The role of culture brokers in intercultural science education: A research proposal

Michael Michie[1]

Centre for Research in Science and Technology Education

University of Waikato

Paper presented at the 34th annual conference of the Australasian Science Education Research Association held in Melbourne, 10-12 July 2003.

In the spirit of Reconciliation, I would like to acknowledge the traditional Indigenous peoples of Darwin and Melbourne, and the Maori people of Aotearoa New Zealand

"As a nonnative person, I *chose* to work in this world of borders. Now I find my time in the border world has transformed all my work in education."

Celia Haig-Brown, in Haig-Brown & Archibald, 1996

(italics in original)

Introduction

At the beginning of 2002 I was offered the position of teaching principal at an Aboriginal community on the islands north of Darwin. I accepted this position, thinking that it would give me an opportunity to not only live in an Aboriginal community, as well as to see informally whether there was a role mediating between the Aboriginal community and the white population (i.e. a culture broker), who took on the role and what qualities they had. Particularly, I was interested to see to what extent I could take that role.

My experiences over such a short period of time and so recently as well, are difficult to interpret; like many cross-cultural experiences there was a period of elation at being in this novel situation, followed by a negative period ("culture shock"). Finally, coming through the make-or-break period with a decision to leave has implications of failure which I am only starting to resolve. My perception of myself as a culture broker is strongly influenced by these negative images.

One incident gave me some insight into the ways people could work as culture brokers, without having to label them (or they themselves) with the title. Realising that I wasn't participating within the community, I went to the local social club with the intention of breaking through the barriers which I felt I had surrounded myself with. A large group of Aboriginal men usually gathered around the dartboard and pool table and I had previously declined offers to play these games on the grounds of being unskilled. I was encouraged to join in with the group but stayed more or less on the periphery and watched.

On the next occasion a week later, I followed the same routine and was asked if I wanted to play darts. I agreed to play, put up my money and proceeded to justify why I hadn't played before. On this occasion there was a man present who had spoken to me regarding employment at the school some time previously, and he started to introduce me to some of the other men and talking about the range of things happening in the community.

I was aware through my experience and reading that as a teacher I was also to be a culture broker of sorts. In reflection, there were various ways in which I was expecting myself to be a culture broker

- on a personal level as a member of the community
- between myself and my students, also at a personal level
- through my pedagogy, by planning, teaching and assessing in ways which were inclusive and culturally appropriate

between the curriculum and my students, as it was mostly a curriculum based on western concepts.

At school, my class (years 5-7) had become fairly much enculturated into the western style of education. Although on an island, the community had fairly good access to Darwin by plane (up to four flights daily) and television, so there is a strong western influence. Some of my attempts at including local culture and knowledge were met with rebuffs, including "you can't teach me how to be aboriginal" (I didn't think I was) and "it's too hot to be outside" (followed by "Let's go back to school and play soccer.").

I found myself becoming increasingly uncomfortable in both my job and living in the community, so I left after a semester in the school. I had been on a contract for the semester and chose not to renew it. I found the loneliness of living by myself and a feeling of isolation from the community (partially of my creation) were major factors, although I was experiencing difficulties in my classroom and relating to the other teachers.

I had spent several years working in science curriculum and I was aware of the need to make the curriculum documents and materials being developed, inclusive of Indigenous students. This led to looking at the research, which led to Aikenhead's 1996 paper and the idea of culture broker. However it was also a term used by some of my colleagues who were working in indigenous education. I had become interested in culture studies of science and science education and resolved to look further at the role of teacher as culture broker, particularly in science education.

A review of the literature

Culture has been defined by a number of authors, whereas others presume its definition altogether. In the context of multicultural science education, some authors (e.g. Aikenhead, 1996; Cobern, 1991) have used a definition by Geertz (1953), an anthropologist: "an ordered system of meaning and symbols, in terms of which social interaction takes place". Phelan, Davidson and Cao (1991) conceptualised culture as the norms, values, beliefs, expectations, and conventional actions of a group. Nieto (1999, p. 48) incorporated the ideas present in many of the definitions as "the ever-changing values, traditions, social and political relationships, and worldview created, shared and transformed by a group of people bound together by a number of factors that can include a common history, geographical location, language, social class, and religion". These definitions reinforce the idea that cultures can differ between different social groups. As well, in any culture there are likely to be many subcultures, either mutually exclusive or overlapping (which are also possible at the level of cultures); one of these subcultures is the subculture of science (Aikenhead, 1996).

Phelan et al (1991) identified students' subcultures of family, school and peer worlds, the interrelationships between them, and, in particular, how meanings and understandings combine to affect students' engagement with learning. They also tried to understand students' perceptions of the boundaries between worlds and adaptation strategies they employ as they move from one context to another. They suggested that boundaries or borders refer to real or perceived lines or barriers between the subcultures and identified four patterns of students being able to move between subcultures. Subsequently, Aikenhead and Jegede (1999) used the metaphor of international travel to demonstrate cultural borders and border crossings, and they use the spectrum of four types of border crossings: smooth, managed, hazardous and impossible.

The concept of borders between cultures was reinforced with the publication in 1992 of *Border crossings* (Giroux, 1992) and with it the terminology of border – rather than boundary, barrier or divide – crossing. Giroux's book was written at the onset of critical education and the movement away from social and cultural reproduction. He suggested that within the discourse of modernism, borders are erected between the dominant, European (white) culture to the exclusion of the other (an assimilationist perspective). On the other hand, postmodernism promoted a critical approach to culture as a social construction, a theme repeated in critical multiculturalism.

Educators (including teachers) are among the groups of cultural workers who may find themselves in cultural borderlands of one type or another, either between the dominant western and another subculture, or on a larger scale between their own culture and a different culture (e.g. indigenous education) in the sense of the definitions above. How can they arrange for their students to achieve within a curriculum framed by the dominant culture? Aikenhead (1996) believed that for situations involving managed border crossings (and to some degree, hazardous border crossing), teachers needed to take on the role of a culture broker.

The term "culture broker" or "cultural broker" is not particularly defined in the literature but is defined through common usage as a person who facilitates the border crossing of another person or group of people from one culture to another culture[2]. Jezewski (in Jezewski & Sotnik, 2001) defined culture broking as "the act of bridging, linking or mediating between groups or persons of differing cultural backgrounds for the purpose of reducing conflict or producing change". Usually the culture broker is from one or other of the cultures but could be from a third group. Often they are capable of acting in both directions. The role is covers more than being an interpreter, although this is an important attribute in cross-cultural situations where language is part of the role.

A broker is usually defined as a middleman (sic) and emphasises the commercial aspect such as in stockbroker. In terms of cultural broker, the use of the term broker is most in accord with "middleman, intermediary, or agent generally; an interpreter, messenger, commissioner" from the Oxford English Dictionary and the idea of reward is not necessarily financial (e.g. Szasz, 2001). (The Oxford English Dictionary does not give a specific definition for cultural broker.)

The origin of the term is in the field of anthropology in the mid-1900s, when several anthropologists wrote about native people whose role in their society was as a cultural intermediary or cultural broker, usually with the western society. The term 'cultural intermediary' was used in some of the literature, with 'culture broker' and 'cultural broker' as alternatives. Other terms used include 'innovator' and 'marginal man' (sic). The genre was given an historical perspective and the field of ethnohistory came into existence. The background to this can be found in the introduction to Margaret Connell Szasz's *Between Indian and White Worlds: The Cultural Broker* (Szasz, 2001).

In the literature, the role of a culture broker has been discussed in a number of areas:

- anthropology and ethnohistory
- health education, including Indigenous health education; nursing education: rehabilitation of foreign born persons
- education: multicultural schooling, Teaching English as a Second or Other Language (TESOL), science education
- business; museums; tourism; justice.

<u>The culture broker in anthropology and ethnohistory</u>

Press (1969) reviewed much of the earlier literature on culture brokers, criticising the tendency to type them as "one of only several categories of individual, as though most innovative situations were somewhat alike and exhibited limited personnel requirements" (p.205). He also expressed concern that the research had focused on the personal stresses rather than the impacts that the brokers had on either the parent or the host culture, and hadn't established where their mandate to operate came from. Paine (1971), a Canadian anthropologist, developed a theory of patronage and brokerage, with patron and client as two endpoints. Between them, he located the 'go-between' as a person between the parties who does not expect any remuneration or alteration, and the 'broker' who deliberately changes emphasis or content.

Boissevain (1974) examined brokers as entrepreneurs, distinguishing between patrons and brokers. He suggests that the resources which an entrepreneur manipulates are of two distinct types, although they can be found in combination:

1. first order resources: land, jobs, scholarship funds, specialized knowledge, which he controls directly – dispensed by patrons
2. second order resources: strategic contacts with other people who control such resources directly or who have access to such persons – dispensed by brokers.

Szasz (2001) edited a collection of 14 biographical studies of cultural brokers in post-Columbian America. In her introduction, Szasz traces the development of the idea of cultural intermediary or broker in anthropology, outlining the origins of a new discipline of ethnohistory in the 1970s, which included historical accounts of an anthropological nature. However it's in the conclusion to the book that Szasz as editor gives us the best insight into the characteristics of cultural brokers. She considered that all of the cultural brokers came into the roles more or less by accident and there were influential factors such as internal networks, mixed cultural heritage and gender which predetermined who they would become. As well, she felt that they have three main characteristics in common.

1. All the border people were curious about "the other side" of the cultural divide and also demonstrated receptiveness to "the ways and words of others" (Kessell, 1995) and "trying to read both maps of the mind" (Parker, 1995). Inherent in this receptivity was the belief that those cultures offered something of value. Recognition of those cultures might also have implied that they were of intrinsic worth. Intermediaries who succeeded in this border world also demonstrated that they were trustworthy and that it required determination.
2. Those who succeeded in meeting these demands were locked into the complexities of a position that offered rewards but often countered those rewards by immeasurable difficulties. All too often intermediaries found themselves in awkward, sometimes precarious positions. One of the strongest motives for brokering was the sense of power that it offered. Beyond the anticipation of material rewards and the pleasure gained from power, cultural intermediaries also derived personal satisfaction.
3. Each of the people discussed in Szasz's book followed a different path to become cultural brokers which depended on their historical and cultural circumstances. Importantly, the examples in the book come from both western and Native American cultures, rather just from the indigenous side as they had been portrayed by most of the anthropologists.

Cultural brokers are not the same as interpreters, although facility in both languages (if there are two languages involved) is almost an essential factor and they can act as language interpreters as well. The more important part of their role is that they can interpret the culture for one or both groups. Szasz also notes that transculturites, a term used by Hallowell (1963) to denote people who move from one culture to live in another culture, do not necessarily become cultural brokers.

In Northern America some of the transculturites had been taken as children and as they grew older they either didn't want to rejoin their original culture or didn't know enough of their original culture to act as brokers[3]. White men who joined Native American groups were often referred to as 'squaw men' or by the pejorative, 'turned Indian'. In the early days of settlement of New Zealand, a large number of white men were accepted into Maori groups as *Pakeha Maori* (Bentley, 1999) but few of them were able to take on the role of cultural broker in any significant way. Rather most were seen as an embarrassment by the English colonial powers and their Maori hosts alike. However there were a few who fit the role of cultural broker *sensu* Szasz, because they moved back and forth between the two cultures. Apparently you can't abandon your own culture and become a cultural broker.

Culture brokers in health care and nursing

As in education, the creation of multicultural societies such as those in America, Canada, Australia and New Zealand has had implications for cross-cultural communication in health care and nursing. There have been papers written on different aspects of the health field (e.g. palliative care - Hall et al, 1998; counselling - Beauchamp & Shaw, 1998, May, 1998; disability services - Jezewski, 1995, Jezewski & Sotnik, 2001; nurse training - Shomaker, 1995). In 1996, Anne Fadiman's book, *The spirit catches you and you fall down*, tells the story of a Hmong family's experience with the American health system, focusing on cultural differences and the need for culture brokers to help resolve conflicts.

Jezewski (1995) used grounded theory to produce a theory of *culture brokering*, related to nurses providing health care. In her concept analysis she identified twelve attributes of culture brokering from the anthropology and health-related literature:

- intervening in conflict situations when tensions exist in interactions
- standing guard over critical junctures in the context of interactions
- possessing role ambiguity in the context of brokering and functioning in asymmetric relationships
- functioning marginally in one or more systems while brokering between systems
- encouraging potential for changing systems
- dealing with others positively and cultivating varied social relationships
- mediating between traditions
- innovating when traditions are inflexible
- facilitating communication by translating interests and message between groups
- bridging value systems
- functioning as a go-between
- bringing people together through networking. (Jezewski, 1995, p. 18)

Jezewski also produced a culture brokering theory (Figure 1) in the context of caring for groups of clients who were politically and economically hopeless (migrant workers or homeless persons) or persons who because of life-threatening illness needed to make informed decisions under the most stressful conditions. This theory has also been applied to provide culturally competent services to foreign-born persons (Jezewski & Sotnik, 2001).

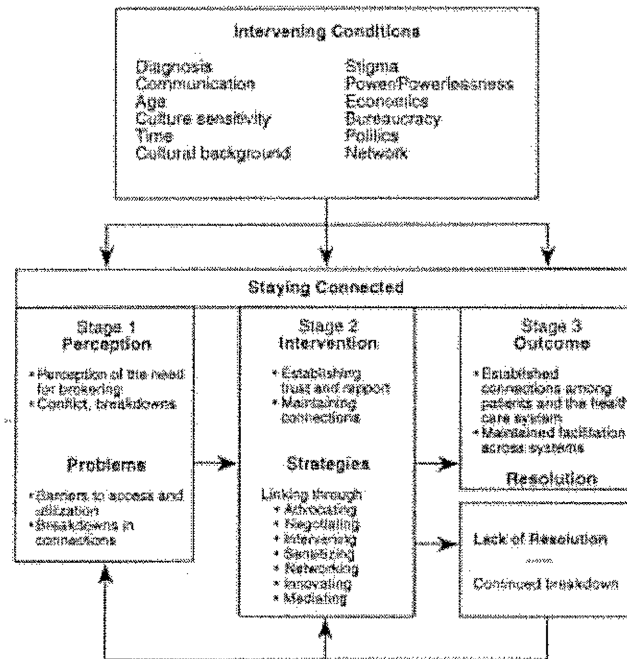

Figure 1. A model of culture broking theory, constructed around disability services (from Jezewski, 1995)

Jezewski also analysed the attributes of brokerage in the business literature and identified the following attributes

- complementing the existing way of doing business
- possessing public confidence and reputation
- establishing links
- being the right person for the role
- increasing competition in the business world
- ensuring the client knows the benefit of a broker. (Jezewski, 1995, p. 12)

She comments that the business literature emphasised "the importance of education in terms of teaching a person how to broker and continuously enhancing brokering skills through seminars and workshops" (Jezewski, 1995, p. 12). However, it would appear that only in the production of wealth that the value of education for the brokers is seen as expedient. It is because of its association with business that some people (e.g. Michael Christie, pers. com.) feel uncomfortable with using the term "broker".

In Australia, the role of Aboriginal health workers (AHWs) as cultural brokers in their communities (Soong, 1983) and the changing nature of their work have been examined (Willis, 1999). More recently, Trugdgen (2000)

highlighted a perceived inadequacy in the training of AHWs and their lack of knowledge of western medicine. The lack of AHWs in the larger urban centres of the Northern Territory (rather than communities), as discussed in Humphery, Weeramanthri and Fitz (2001), has implications not just of the identity of urban people as Indigenous but also suggests that they are more likely to have smooth border crossings into western medicine. A similar situation exists in education in the NT (and probably elsewhere), where urban Indigenous students are more likely to be assimilated into classrooms with few or no facilities to support their education, whereas in community schools their western teachers would be supported by Indigenous assistant teachers[4].

The role of education of people to be culture brokers is hardly touched on in the literature; for instance, in the training of Aboriginal health workers in Australia it is assumed that somehow through their experiences of the western world, the AHWs will become culture brokers. It would appear from the literature (e.g. Szasz, 2001) that many of the people who take on the role do so because of their own interest. There is also limited training and experience for professionals to enhance their skills as cross-cultural mediators, although the need for this has been identified (e.g. Trudgen, 2000).

In essence Jezewski's model duplicates what good teachers do already as they get to know their students. Teachers would have more clients than nurses at any one time, although teachers have the advantage that they have their clients for a longer duration and can build up a better picture of the client. The model may have some value for neophyte teachers with its focus for each stage. However, the model is based around the notion of the nurse as a go-between between the patient and professionals, other paraprofessionals and services. Teachers have to be able to assume both roles as go-between and professional.

The culture broker in education

To this point, the literature has been concerned with the culture broker as a middleperson, particularly in anthropology but also through the health literature. The relationship is one of an intermediary between a patron and a client. However in looking at education, the line of thought changes with the teacher being expected to take on the dual role of patron and mediator (professional and go-between). There are few references to teachers using other people as culture brokers (e.g. Páez & McCarty, 1997). A range of terms focus on the role of a teacher in a cross-cultural situation and culture broker is only one of these. Some of the alternatives are perhaps only part of the overall role of culture broker.

In one of the first references to culture brokers in education, Wyatt (1978-79) recommended the synthesis of the learning styles of the school and the native community (in this case, a Canadian First Nations community in British Columbia) and "that such synthesis depends in large part on the native teacher's acting as a "cultural broker", one who can communicate effectively in both a school and a community context and can translate knowledge and skills from one to the other." (Wyatt, 1978-79, p.17)

Wyatt felt that only native teachers have the background necessary to be effective cultural brokers because they could achieve a balance between school and community styles of learning. This may be the case in this particular situation but other writers have shown that culture brokers can come from either cultural group, and it is possible for a culture broker to come from a third group (although this would affect their effectiveness).

Gentemann and Whitehead (1983) use the term *cultural broker* as a link between the mainstream and other cultures or subcultures (they were working with African American students in a bicultural situation). "The broker must be able to straddle both cultures, to take mainstream values and communicate them to the ethnic cultures, and communicate the ethnic culture to the mainstream." They suggest that a cultural broker is more than just an interpreter, although knowledge of language (even an understanding of Standard and non-standard forms of English for someone working with African Americans) is one of the cultural symbols they must possess. Gentemann and Whitehead saw that the culture broker was important as a role model for those in the ethnic community who aspire to participate in mainstream activities.

Diaz and Flores (1990) and Flores, Cousins and Diaz (1991) use the term *cultural mediator* in looking at the role of the teacher teaching multicultural literacy to students in American minority classes. "The teacher acts as a cultural mediator, organizing the learning in order to mediate levels of knowledge between the teacher and the students and among students themselves." (Flores et al, 1991).

Working primarily with African-American students, Gay (1993) suggested that teacher training should include grounding in "how the dynamic of cultural conditioning operates in teaching and learning" and that teachers should be taught to be *cultural brokers*. Her definition of a cultural broker is couched in pedagogical terms: "A cultural broker is one who thoroughly understands different cultural systems, is able to interpret cultural systems from one frame of reference to another, can mediate cultural incompatibilities, and knows how to build bridges or establish linkages across cultures that facilitate the instructional process." She suggested that there are several skills necessary for teachers to become cultural brokers (and subsequently ways in which this could be undertaken):

- acquiring cultural knowledge
- becoming change agents
- translating knowledge into practice.

Diamond and Moore (1995) identified three roles of teachers as they create "the culture of the classroom and invite students to co-participate in this effort:

1. *cultural organisers* who facilitate strategic ways of accomplishing tasks so that the learning process involves varied ways of knowing, experiencing, thinking and behaving;
2. *cultural mediators* who create opportunities for critical dialogue and behaving;
3. *orchestrators of social contexts* who provide several learning configurations including interpersonal *and* intrapersonal opportunities for seeking, accessing, and evaluating knowledge." (Diamond & Moore, 1995, p. 35)

Stairs (1995) examined the cultural base of teaching and learning in Native schools in Canada. She considered that the movement from cultural inclusion to cultural base in the conceptualisation and implementation of Native education, where there had been the progressive incorporation of schools into the Native cultural, would benefit further from the presence of culture brokers. She felt that the future directions included

- emerging oral and written linguistic forms, in both Native languages and English as cultural bridges
- developing Native educator roles as culture brokers between Native and Euro-Canadian ways of knowing.

She also saw a role for culture broking for incorporation of certain Native ways of learning into mainstream formal education. "I suggest in closing that genuine two-way brokerage between Native culture and formal schooling validates Native ways of learning, responds to urgent mainstream needs, and is our collective path to success in Native education." (Stairs, 1995)

Páez and McCarty (1997) advocate using *cultural brokers* in teaching English to children of migrant families. They focus on communicating with parents to provide one or more of the following services: mediation, advocacy, interpretation and translation, and educational consulting. They give advice to teachers as to the requirements in selecting cultural brokers, rather than necessarily developing these skills themselves. These considerations include the potential broker's professional and personal background, their general and educational experience, their role in the community and their relationship with the student and family.

Gay (2000), writing primarily for preservice teachers of African-American students, restated the three key roles and responsibilities of teachers of Diamond and Moore (1995) in terms of using culturally responsive pedagogy[5]:

1. *cultural organisers:* "... teachers must understand how culture operates in daily classroom dynamics, create learning atmospheres that radiate cultural and ethnic diversity, and facilitate high academic achievement for all students. Opportunities must be provided for students from different ethnic backgrounds to have free personal and cultural expression so that their voices and experiences can be incorporated into teaching and learning processes on a regular basis. These accommodations require the use of various culturally centred ways of knowing, thinking, speaking, feeling, and behaving."
2. *cultural mediators:* "... teachers provide opportunities for students to engage in critical dialogue about conflicts between cultures and to analyse inconsistencies between mainstream cultural ideas/realities and those of different cultural systems. They help students clarify their ethnic identities, honor other cultures, develop positive cross-ethnic and cross-cultural relationships, and avoid perpetuating prejudices, stereotypes and racism. The goal is to create communities of culturally diverse learners who celebrate and affirm each other and work

collaboratively for their mutual success, where empowerment replaces powerlessness and oppression.

3. *orchestrators of social contexts for learning:* "… teachers must recognise the important influence culture has on learning, and make teaching processes compatible with the sociocultural contexts and frames of reference of ethnically diverse students. They also help students translate their cultural competencies into school learning resources." (Gay, 2000, p. 42-43)

In summary, there are two conflicting views of teacher as culture broker coming through the literature.

1. The first is that the role is better filled by someone from the Other and that teachers are better off searching for the best person to fill the role. Almost all of the biographies in Szasz (2001) and most of the anthropological studies are of culture brokers from the Other.
2. At the opposite end of the spectrum, a teacher needs to develop a set of skills to become more proficient in their cross-cultural classroom, with the implication that upon attaining them they would have achieved the role of culture broker.

The culture broker in science education

Aikenhead (1996) introduced the role of "teacher as culture broker" to science education in the first of a series of papers (Aikenhead, 1996, 1997, 2001a, b, c; Aikenhead & Jegede, 1999; Jegede & Aikenhead, 1999), based on the ideas of Stairs (1995). These papers initially examined the abilities of students to cross a cultural border between their everyday life to the subculture of school science but subsequently have focused on integrating Western and Indigenous science through Aikenhead's "Rekindling Traditions" teaching resources, and particularly on the teacher's role as a culture broker.

Aikenhead (1996) examined the degree of difficulty that students may have in crossing the border between their life-world subcultures and the subculture of school science. Phelan et al (1991) identified that border crossings could be smooth, manageable, hazardous or virtually impossible, and these can be used with Costa's (1995) five categories of students to identify the potential for border crossing as well as the role of the teacher in each situation.

- Potential scientists: These students make smooth and natural transitions, and borders appear invisible. However these students are unlikely to find an STS approach fulfilling.
- Other smart kids: These students are likely to have managed border crossings, and the teacher's approach would be more as a travel agent
- 'I don't know' students: For these students border crossings are hazardous, and they learn to cope and survive. The role for the teacher is more as a tour guide, a more structured approach than for Other smart kids.
- Outsiders and Inside outsiders: For these students border crossing into subculture science is virtually or almost impossible, and apart from suggesting reconceptualizing the field, Aikenhead (1996) chose to leave this unresolved.

For the majority of students, Aikenhead suggested that a Science-Technology-Society (STS) approach to science education would allow students to cross most easily into the subculture of school science.

Aikenhead (1997) extended the concept of border crossing to include the perspective of Indigenous students (in this case, First Nations students in Northern America) learning western science through school science. He saw that school science was comprised by "a dynamic integration" of the cultural transmission of the subculture of western science as well as of the dominant culture of a country, as well as other crucial influences which may be experienced primarily by the educators. If the goal of the school science curriculum is the cultural transmission of canonical science content, then doing so will either be supportive or disruptive to students' everyday cultures. If students learn western science which is in harmony with their indigenous view of the world, they incorporate the content into their personal view of the world and it enhances their everyday thinking. This is termed *enculturation*. On the other hand, if students learn western science which is at odds with their indigenous views and which replaces or marginalises those views, so that it dominates their everyday thinking, then *assimilation* has taken place. Assimilation has highly negative connotations, not only at this level in school education but also in terms of assimilation of groups of indigenous peoples.

However, many indigenous students have shown that they can actively resist assimilation and this resistance can take many forms. One form that Aikenhead cites was called "Fatima's rules" by Larsen (1995), and related to developing the ability to answer questions without understanding the subject matter meaningfully.

the ability to answer questions without understanding the subject matter meaningfully.

Aikenhead posed two questions regarding indigenous students' need to achieve in science (Aikenhead, 1997, p. 222):

1. How does one nurture students' achievement toward formal educational credentials and economic and political independence, while at the same time develop the students' cultural identity as Aboriginals?
2. To what extent, and how, can First Nations students learn non-Aboriginal school subjects such as science without being harmfully assimilated by science's dominant Western culture?

At the low-risk end of the spectrum, he suggests that "educators dedicate themselves to preserving the culturally distinctive modes of communication, thought, and life styles of the students' Aboriginal culture" (Aikenhead, 1997, p.223). At the other end, talented students are pushed into the pipeline in the hope that the long-term outcomes will outweigh any personal loss to their self-identity as an Aboriginal. It is at this upper end that the processes of assimilation are stronger and that the need for better management of border crossings becomes apparent, as was suggested by Pomeroy (1994) through teachers and students becoming "cultural border crossers" together.

Aikenhead gives some examples from his own experience of the difficulties that indigenous students experience when they move between cultures and subcultures. He also summarises some of the literature of research where difficulties have arisen:

- problems experience in developing countries by students who have an "indigenous" tradition and attempt to learn a subject matter grounded in western culture: Baker & Taylor (1995), Dart (1972), George & Glasgow (1988), Jegede (1995), Jegede & Okebukola (1990, 1991), Knamiller (1984), Pomeroy (1994), Swift (1992)
- minority students in western countries: Allen & Crawley (1998), Atwater & Riley (1993), Contreras & Lee (1990), Krugly-Smolska (1995), Lee, Fradd & Sutman (1995), Rakow & Bermudez (1993)
- Pomeroy (1994) addresses both non-western and minority domains of research and overlaps with First Nations research in science education (McIvor 1995; Nelson-Barber & Estrin 1995)
- Hennessey (1993, p. 3): "Crossing over from one domain of meaning to another is exceedingly hard".

Cajete (1999) bases much of his theoretical argument about culture brokers on Aikenhead's work, augmenting it with his own practical experiences. He uses Native ways of learning as a model for development of culturally relevant curriculum and pedagogy.

McKinley (2001) indicated that the power relationships implicit in the idea of "effective teacher as a culture broker", needed to be considered. Her first criticism is of the assumption that western science teachers only need to learn how to deal with pedagogical aspects of cross-cultural differences, rather than dealing with the teachers' views of their students' abilities as learners or the validity of their knowledge. The second criticism is that if white teachers can learn to become culture brokers, then seemingly there may be no role for indigenous people in the educational enterprise.

Science is one area of knowledge where there is a strong contrast in the worldviews of Indigenous and non-indigenous people. For indigenous students, particularly with strong traditional ties, there are often conflicts between western science and their indigenous knowledge. Often these students avoid science because of the difficulties created by conflicting worldviews. Teachers can act as culture brokers if they are aware of the situation but awareness in itself doesn't create a culture broker.

The research

The research aims to understand the potential role of "teacher as culture broker" within the field of science education through an understanding of the wider role of culture broker in cross-cultural mediation, and its relationship to other similar identified roles. A conflict of worldviews arises when teaching of western science concepts takes place without acknowledgment of indigenous ways of knowing. The research will identify and evaluate practices in this area where a teacher takes on the role of a culture broker by considering both worldviews and bodies of knowledge.

The role of a culture broker as a facilitator of cross-cultural border crossings has gained some credence in education in recent times but it has not been established as praxis in indigenous science education. One difficulty is that in its original definition in the anthropology literature it is described as a mediating or facilitating role between two people. In teaching the emphasis has been on the teacher becoming the culture broker between themselves and their students (unless it is seen as facilitating between cultures).

(unless it is seen as facilitating between cultures).

This research focuses on

- developing an understanding of the role of a culture broker in cross-cultural situations
- its perception by researchers and practitioners from cross-cultural education
- how the understanding of this role can inform teachers' praxis, teaching and learning, particularly in the area of indigenous science education.

The research methodology

Last year I was at a conference where a Maori woman and a non-Indigenous Australian man were co-presenting. She spoke at the beginning of the paper and gave a rundown on the conditions that allow her to consider herself a Maori researcher. The Treaty of Waitangi provides for sovereignty for Maori as the basis from which she can undertake what is called *Kaupapa Maori* research[6] – research about Maori for Maori by Maori. Other conditions – speaking dialects of the same language, having similar social organisation (*whanau, hapu, iwi* – translated basically as family, sub-tribe, tribe), being a relatively large proportion of a small, compact population – are all considered advantages for Maori academics.

Unfortunately her Australian colleague did not take advantage of the situation and discuss the contrast with indigenous research here. To me, the contrast is stark: no treaty; no common indigenous language; social organisations which often have been replaced or are being replaced by western structures; a proportionally small population widely spread through a large continent. These circumstances together with historically poor access to tertiary education have resulted in a small population of indigenous researchers. The situation in Australia is repeated in many countries worldwide, particularly in the USA and Canada.

In 2001 I enrolled in a PhD in the science education centre at a large urban university in Australia and began discussions with my supervisor about how I proposed to tackle my topic which was on culture brokers in indigenous science education. He gave me large amounts of readings to look at, particularly about qualitative research methodology, which was all very interesting and difficult to understand.

However there seemed to be an element missing. I had been to conference in Rotorua two years before and met up with some Maori researchers there and afterwards. They introduced me to some of the recent Maori research writings and it seemed that ideas such as those in Russell Bishop's Collaborative research stories (Bishop, 1996) would be useful in approaching my research.

This lead to a conversation with my supervisor and my statement, "If I'm going to do research indigenous education, perhaps I should have an indigenous supervisor". After some time and further discussion, I decided to leave that university and enrolled at the University of Waikato, where two of my three supervisors are Maori.

Pakeha and *Kaupapa Maori* research

The question has been asked, "If *Kaupapa Maori* research is research about Maori for Maori by Maori, can non-Maori conduct research on Maori?" The essential response to this question depends on whom the research is for: Is it *for* Maori? There has been some discussion regarding this by *Kaupapa Maori* researchers (e.g. Bevan-Brown, 1998) and the consensus would appear to be that if the results of the research are clearly to benefit Maori then *Pakeha*[7] could take part. However to ensure that this is the case there should be collaboration with indigenous *Kaupapa Maori* researchers.

There have been many non-indigenous *(Pakeha)* researchers who have been involved in researching indigenous people all around the world, yet few of them would be able to suggest that they take a *Kaupapa Maori*-type approach. Three women who have undertaken this kind of research with First Nations people in Canada are Celia Haig-Brown, Sheila Te Hennepe and Lous Heshusius.

Celia Haig-Brown describes herself as "a woman of bourgeois English origins" (Haig-Brown, 1992) who has undertaken what she calls "border work", working metaphorically between the borders of indigenous nations and

postcolonial nations. I found her comment, "As a nonnative person, I *chose* to work in this world of borders" (Haig

postcolonial nations. I found her comment, "As a nominative person, I *chose* to work in this world of borders" (Haig-Brown & Archibald, 1996), a stimulus to consider further her writings. I also wanted to know from her what her perspective would be of a culture broker (Giroux's *Border crossings* was published also in 1992) and made a mental note to try to interview her.

I'm also interested in the way she undertakes her research. She uses ethnography, basically the methodology I intend to use, and refers to the formal process of interviewing as "research as conversation", supported by informal "research as chat". She says that, "Ethnography provides opportunity for the sensitive interviewer and the interested co-investigator (study participant) to develop mutual understandings as they work together" (p.), a situation I want to develop in my research. She also sees that ethnography replicates the traditional role of learner in many indigenous cultures. Importantly, she sees that it was important to take what she had written back to her interviewees as she was writing it, as a significant part of the collaborative process.

Sheila Te Hennepe (1993) also used interviewing/ethnography as a research technique in looking at the impact of anthropology courses on First Nations students attending the University of British Columbia (Canada). She considered that there were three parts to her research – We participate in conversations, I analyse what we said, I create a text to represent what I learned – and that respect was an issue.

Te Hennepe's paper includes some of her ethnography and parts of some stories she had heard or been involved in, where she could see a mismatch between the anthropologists and the students. The mismatch was between theory and lived practice which she could see from the perspective of someone in between two worlds. Initially she was comfortable with this position but as she carried out her research problems of positioning began to emerge. She realised that the reality was that there was no neutral position and that all research is within a political context.

Lous Heshusius (1994) differs from the other two women in that she is looking at the qualitative research process itself. She is critical of the objective-subjective dichotomy, and suggests an alternative which she calls a participatory mode of consciousness which "is the awareness of a deeper level of kinship between the knower and the known" (p. 16). This would seem appropriate for Indigenous knowledges which are generally noted for their holistic approach to knowledge. A paradigm shift from the objective scientific approach has not occurred; there is more qualitative research being undertaken with guarded inclusion of subjectivity but participatory consciousness has not become widespread.

Elsewhere, Connelly and Clandinin (1990) discussed the role of narrative inquiry in qualitative research on practicing teachers. An important part of this type of research is the inclusion of the participants in constructing the final narrative: "When both researchers and practitioners tell stories of the research relationship, they have the possibility of being stories of empowerment." (p. 4). This aspect is important in the research I want to undertake.

Russell Bishop (1996) used collaborative research stories in a way that amalgamates the western qualitative methodology of ethnography/narrative with Maori traditions (including storytelling and *whanau, hapu, iwi*), as a form of *Kaupapa Maori* research. He points out the importance of the formal interview as conversation, the informal interview as chat and the need for collaboration between researcher and researched in constructing the final story.

In Australia there has been some acceptance of *Kaupapa Maori* research since Linda Tuhiwai Smith's book, *Decolonising methodologies,* was published in 1999. It is now used as a text in some indigenous research centres around Australia for units on research methodologies. As well, there has been some investigation of yarning as a research methodology. Akin to conversation and chat, this has been used for both formal and informal research as a way of including and valuing Indigenous peoples in research, through sharing of stories, a familiar traditional situation (e.g. Dunbar and others, 2002; Gilchrist and others, 2002; Purcell, 2002).

In my own project

The role of a culture broker as a facilitator of cross-cultural border crossings has gained some credence in education in recent times but it has not been established as praxis in indigenous science education. One difficulty is that in its original definition in the anthropology literature it is described as a mediating or facilitating role between two people. In teaching the emphasis has been on the teacher becoming the culture broker between themselves and their students (unless it is seen as facilitating between cultures).

The research is being undertaken using a qualitative methodology based on the Kaupapa Maori research paradigm

The research is being undertaken using a qualitative methodology based on the Kaupapa Maori research paradigm. Interviews (conversations) with a number of practitioners will be used to produce collaborative narratives about the praxis of teachers as culture brokers in indigenous science education. Analysis of the narratives will identify and evaluate practices in this area where a teacher takes on the role of a culture broker by considering both worldviews and bodies of knowledge.

In my research I want to undertake a series of interviews as conversations and chats with a number of people about their perceptions of undertaking "border work", particularly between western and indigenous people. I intend to begin with a formal interview as conversation, a taped interview with each participant based around a series of questions about their experience as border workers. Once the conversation has been transcribed, the process of collaborative construction of the text will be initiated with its return to them for their comment. It's hoped that this will also begin a series of interviews as chat, either in person, by telephone or using postal or electronic mail, until an agreed text has been constructed.

For each participant there will be a final text, a biography of sorts, of how each participant has operated as a border worker constructed collaboratively mainly from their own words. In crafting the text, the interview as conversation will be the major source of information, modified by the participant's informal chats and writings and possibly by comments from outsiders (as approved referees).

The basis on which I am selecting the participants is that they have had an extensive period of interaction at the border, maybe as experience in multicultural science education as teachers or researchers. From my perception, they are culture brokers, although they may not see themselves as such or may not have come across the term. I expect to interview primarily people from both sides of the "border" of indigenous science education, hopefully in some cases pairs of people who have worked collaboratively across the border. The selection criteria include

- male and female
- indigenous and non-indigenous
- international as well as Australia and Aotearoa/New Zealand
- teachers and researchers
- significant experience in the field
- writings in the field.

The following are the sorts of questions which may make up the interview. As the interview is seen as open-ended, these are perhaps the main focuses rather than specific questions. The intention is to use the interview to expand on each participant's writings.

- What is your understanding of the role of a culture broker?
- Do you think of yourself as a culture broker?
- Tell me about your experience in cross-cultural situations. How do you think you acted as a culture broker?
- How does your life experience lead you to be a culture broker?
- How you relate this to your research and publications?
- How do you think teachers need to behave in cross-cultural settings? Is being a culture broker appropriate to teachers?
- What kinds of experiences do teachers need to function as culture brokers? How do they get them? Is there any way of doing this?
- What awareness do teachers need when dealing particularly with western science in the classroom?

The interview will also establish how each participant and the researcher may be able to collaborate in writing the collaborative narrative.

Once the individual stories have been completed will come the synthesis of the conversations of border workers in the field to determine their commonalities and perhaps what formal approaches can be taken to skill outsiders to take on this role.

- Analysis of the interview participants' writings, particularly to determine the strengths and experiences each individual has which will become the focus for the interviews

- Collaborative storying as a result of the interviews (conversations) augmented by other forms of

- Collaborative storying as a result of the interviews (conversations), augmented by other forms of communication, e.g. telephone, letters, e-mail
- Analysis of the collaborative stories.

Postculturalism and postcolonialist theorising

McConaghy (2000) has critiqued culturalism in which culture is seen as the defining ideology in indigenous education. She describes four traditions, all of which rely on the cultural binary, i.e. white and black:

1. pastoral welfarism: based on indigenous incapacity
2. assimilationism: remaking themselves in the image of the white
3. cultural relativism: sensitive to difference and inclusive of cross-cultural expertise – the cultural mediator – and of culturally relevant/responsive pedagogy
4. radicalism: inverting colonial power (e.g. Freire)

At the present time I have not considered the role of postcolonialist theorising and its possible impact on my research.

References

Aikenhead, G.S. (1996). Science education: Border crossing into the subculture of science. *Studies in Science Education, 27*, 1-52.

Aikenhead, G.S. (1997). Toward a First Nations cross-cultural science and technology curriculum. *Science Education, 81*, 217-238.

Aikenhead, G.S. (2001). Cross-cultural science teaching: Praxis. Paper presented at the annual meeting of the National Association for Research in Science Teaching, St Louis, 26-28 March 2001 (http://www.usask.ca/education/people/aikenhead/narst01.htm).

Aikenhead, G.S. (2001). Integrating western and Aboriginal sciences: Cross-cultural science teaching. *Research in Science Education, 31*(3), 337-355.

Aikenhead, G.S. (2001). Students' ease in crossing cultural borders into school science. *Science Education, 85*,180-188.

Aikenhead, G.S., & Jegede, O.J. (1999). Cross-cultural science education: A cognitive explanation of a cultural phenomenon. *Journal of Research in Science Teaching, 36*(3), 269-287.

Allen, N.J., & Crawley, F.E. (1998). Voices from the bridge: Worldview conflicts of Kickapoo students of science. *Journal of Research in Science Teaching, 35*(2), 111-132.

Atwater, M.M., & Riley, J.P. (1993). Multicultural science education: Perspectives, definitions, and research agenda. *Science Education, 77*, 661-668.

Baker, D. & Taylor, P.C. (1995). The effect of culture on the learning of science in non-western countries: The results of an integrated research review. *International Journal of Science Education, 17*, 695-704.

Beauchamp, J., & Shaw, E. (1998). Engaging and retaining men in therapy: Issues for female therapists working with men in relationship counselling. Paper presented at the Forum on Men and Family Relationships, Canberra ACT, 9-11 June 1998 (http://www.law.gov.au/aghome/commaff/lafs/frsp/mensforum/people/38.htm)

Bentley, T. (1999) *Pakeha Maori: The extraordinary story of the Europeans who lived as Maori in early New Zealand*. Auckland: Penguin.

Bevan-Brown, J. (1998). By Maori, for Maori, about Maori – Is that enough? In *Proceedings of Te Oru Rangahau* (pp. 231-246). Palmerston North: Massey University

Bishop, R. (1996). *Collaborative research stories: Whakawhanaungatanga*. Palmerston North, NZ: Dunmore Press.

Blake, M. (1988). *Dances with wolves*. Ringwood, Vic.: Penguin.

Boissevain, J. (1974). *Friends of friends: Networks, manipulators and coalitions*. Oxford: Basil Blackwell.

Cajete, G.A. (1999). *Igniting the sparkle: An indigenous science education model*. Skyand, NC: Kivaki Press.

Connelly, F.M., & Clandinin, D.J. (1990). Stories of experience and narrative enquiry. *Educational Researcher, 19*(5), 2-15.

Contreras, A., & Lee, O. (1990). Differential treatment of students by middle school science teachers: Unintended cultural bias. *Science Education, 74*, 433-444.

Costa, V.B. (1995). When science is “another world”: Relationships between worlds of family, friends, school, and science. *Science Education, 79*(3), 313-333.

Dart, F.E. (1972). Science and the worldview. *Physics Today, 25*(6), 48-54.

Diamond, B.J., & Moore, M.A. (1995). *Multicultural literacy: Mirroring the reality of the classroom*. New York: Longman.

Diaz, E., & Flores, B. (1990, March). The sociocultural construction of literacy: Teacher as cultural mediator. Paper presented at Claremont Reading Conference, Claremont, CA.

Dunbar, T., Franks, C., Brown, A., Brands, J. White, E., Ragg, L. Duffy, M., & Walton, S. (2002). Research partnerships: Yarning about research with Indigenous peoples. Casuarina NT: Cooperative Research Centre for Aboriginal and Tropical Health.

Fadiman, A. (1996). *The spirit catches you and you fall down*.

Flores, B., Cousins, P.T., & Diaz, E. (1991). Transforming deficit myths about learning, language, and culture. *Language Arts, 68*, 369-379.

Gay, G. (1993). Building cultural bridges. *Education and Urban Society*, 25(3), 285-299.

Gay, G. (2000). *Culturally responsive teaching: Theory, research and practice*. New York: Teachers College Press.

Gentemann, K.M., & Whitehead, T.L. (1983). The cultural broker concept in bicultural education. *Journal of Negro Education, 52*(2), 118-129.

George, J., & Glasgow, J. (1988). Street science and conventional science in the West Indies. *Studies in Science Education, 15*, 109-118.

Gilchrist, D., Schultz, D., Woods, B., Milnes, G., Milnes, P., & Truscott, K. (2002, Dec). Yarning about yarning. Paper presented at the 4th Indigenous Researchers Forum, Curtin University, Perth WA.

Haig-Brown, C. (1992). Choosing border work. *Canadian Journal of Native Education, 19*(1),

Haig-Brown, C., & Archibald, J. (1996). Transforming First Nation's research with respect and power. *Qualitative Studies in Education, 9*(2), 245-267.

Hall, P., Stone, G., & Fiset, V.J. (1998). Palliative care: How can we meet the needs of our multicultural communities? *Journal of Palliative Care, 14*(2), 46-49.

Hallowell, A.I. (1963). American Indians, white and black: The phenomenon of transculturization. *Current Anthropology, 4*(5), 519-531.

Hennessey, S. (1993). Situated cognition and cognitive apprenticeship: Implications for classroom learning. *Studies in Science Education, 22*, 1-41.

Heshusius, L. (1994). Freeing ourselves from objectivity: Managing subjectivity or turning toward a participatory mode of consciousness. *Educational Researcher, 23*(3), 15-22.

Humphery, K., Weeramanthri, T., & Fitz, J. (2001). *Forgetting compliance: Aboriginal health and medical culture.* Darwin, NT: Northern territory University Press.

Jegede, O. (1995). Collateral learning and the eco-cultural paradigm in science and mathematics education in Africa. *Studies in Science Education, 25,* 97-137.

Jegede, O., & Okebukola, P.A. (1990). The relationship between African traditional cosmology and students' acquisition of a science process skill. *International Journal of Science Education, 12,* 37-47.

Jegede, O., & Okebukola, P.A. (1991). The effect of instruction on socio-cultural beliefs hindering the learning of science. *Journal of Research in Science Teaching, 28,* 275-285.

Jegede, O.J., & Aikenhead, G.S. (1999). Transcending cultural borders: Implications for science teaching. *Journal for Science & Technology Education, 17,* 45-66.

Jezewski, M.A. (1995). Evolution of a grounded theory: Conflict resolution through culture brokering. *Advances in Nursing Science, 17*(3), 14-30.

Jezewski, M.A., & Sotnik, P. (2001). *The rehabilitation service provider as culture broker: Providing culturally competent services to foreign born persons.* Buffalo, NY: Center for International Rehabilitation Research Information and Exchange.

Kessel, J.L. (2001). The ways and words of the Other: Diego de Vargas and cultural brokers in late seventeenth-century New Mexico. In M.C. Szasz (ed.) *Between Indian and white worlds: The cultural broker.* (pp. 25-43). Norman, OK: University of Oklahoma Press.

Knamiller, G.W. (1984). The struggle for relevance in science education in developing countries. *Studies in Science Education, 11,* 60-78.

Krugly-Smolska, E. (1995). Cultural influences in science education. *International Journal of Science Education, 17,* 45-58.

Krugly-Smolska, E. (1999). Research on multiculturalism applied to students' learning school science: Some theoretical issues. http://www.ouhk.edu.hk/cridal/misc/krugly.htm.

Lee, O., Fradd, S.H., & Sutman, F.X. (1995). Science knowledge and cognitive strategy use among culturally and linguistically diverse students. *Journal of Research in Science Teaching, 32,* 797-816.

May, K.M. (1998). Family counseling: Cultural sensitivity, relativism, and the cultural defense. *The Family Journal: Counseling and Therapy for Couples and Families, 6*(4), 296-299.

McConaghy, C. (2000). *Rethinking indigenous education: Culturalism, colonialism and the politics of knowing.* Flaxton, Qld: Post Pressed.

McKinley, E. (2001). Cultural diversity: Masking power with innocence. *Science Education, 85*(1), 74-76.

McIvor, M. (1995). Redefining science education for Aboriginal students. In M. Batisse & J. Barman (eds), *First Nations education in Canada: The circle unfolds.* Vancouver, BC: University of British Columbia Press.

Nelson-Barber, S., & Estrin, E.T. (1995). *Culturally responsive mathematics and science education for Native students.* San Francisco: Far West Laboratory for Educational Research and Development.

Nieto, S. (1999). *The light in their eyes: Creating multicultural learning communities.* New York: Teachers College

Press.

Páez, D., & McCarty, L. (1997). How to use cultural brokers in educational settings. *TESOL Journal, Autumn,* 44-45.

Parker, D.R. (2001). D'Arcy McNickle: Living a broker's life. In M.C. Szasz (ed.) *Between Indian and white worlds: The cultural broker.* (pp. 240-254). Norman, OK: University of Oklahoma Press.

Paine, R. (1971). A theory of patronage and brokerage. In *Brokers of the East Arctic.* Institute of Social and Economic Research, Memorial University of Newfoundland, Social and Economic Papers, No. 2.

Phelan, P., Davidson, A.L., & Cao, H.T. (1991). Students' multiple worlds: Negotiating the boundaries of family, peer, and school cultures. *Anthropology and Education Quarterly, 22,* 224-250.

Pomeroy, D. (1994). Science education and cultural diversity: Mapping the field. *Studies in Science Education, 24,* 49-73.

Press, I. (1969). Ambiguity and innovation: Implications for the genesis of the culture broker. *American Anthropologist, 71,* 205-217.

Purcell, L. (2002). *Black chicks talking.* Sydney: Hodder.

Rakow, S.J., & Bermudez, A.B. (1993). Science is "ciencia": Meeting the needs of Hispanic American students. *Science Education, 77,* 669-683.

Shomaker, D. (1995). The culture broker in post-RN education: A view from a distance. *Nursing Outlook, 43,129-* 133.

Smith, L.T. (1999). *Decolonizing methodologies: Research and indigenous peoples.* London & New York: Zed Books/Dunedin, NZ: University of Otago Press.

Soong, F.S. (1983). The role of Aboriginal health workers as cultural brokers: Some findings and their implications. *Australian Journal of Social Issues, 18*(4), 268-274.

Stairs, A. (1995). Learning processes and teaching roles in Native education: Cultural base and cultural brokerage. In M. Batisse & J. Barman (eds), *First Nations education in Canada: The circle unfolds.* Vancouver, BC: University of British Columbia Press.

Swift, D. (1992). Indigenous knowledge in the service of science and technology in developing countries. *Studies in Science Education, 20,* 1-27.

Szasz, M.C. (2001). *Between Indian and White worlds: The cultural broker. (2nd edition)* Norman, OK: Red River Press.

Te Hennepe, S. (1993). Issues of respect: Reflections of First Nations students' experiences in post-secondary anthropology classrooms. *Canadian Journal of Native Education, 20*(2).

Trudgen, R. (2000). *Why warriors lie down and die.* Darwin, NT: Aboriginal Resources and Development Services Inc.

Willis, E. (1999). From cultural brokers to shared care: The changing position of literacy for Aboriginal health workers in Central Australia. *Studies in Continuing Education, 21*(2), 163-175.

Wyatt, J.D. (1978-79). Native involvement in curriculum development: The Native teacher as cultural broker. *Interchange, 9*(1), 17-28.

[1] Address for correspondence: 321 Trower Road, Nakara NT 0810; mmichie@ozemail.com.au. The reason why I live in the Northern Territory and attend a university in Aotearoa/New Zealand is addressed in the paper (p.14).

[2] At this time I am not distinguishing between the use of culture or cultural as the descriptor for the term broker. I have followed Aikenhead's terminology, culture broker, in my own writing but use the various authors' terminology throughout the literature review. I am aware of the argument used by Krugly-Smolska (1998) for using culture studies as a descriptor for this area of science education, as distinct from cultural studies.

[3] For example, in the fictional story, *Dances with wolves* (Blake, 1988), Stands With A Fist, a transculturite who was taken from her white family as a child, acts as an interpreter rather than a culture broker. Dunbar becomes a transculturite and doesn't act as a broker when he comes back in contact with his own culture, although this was his intention.

[4] An anomaly exists here because Indigenous teachers do not have the support of assistant teachers.

[5] Gay (2000) also commented that Gentemann and Whitehead (1983) combined these tasks into the single role of *cultural broker* (without reference to her earlier work from 1993).

[6] This is an oversimplification of a complex issue which is central to *Kaupapa Maori* research.

[7] I'm using the meaning foreigner rather than the more common use of New Zealanders of non-Maori descent.