'play' and to analyze the extent to which these views were the result of their own childhood experiences and the beliefs that came with those experiences or were these views influenced by what they had studied in the course.

Prior to undertaking the 'Pedagogy of Play within Pacific Islands Contexts' course that explores the value of play, the subjects had explained what they meant by 'play'. For most it was a way to have fun. Play was described as:

> *How we learn and play is fun, we experience the outer world and we experience more things to add on to your list of experience.*

> *We have fun with others.*

> *I'm not tired of playing, cause I'm happy, I was happy and I feel like playing every time.*

All said that play allowed them as children to relax, especially after working and/or completing chores. Three viewed play as a way of making friends. This is how they learnt to socialise with their peers.

> *When we play we are making friends.*

> *We make lots of friends, it helps with communication.*

> *Fun, exploring, discovering, making friends with my peers.*

Play was relaxing and had been associated with exercising through playing traditional cultural games. One subject said that play *"occupied that space we had nothing to do or socialize"*. Others described playing in groups, playing as a reward and as a way of exploring. For some play included being competitive.

The subjects had experienced and shared similar childhood play experiences. Play happened outdoors and involved other children. *"We never play by ourselves, we always play in a group, it's more fun to play together"*. Individual play seldom occurred. When it did, it involved playing cards and hand clapping games accompanied with chants. But indoor play was rare, *"We hardly have any games indoors, back home no indoors; indoors we have to keep the house nicely for the visitors"*. There was no recollection of adults being involved in the childhood play experiences. These two features in particular, the absence of individualized play and the absence of adult participation may be contrasted with the type of play experienced by children in New Zealand.

Another significant difference between play in the Islands and play in New Zealand concerns its purpose. The subjects recalled how, as children, they contributed to village living. For children living in the Pacific Islands, there was always a task that needed to be done. Play did not feature highly in the island way of living. It was not uncommon for children to be working at a very young age. The work included gathering or collecting fire wood, picking up rubbish, feeding the pigs, working on the plantations, and helping with the preparation of food (Roopnarine, Lasker, Sacks, & Stores, 1998). Children's contribution was crucial to the family's survival and to the orderly functioning of village life. It was the way to respect parents through love, obedience and service (Schoffel & Melesia, 1996).

> *When I was a child, when I go out and have play our parents called*
> *out 'come here and do some work, don't waste your time but come*
> *here do something.*

> *I feel like playing all the time, I remember my mother saying to me*
> *'come home and do the things, sweep outside, pick up the rubbish.*

The subjects recalled that, for their parents, play was seen to interfere with daily chores and the work that needed to be done. Only after the chores were completed, were the children allowed to play – it was the reward for work well done and a way to ensure that chores were indeed completed. Often children would work faster if they knew that they could go outside and play with their friends or neighbours. So, to some degree, play was valued but tied to work.

> *It's just like a reward and then our parents would say, 'ok you can go*
> *and play'*

> *Our parents reward us when we do our chores because it's always we*
> *do our chores.*

> *There are times like you have to do little chores at home and then it's*
> *playtime.*

Work became the opportunity for play.

> *When we go to the plantation we use to cut the you know banana skin*
> *back home, the ones ready to die, so we just cut the leaves, we sit in it*
> *and then we slide down, it was funny and we really enjoy ourselves.*

Work sometimes provided opportunities to engage in pretend play.

> *We play under the tree, sometimes we make a umu, we put empty tins*
> *of corn beef and we make a umu, put little stick just to represent the*
> *food and put leaves on it and we have to try to make a umu.*

> *When mum go outside, the kids go outside and start digging beside*
> *mum weeding, doing some garden.*

Children used whatever resources were available from the natural environment.

> *There was no materials, whatever we could find like natural*
> *resources, coconut leaves, whatever we find around the house, the*
> *environment, that's what we use to play.*

In some instances, it has meant that, now as adults and parents themselves, the subjects will withhold opportunities for their own children to play using the same tactics as their parents.

> *When I told my children something to do [like some work-chores]*
> *but they didn't do it, I told them, you don't have to play. Yeah and*
> *sometimes I'm tired of cleaning up and say, 'Stop playing'. And after*
> *I spoke to them when I see them I think, I feel sorry for what I say to*
> *my children to stop playing.*

One subject recalled how unhappy she would be if she could not go out and play. She used play as a bargaining tool to negotiate with her parents.

> *When my mother don't let me go and play I was crying and I was very sad at home. And when she asked me something to do, I didn't want to do it sometimes I ask her, 'If I do that can I go and have a play?'*
> *Interviewer: And what would she say? Oh yeah, you can do this and after that you go and play.*

The majority described how often they wanted to play but when they did, it was usually met with disapproval. They recalled that when parents were busy with other things (hosting visitors, family and church commitments) play was a way of *"keeping children occupied"*.

The effect of childhood experiences

Pacific Island play practices differ markedly from play in New Zealand, a difference which has implications for Pasifika students who enter New Zealand teacher education early childhood programmes. The distinction is compounded by the educational theories studied in the courses which promote play for the development of the child's social and cognitive abilities. For Pasifika students, the very idea of questioning and critiquing educational theories is challenging. The lecturer is regarded as the expert who has the knowledge and experience. She is the authority. To question such authority becomes an almost impossible task, especially when deep-seated beliefs about authority are embedded within the student teachers' way of being, that is, that authority should "be accepted unquestioningly" (Rata, 2002, p.16).

Given these childhood experiences, which show the integration of work and play in traditional village life, to what extent did the students change their views about play and adopt the ideas taught in the early childhood education course? Did they agree that play should be valued as a means of learning? The status of play is associated with the position of children and their role and function in various societies (Wood & Attfield, 2005). The greater the status accorded to children, the greater the status of play. Allowing children the opportunities to make choices and decisions can be seen as a threat to adults in some cultures. It may compromise adults' control over children and go against cultural values and beliefs (Roopnarine et al., 1998). When children are needed for household chores play becomes an obstacle to such work (Hughes, 2004). In the Pacific, children are needed to help out with work on the plantations, fishing, preparation for cooking and other related chores. This different approach has implications for Pacific Island migrants to New Zealand, especially for those who become early childhood educators in a system that awards a high status to play.

In developed countries, and among the middle class of developing countries such as India and China, play is regarded as the child's 'work' (Roopnarine et al., 1998). In contrast, in societies based on traditional economies, such as Pacific Island nations, play is what children do; it is not serious (Wood & Attfield, 2005), while work is about survival and to some extent a means of survival (Roopnarine et al., 1998). Those parental attitudes about children working were an important influence on how

the student teachers later regarded play. All the subjects said that their parents had negative attitudes towards play. It was viewed as a *"waste of time"* or "*no value"* or *"not important for children".* This was especially the case when there was something more productive for children to do.

Despite these childhood influences, it appeared that the subjects had accepted the ideas about play that were presented in the course.

> *Well I read this theorists and their perspectives of play, there is heaps that I don't really know that's play. I just think it's normal but to the theorists, their theory is more than play, it's play and at the same time children learn so to me the theorists have big knowledge about play.*

> *Playing hop scotch, I didn't realize that I learn the numbers, the shape as well as hand and eye coordination, how you throw the stone, and according to some of the theorists that I've read about for example Piaget with his games with rules, I didn't realize that I am exploring and I am learning.*

Yet, in their practice, some, although not all, reverted to the position where play was not really valued. This is illustrated by the subjects referred to in the introduction to this article who could not fully accept boys and girls playing together. It is difficult to know whether this attachment is the result of unshakeable doxic beliefs or whether the students are simply fitting into the practices of some Pasifika early childhood centres in Auckland. That, of course, reinforces the deep-seated beliefs.

However there was one student who fully accepted the new ideas about play that she encountered in the course.

> *I have learnt a lot, so much that I didn't know that was play. I teach my own children and teach even my husband, I teach my husband about the module as well. I am spreading the word, I feel proud cause my husband doesn't speak English that much but he says, "let the child explore" I know how important play is and I want to encourage it. I can take children's play further by encouraging them, being supportive cause now I understand the value of play.*

Not only did she incorporate the new knowledge into her professional practice but she also attempted to change her adult children's views and practices towards their children. At this point she met with resistance. This is unsurprising given that her children were using the very practices with their children that their mother had used with them in the past.

> *It's hard, cause you know; I now see my eldest child and how he stops his son from playing. What happened to me as a child, I passed on to him. I tell him to leave his son, he is exploring. We start to argue and he says to me "what a waste of time, look at the mess" I feel sad and know what has happened, it's like a cycle being continued, but I know now and I want to try and encourage him so his son can learn and have fun.*

Conclusion

Pasifika students who entered New Zealand teacher education programmes found that their deep-seated beliefs about the value of play were challenged by the courses they undertook. In the study described in this article, only one of the six students showed significant change as a result of her study. She was prepared not only to change her own practices but to also encourage major changes by her adult children. The extent of this change suggests that she had engaged those deep doxic beliefs and changed them. She didn't just 'know' that play was important for children's development, she now fully believes it.

However, the remaining five students oscillate according to the circumstances. When required by those in authority at university to support play they will do so. When required by those in early childhood centres to support a traditional view of play they will do that. For these students, by far the majority, the beliefs internalised during childhood were shaken by the new knowledge, that is true, but they were not dislodged. These change-resistant beliefs have implications for the Pasifika early childhood teacher education programmes. How can these programmes ensure that students will engage in the self-reflection needed to interrogate their deeply held beliefs, when those beliefs are so deeply embodied that they are not available for reflection?

References

Airini, Toso, V. M., Sauni, L. S., Leaupepe, M., Pua, V., & Tuafuti, P. (2010). This road belongs to me: Promising practices in distance education. In J. Jesson et al. (Eds.). *University teaching reconsidered: Justice, practice, inquiry* (pp. 79-92). Wellington: Dunmore Publishing Ltd.

Bourdieu, P., & Eagleton, T. (1992). Doxa and common life. *New Left Review*, 191, 112-121.

Bourdieu, P. (1990). *The logic of practice*. Cambridge, UK: Polity.

Dockett, S. & Fleer, M. (2003). *Play and pedagogy in early childhood: Bending the rules*. Southbank Victoria: Thomson.

Isenberg, J.P. & Quisenberry, N. (2002). Play: Essential for all children. *Childhood Education*, *79*(1), 33-39.

Hughes, D. (2004). Reflecting on early literacy development in the context of Vanuatu. *Contemporary Issues in Early Childhood, 5*(3), 349-360.

Leaupepe, M. (2010). "Play…a waste of time"? Samoan and Tongan student teachers' views of play. *Mai Review, 1*, 1-12.

Leaupepe, M. (2008). *Exploring Pasifika perceptions of play* (Unpublished masters dissertation). University of Auckland, New Zealand.

Mara, D. & Burgess, F. (2007). *Early literacy: Quality teaching and learning in Pasifika early childhood education.* Wellington: New Zealand Council for Educational Research.

Ministry of Education. (1996). *Te Whāriki He whāriki mātauranga mō ngā mokopuna o Aotearoa. Early childhood curriculum*. Wellington: Learning Media .

Roopnarine, J.L., Lasker, J., Sacks, M., & Stores, M. (1998). The cultural contents of children's play. In O.N. Saracho & B. Spodek (Eds.). *Multiple perspectives on play in early childhood education* (pp. 194-211).). New York: State University of New York Press.

Rata, E. (2002). *Democratic principles in teaching and learning. A Kantian approach. Monograph/research report series.* Auckland: The Research Development Committee, Faculty of Postgraduate Studies and Research, Auckland College of Education.

Rothlein, L. & Brett, A. (1987). Children's, teachers', and parents' perception of play. *Early Childhood Research Quarterly, 2*(1), 45-53.

Sandberg, A. & Samuelsson, I. P. (2003). Preschool teachers' play experiences then and now. Early Childhood Research & Practice, 5(1), 2-24.

Shalem, Y. & Bensusan, D. (1999). 'Why we can't stop believing?' In S. Appel (Ed). *Psychoanalysis and pedagogy* (pp. 27-43). Westport: Bergin and Garvey.

Schoeffel, P. & Meleisa, M. (1996). Pacific Islands polynesian attitudes to child training and discipline in New Zealand: Some policy implications for social welfare and education. *Social Policy Journal of New Zealand, 6*, 134-147.

Wood, E. & Attfield, J. (2005). *Play, learning and the early childhood curriculum* (2nd ed.). London: Paul Chapman Publishing.

Endnotes

1   The information presented draws on the transcriptions of the participants' interviews. English is a second-language for all the participants in this research study and statements used are exactly to how the participants have expressed themselves.

Book Review

Rata, E. & Sullivan, R. (Eds.). (2009). ***Introduction to the history of New Zealand education.*** Auckland, New Zealand: Pearson.

Reviewed by Megan Lourie
The University of Auckland, New Zealand.

The *Introduction to the History of New Zealand Education* brings together a collection of papers, each written by a different author, which comprise an overview of the New Zealand education system from the nineteenth century until the present. A key intention of the book, which is aimed at students of education, teachers and indeed anyone interested in developing their understanding of our current education system, is to demonstrate how educational issues of the past are still concerns today. Furthermore, the book champions the notion that historical research is an important means of understanding and addressing these concerns.

The book is broad in scope but written with the purpose of providing scholarly yet accessible discussions of issues which range from unequal educational outcomes, socio-economic class, gender, and ethnicity. These issues span many sectors from early childhood education through primary and secondary and up into tertiary, where the focus is teacher education. The authors make it clear that their aim is not to provide exhaustive histories of their own specialist areas, but rather to illuminate the ways in which social, economic and political forces continue to shape and re-shape our education system. In doing so they demonstrate, as Roger Openshaw notes in the foreword, how the structures and taken-for-granted assumptions of our contemporary world have developed historically.

A strength of the collection is the familiarity that the authors have with the content of each others' chapters and their conversational tone. Key themes or questions are identified in each of the chapters and links to other chapters are highlighted. This enables the reader to develop a sense of the conceptualisation of, and response to, a number of similar issues, both over time and in a range of different educational contexts.

Maxine Stephenson begins the first chapter with the deceptively simple question 'How has our current education system developed?' (p.2). She goes on to examine the complex objectives of a developing nation, concisely describing the attempt made through the provision of education to accommodate the perceived needs of a number of different groups with different priorities. The eventual establishment of what was intended to be an egalitarian education system through the provision of free, secular and compulsory primary education was not achieved without dissension. Many of the

issues that are identified as present in early educational history are frequently revisited by the authors of this text. Stephenson deftly sets the scene for the following chapters by reminding us that we have the advantage of historical hindsight in judging the extent of the success of what was intended to be a truly democratic education system. The authors provide the historical context of various policy developments enabling readers to develop informed conclusions of their own.

Scott Ray's chapter continues with the theme of the importance of history. Ray reminds us that history and our education system are processes, unfinished, and uncertain and asks us to continually consider the influence of the past on the present. Wisely, he cautions us against understanding history as a narrative of progress or continuous improvement. In his chapter, which focuses on New Zealand education in the twentieth century, Ray demonstrates the links between the social and economic climate of a period and changes in education. Following an account of the Thomas Report then the largely uncritical Currie report he describes the effects of growing divisions in New Zealand society during the 1970s as a result of the bleak economic situation. His passion for history is clear as he asserts, with a clear message to those developing teacher training programmes, that an understanding of the education system in which teachers spend their working lives, can never be complete without an understanding of how and why it exists in its present form.

An account of the history of teacher training forms part of the chapter written by Margaret McLean about New Zealand teachers. McLean develops the idea that the role and nature of teaching has changed in response to shifting interpretations of the purpose of education. In tracing those changes, she is able to trace the struggle that teachers have faced and still face to achieve the same professional status as those in the classical professions. Issues such as poor remuneration, an array of teaching qualifications with different entry requirements, different levels of government funding, and the effects of neo-liberalism continue to impact on the work of teachers. Neoliberalism, it is argued, has reduced community trust in teachers and resulted in teachers being viewed as functionaries who are to be managed. This has undermined teacher autonomy by making them less free to make their own decisions, yet the demands for teachers to respond to increasing diversity in their classrooms continue.

The effectiveness of the teacher in responding to diversity is a theme that is taken up in a number of chapters that attempt to theorise the educational underachievement of different groups and some of the current proposed solutions. Language diversity is one such challenge facing teachers in the classroom today. Sue Gray, in her chapter on immigration, language and education focuses on the relationship of language with national identity, and describes the problem of educational underachievement which emerged in the 1970s as a result of very little systematic teaching of English to significant numbers of migrants who did not speak English. She discusses the tension between the maintenance of an ethnic group's language, culture and identity, and meeting the demands of the labour market. Issues that arise from this tension are further developed in the chapter that focuses on Pasifika education.

Read together, chapters seven and eight which discuss Pasifika education and the link between socio-economic class and Maori education respectively, provide a

fascinating example of what the authors of the Pasifika education chapter correctly identify as educational debate in action. In considering the role state education has in sustaining identity, language and culture the authors of the Pasifika chapter ask the question 'what makes the biggest difference to educational outcomes – socio-economic status or excellent teaching?' They clearly believe excellent teaching makes the biggest difference whilst in the following chapter Elizabeth Rata builds a case for considering the effects of socio-economic status on educational outcomes.

The authors of the Pasifika chapter demonstrate what has happened in New Zealand education in broad terms and through a case analysis of Pasifika early childhood education. In providing this historical overview they identify a number of themes associated with Pasifika education. A significant theme is developing understandings of the 'Pacific Island' identity and how those identities are in part the result of historical, cultural and political relationships. The authors describe the wide approach that has been taken in finding education solutions to unlock the Pasifika potential. However, they concede that "the range, pace, scope and duration, and evidence base of the initiatives suggest a need for greater coherence, collaboration, and leadership" (p90). What they are agreed upon is the need for the sustenance of identity, language and culture in order to achieve educational success.

Elizabeth Rata takes a different position. She argues that, despite the egalitarian ideals of New Zealand society, our educational attainment is largely determined by our socio-economic position. She then walks the reader through an accessible account of the role education plays in social reproduction using a number of well-known sociological theorists. Rata critiques the 'culture-first' approach which views cultural marginalisation as the major contributing cause of Maori under-achievement. She cites research that indicates an increasing gap between the growing Maori middle-class and Maori in the working class and argues that class position cuts across all social groups including those for whom ethnicity is their primary social identity. Echoing the authors of the Pasifika chapter who refer to the call in 2008 for the 'untangling' of Pasifika population cohorts in New Zealand so that the inter- and intra- ethnic dimensions of diverse groups and identities could be examined, Rata argues that research is needed into the diverse socio-economic groups within the Maori population in order to prove or disprove the socio-economic class theory.

Maori and Pacific Island students are often among groups who are identified as underachieving in education, but in chapter nine Louisa Allen provides a discussion of the new 'disadvantaged' group - boys. Allen raises the question of where the crisis in boys' education actually lies. As a group boys still go on to earn higher salaries that the girls who may have got higher grades while they were at school. Allen traces the effects of essentialist notions of boys' and girls' difference identifying the current claim that boys need different pedagogical strategies from girls as grounded in biological determinism. Like the other authors of this text, Allen is careful to link education trends to their historical context. She makes links between an interest in boys' schooling, labour market changes, and burgeoning theoretical work in critical masculinity studies, and highlights the modern day re-articulation of historical discourses contending boys' and girls' different natures warrant a differentiated curriculum. The significance of

what can be learnt from history is also brought to the fore as she identifies the call for male role models as an appropriation of 1970s liberal feminist assertions that more role models were needed at school for girls. Radical feminists later noted the tendency to overstate the potency of role models to disrupt existing social structures and processes. In the light of this understanding, Allen makes a case for focusing instead on issues that cohere around the constitution of generally narrow prescriptions of masculinity and boys' exercise of power at school.

One of the themes identified in the early chapters of this text and revisited in a number of subsequent chapters is that of the balance between private rights and state duty. Ros Sullivan develops this theme in her chapter about total safety in the context of outdoor education. Sullivan describes the way that the purpose of physical education has changed in response to a range of understandings of health and fitness over time, and examines the increasing involvement of the state in health and safety. She presents the argument that over the last century risk management in outdoor education has had the effect of limiting both adventure and pleasure. The increase in the 'complex webs' of safety regulations is discussed and Sullivan highlights the irony of increased concerns with inactivity and obesity in children, paralleled by greater regulation of childrens' play spaces which may contribute to inactivity. She also raises the concern of the possibly limiting effect on children by the constant presence of adults, a concern which is also expressed by Iris Duhn in the preceding chapter about early childhood education.

Duhn's fascinating chapter, which discusses changing conceptions of the child through time, ends on a cautionary note. The current push towards participation in early childhood education means that some children will spend much of their childhood in environments where adult-controlled routines and regulations structure their experiences, yet, as Duhn notes, little is known about the benefits of education for the very young. Duhn's chapter demonstrates the changes in childhood education in New Zealand from its early origins when infant schools where established to 'tame' Maori children to the latter day context in which the child is conceptualised as a 'lifelong learner' and education is seen as essential in optimising the potential of that child. Current debates over the degree and nature of intervention, the identification of children not participating in early childhood education as 'at risk', and the provision of funding, reflect the concerns and issues that are central in many of the other chapters.

In the final chapter of the book Rod Wills provides a historical overview of the education of students who have been identified as being disabled or having special educational needs. This chapter is yet another interrogation of the success of the New Zealand education system in providing equality of outcomes for all its participants. Wills describes the historical moves from the exclusion of this group of students to inclusion into mainstream education, identifying two different ways of viewing disability: the medical model which views a child's disability as a deficit and the social model which focuses on what support is needed to enable people with disabilities to fully participate in education. Echoing concerns raised in other chapters he discusses the effects of limited funding, neoliberalism, and the problem of an educational workforce insufficiently prepared to support the full inclusion of children and young people with

disabilities in education.

There is much in this text to pique the interest of the reader and to convince that reader of the value of historical research when discussing and evaluating our current education system. What is also apparent, perhaps frustratingly to some, is that history does not necessarily mean progress. However, the authors of the book clearly believe that in looking backwards we can improve our chances of making progress as we move forward in time.

About the authors

Suzanne Acord is a teacher trainer at the College of Micronesia Yap Campus in the Federated States of Micronesia. Her research interests are in teacher education, social studies education, and postcolonial education systems. She has worked with teachers and students in Hawaii, California, and Micronesia.

Judy-Anne Alexander-Pouono is a lecturer in English at the National University of Samoa. She was born and educated in Trinidad & Tobago, before going to Canada for tertiary education. She is currently a Masters student at the University of Canterbury, New Zealand.

Meaola Amituanai-Toloa is Associate Director with the Woolf Fisher Research Centre, Associate Dean, Pasifika, and lecturer at the Arts, Literacies and Languages school at the Faculty of Education University of Auckland. Her research interests are in the field of literacy in general but the components of literacy that are particularly of interest include: second language learners; bilingual and biliteracy development; cultural diversity and Pasifika education.

Erin Baumgartner is an Associate Professor of Education with the Curriculum Research and Development Group at the University of Hawaii at Manoa. She is the Project Coordinator of the Graduate Fellowships in K-12 Teaching (GK-12) program at UHM. Her research focuses on project-based learning and partnership building in science education.

Kanesa Duncan is an Assistant Professor of Education with the Curriculum Research and Development Group at the University of Hawaii at Manoa. Dr Duncan's research includes examining structures for science education partnerships in formal and informal educational settings.

Alex T. Handler was the special projects coordinator at the Center for Conservation Research and Training at the University of Hawaii at Manoa. He was also a founding member of Joule Junction LLC, an organization devoted to bringing together business, environmental, and educational interests for sustainability. His co-writers dedicate this paper to his memory.

Manutai Leaupepe is a Lecturer in the School of Critical Studies in Education, Faculty of Education, at the University of Auckland. She lectures in a range of early childhood education courses within Pasifika and mainstream for both undergraduate

and postgraduate programmes. Her research interests include Pasifika education, early childhood education, curriculum developments in the early years, Pasifika women in education, and ideas about play in diverse cultures.

Megan Lourie is a doctoral student is a doctoral student in the School of Critical Studies in Education, Faculty of Education, University of Auckland, New Zealand. Her research is an investigation of the experiences of non-Maori students learning the Maori language in secondary schools within the context of New Zealand's bicultural education policy.

Yalap P. Yalap is a Science Resource Specialist with the Palau Conservation Society. He provides support and professional development for science teachers throughout Palau and works closely with the Palau Ministry of Education and with other scientists in Palau to provide resources for teachers.

The Pacific Circle Consortium for Education

The Pacific Circle Consortium is an organization dedicated to the improvement of teaching about peoples and nations within and around the Pacific Ocean, and in Asia. From 1997 to 2004, the Consortium was an official program of the Centre for educational Research and Innovation of the Organisation for Economic Cooperation and Development (OECD/CERI). Currently, the Consortium is an independent organization.

The purposes of the Pacific Circle Consortium are to:
• Share ideas, resources, information, material and personnel among Pacific and Asian countries
• and educational institutions;
• Promote internationally co-operative research and development in education; and
• Undertake co-operative development of curriculum materials and educational support services.

Members of the Consortium

The membership of the Consortium is made up of individuals and institutions. The current membership is drawn from countries as diverse as New Zealand, Australia, Samoa, Fiji, Japan, Malaysia, Vietnam, Korea, China, Hong Kong SAR, Taiwan, Thailand, the United States, Canada, Mexico, Ecuador, Latvia, and the United Kingdom.

Officers of the Consortium 2010

Chairperson .... Meesook Kim, Korean Educational Development Institute, Korea
Incoming Chair .... Steve Thorpe, Southern Oregon University, USA
Secretary .... Carol Mutch, Education Review Office, New Zealand
Treasurer .... Kathy Berg, University of Hawaii at Manoa, USA
Editors .... Elizabeth Rata, University of Auckland, New Zealand
.... Airini, University of Auckland, New Zealand
.... Alexis Siteine, University of Auckland, New Zealand
Executive Members .... Cresantia Koya, University of the South Pacific, Fiji
.... Laura Ortiz, Mexico City, Mexico
.... Bridget O'Regan, Ako Aotearoa, New Zealand
.... Shiowlan Doong, National Normal University of Taiwan, Taiwan
Outgoing Chair
Ex officio
Outgoing Chair............ Ernesto Rangel, University of Colima, Mexico
PCC Secretariat .... Thanh Truc Nguyen, University of Hawaii at Manoa, USA

Requests for hard copy

Pacific-Asian Education is an international refereed journal for curriculum and general education studies within the Pacific Rim and Asian educational communities. *Pacific-Asian Education* is complimentary with membership of the Pacific Circle Consortium through annual conference registration or membership subscription. Recent issues are available on-line – e-mail: info@pacificcircleconsortium.org

For hard copies of individual issues contact:

PCC Secretariat
University of Hawaii at Manoa
Curriculum Research & Development Group
University Laboratory School
1776 University Avenue
Honolulu, Hawaii 96822
808-956-4923
E-mail: nyguen@hawaii.edu

Notes for contributors

Pacific-Asian Education is an international, refereed journal that addresses issues of curriculum and education within the Pacific Circle region and throughout Asia. The journal is interdisciplinary in approach and publishes recent research, reports of curriculum and education initiatives within the region, analyses of seminal literature, historical surveys, and discussions of conceptual issues and problems relevant to countries and communities within the Pacific Circle and Asia. Papers with a comparative or cross-cultural perspective are particularly welcome.

New manuscripts can be sent to:

The Editors
Pacific-Asian Education Journal
School of Critical Studies in Education
Faculty of Education
University of Auckland
Private Bag 92601
Symonds St
Auckland 1150
NEW ZEALAND
E-mail: paejournal@auckland.ac.nz

Guidelines for submitting manuscripts

Manuscripts: should be between 3000 and 7000 words and proceeded by an abstract of 100 – 150 words.

Intending contributors should submit **one hard copy and/or an electronic copy** of the manuscript to the Editor, and ensure that they retain an electronic and hard copy. Manuscripts should be typed in a standard 12 pt font, left aligned, double-spaced and on one side of the page only. Please do not submit as a pdf file.

Authors' names should be included on the title page but not on the manuscript. A brief (2-3 line) biographical note about each author should be provided on a separate page and should include full contact details (i.e. postal address, phone and facsimile numbers, and e-mail address).

Manuscripts should meet high academic standards and be written in clear English.

Avoid using complex formatting programmes and turn off bibliographical and endnote functions before submitting.

Intending contributors should consult the ***Publication Manual of the American Psychological Association*** (5th ed.) to ensure that articles conform to the guidelines including the use of up to three levels of headings, citations, references, tables, figures, etc.

For books: FitzGerald, S. (1997). *Is Australia an Asian country? Can Australia survive in an East Asian future?* St. Leonards, NSW: Allen & Unwin.

For article: Baumgart, N., Halse, C. (1999). Approaches to learning across cultures: the role of assessment. *Assessment in Education 6*(3), 321-337.

For chapters: Long, M.H. (1996). The role of the linguistic environment in second languages acquisition. In W.C. Ritchie & T. L. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 413-468). San Diego: Academic Press.

Tables must be typed on separate pages and not included as part of the text. The approximate location of tables should be indicated in the text.

Figures should be submitted on separate pages, in finished form, correctly labelled and their approximate location in the text clearly indicated.

In addition to consulting the *Publication Manual of the American Psychological Association* (5th ed.) authors should note the following **conventions** must be used in preparing a manuscript for submission:

Either British English or American English spelling should be used consistently throughout the text.

Footnotes should not be used. Endnotes should be kept to a minimum.

All pages should be numbered consecutively.

Do not use more than three heading levels.

Do not use double spaces after full stops at the end of sentences.

Do not use full stops in abbreviations: USA not U.S.A.

When referring to the title of an organization by its initials, first spell out the title in full followed by the abbreviation in parentheses, e.g. Curriculum Development Council (CDC). Thereafter refer to it as CDC.

Refereeing of articles takes approximately three months although this may vary according to the availability and commitments of referees.

Proofs will not be sent to authors. It is important to be as careful as possible with the final manuscript.

Final manuscripts should be double spaced and accompanied by a 100-150 word abstract, a brief biography and full contact details. Authors should submit an electronic copy of their final manuscript and accompanying details. An e-mail attachment should be clearly labelled with the author's name, title of the article and the type of programme used. Editorial staff may modify the manuscript to improve the readability of an article.

Book reviews should be between 500-750 words and follow the format outlined in regular issues.