

Cultural Hybridity and Third Space Science Classrooms

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Based on their reading of Keith's Story, by Richard Kozoll and Margery Osborne, and my response to it, Allan Luke and Katie Weir invite me to consider the following.

When we take Keith as a model migrant or indigenous subject – is this a new kind of nativism? Having established a critique of dominant Western science, its unsavoury histories, origins and current ethical dilemmas, and its epistemological limits – why should we assume that Keith cannot take and use these same ways? Further: Why shouldn't Keith and others have access to epidemiology and entomology as powerful technical discourses.

I thank Allan and Katie for their carefully crafted response which prompted me to read more deeply and to enunciate my standpoint anew, and in so doing to move forward a precious degree or two my understanding of culture studies. This is a remarkable achievement given that our textual conversation was highly asynchronous in space and time; more so than on-line discussions with my graduate coursework students studying at a distance from campus. I dare say that it was made doubly difficult by the absence of previous conversations which could have assisted us to understand more deeply each other's theoretical perspectives, especially their grounding in our respective professional practices. Realising this, I feel that it would help the reader, at this late stage, for me to disclose something of my own professional practice which served as the context from which I responded to Keith's story and from which I now respond to Allan and Katie. In so doing I am drawn to a question raised by Parker Palmer (1997), 'Who is the self who teaches?', a question that keeps me continuously on my toes as I try to dance what I preach as a teacher of educational research.

I am (amongst other things) a teacher educator at a graduate centre for science and mathematics education where I have the privilege of teaching coursework to and mentoring the dissertation research of science and mathematics educators. Many of my students come from African, Asian and Pacific island nations; countries that are either newly independent or newly opening to the world and that are at an early stage in designing curricula for preparing not only their own professional scientists/engineers/professors but also their broader populations as critically literate adapters of culture-sensitive science and technology. As a teacher educator, I am pro-science, believing that science and technology can serve as powerful tools for improving the quality of life worldwide. But at the same time I take a strong anti-scientism stand inasmuch as I believe that we cannot live by science alone; that our moral values are necessarily sourced elsewhere, well beyond the rational objective mind. To the extent that science educators endeavour to displace or replace traditional beliefs and practices with "the final solution" of science and technology, especially in nations newly embracing Western forms of modernisation, I feel that a growing crisis of cultural confidence will beset the world. The political backlash against this neocolonialism is likely, in the extreme, to further deepen cultural divides, creating an ungodly monster of globalisation. Methinks

this is something we should strive to avoid. In this seductive high-tech, reach-for-the-stars, economic rationalist age, I believe strongly that science educators have a prime responsibility for countering the dangerous excesses of modernity and growing a more mutually tolerant and trusting world.

My alignment with the field of transformative education signifies a commitment to shaping educational policies and practices that are awakening and liberating for the individual, that are just and equitable for social groups, and that promote cultural difference and rapprochement. I am a member of the Culture Studies in Science Education International Forum (<http://daikan.edu.ibaraki.ac.jp/CSSE/>) and I coordinate a culture studies in science, mathematics and technology research group at Curtin University. Metaphorically speaking, my transformative pedagogy can be thought of as enabling the fish to become aware of the water in which it is living, learning to identify the nature and source of the additives that determine the refractive index of the all-encompassing medium within which it is suspended (largely) unknowingly, including its own role in muddying the waters. I invite my graduate students to reflect critically on and to consider re-envisioning their professional roles. Together we explore socio-cultural perspectives on the means of knowledge production in education, we consider the historic role of science/mathematics education in serving political and economic interests, and we raise questions about the role of contemporary educational reforms in supporting the press of Western forms of modernisation.

Many of my students adopt arts-based research to explore their own historic and cultural situatedness, utilising critical auto-ethnographic methods and genres of fictive writing, narrative and story. This personalised form of educational research involves excavating and honouring one's deeply sedimented traditional beliefs, values, practices and language (or 'cultural capital'), exploring one's own cultural identity formation as a political interaction between ethnic, national and global affiliations, and strengthening one's agency as a learner and one's authority as a professional knowledge producer. Issues being explored in my students' research include: the cultural contextualisation of science/mathematics curricula, a culture-sensitive philosophy of science teacher education, developing mathematics instruction in hybrid languages, and building curricula bridges between modern and ancient knowledge systems.

Thus it was from this perspective that I read Keith's Story and focused my attention on the role of his science teacher education program in supporting his preparation as a culture worker. When reading Keith's Story my interest was captured not so much by Keith as a person, whom we hardly know despite the intense ethnographic focus of Richard's and Margery's research, but by the cultural archetype of 'Western Modern Man' seeking enlightenment via the Cartesian mind of scientific reason. This cultural archetype seemed to be embodied in Keith as a result of successfully completing his science teacher education program. As Jung (1983) explained, cultural archetypes reside in the unconscious mind and serve as instincts that shape our taken-as-natural everyday beliefs and actions, or worldviews. And, as history tells us, because many proponents of the Western Science Worldview lack a critical awareness of its cultural contingency and contextualisation (taking it as transcendental) it feels natural to reject alternative worldviews, especially those found in many (most?) parts of the not fully-Westernised world, labelling them as primitive, uncivilised or quaintly old-fashioned and in urgent need of Western style modernisation. This perspective fuelled colonial mindsets

for hundreds of years in ‘British India’ and ‘Darkest Africa’ as occupying European powers set up social structures that disenfranchised and delegitimised indigenous cultures (Verma, 2004), foremost amongst which were education policies for assimilating ‘the natives’ into the Western Modern Worldview. Late twentieth century Western science education adopted a no less monocultural approach to *reconstructing* children’s naïve understandings of their lifeworlds and replacing their misconceptions with the ‘correct’ scientific worldview (Taylor, 1998).

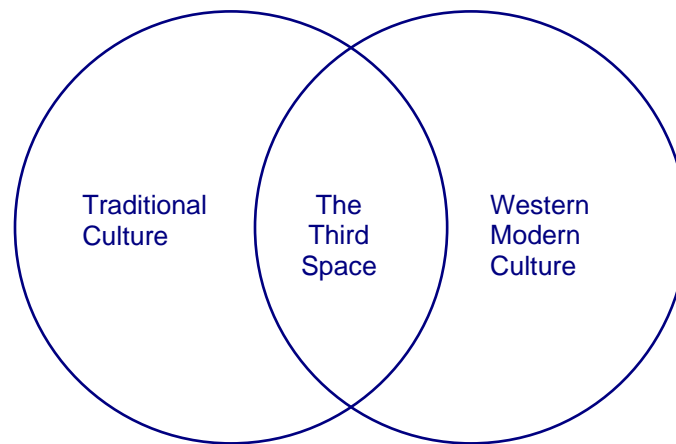
Of course, there is a danger in being overly critical of the universalising claims of the Western Modern Worldview, as Allan and Katie point out. This can involve a retreat into a romantic Rousseau-like nativism, an historic idealisation that privileges the cultural archetype of the pure aboriginal spirit living in harmony with nature; or perhaps, worse still, imposition of such a perspective on anyone with a faintly indigenous background, regretting their imagined abandonment of an essentially pure and pristine way of being. In a sense, the field of education witnessed a Rousseau-like child-centeredness in the 1970s thanks to the popularisation of the philosophy of ‘discovery learning’ articulated by Bruner, a model that celebrated the “solo child mastering the world by representing it to himself in his own terms” (Bruner, p. 127, 1986). Bruner later recanted this culture-blind model of learning in favour of a view of learning as shared culture making. In the extreme, a nativist perspective rejects modernity as a blot on the mindscape of the world, attributing to it the sins of environmental and moral degradation. Such a strong standpoint might not be all that dissimilar to a Marxist privileging of the proletariat or a Maoist-inspired *re-education* of Chinese intellectuals into agrarian workers.

Am I guilty of construing Keith from a nativist perspective, denying him the right to his hard-won Western Science Worldview with which he enjoys educating others about the entomology of the insects of his childhood? The answer would be in the affirmative if I had advocated a binary polarisation between his role as an agent of Western science and his early childhood indigenous worldview, valuing the latter and rejecting the value of the former. However, this was not my intention. In Keith’s Story there are tantalising vignettes about his early life in a Jamaican village, indicating that he had enjoyed an indigenous-oriented lifestyle in close contact with Nature. The extent of his indigeneity is unclear, however, and thus my call for greater insight into this aspect of his life. Keith’s Story goes on to outline his subsequent enculturation within a sophisticated Western Science Worldview, which at a personal level is not only unproblematic but is indeed a cause celebre. However, what troubles me is a lack of evidence that Keith’s science teacher education curriculum enabled him to develop in addition the latent cultural capital of his Jamaican youth. That he seems to have incorporated some aspects of this cultural capital into his nascent professional practice is a testimony to his own self-confidence rather than to visionary curriculum design.

On the one hand, Keith is a success story. His enthusiasm for Western science seems to be laced with a love of learning that he enjoyed as a child whilst exploring his natural environment and making sense of his lifeworld experiences through the worldview of his village community. On the other hand, for other aspiring teachers of science with cultural backgrounds similar to Keith’s I fear that lack of explicit curriculum support could likely result in them harbouring a sense of shame about their seemingly primitive beginnings, resulting in blind allegiance to the flag of Western scientism flapping seductively atop the curriculum flagpoles of schools worldwide.

It would not hurt to reiterate that my purpose here is not to be critical of Keith or the choices he makes about the direction of his own professional life. Rather, the target of my concern is the narrow cultural archetype of 'Western Modern Man' reproduced unremittingly by Western science teacher education. What might it take to persuade designers of science teacher education programs to incorporate instruction on alternative worldviews, especially those appearing on the horizon of our consciousness as a result of research into indigenous knowledge systems? If science teacher educators are to move towards a more culturally inclusive approach they may need first to reconceptualise the relationship between the Western Science Worldview and Non-Western Worldviews. The antagonism between extreme versions of these worldviews – scientism and nativism – must be transcended.

A promising perspective is the concept of the 'third space' articulated by the postcolonial theorist Homi Bhabha (1994).



The purpose of this discourse space is to dehorn sacred cows: to deconstruct the assumed boundedness, homogeneity, stability and authority of culture and the fixity of cultural identity. In the third space, proponents of traditional and modern cultures celebrate cultural difference whilst at the same time recognising the inescapably partial nature of their own self-understandings and self-representations. The actual performance of this discourse, underpinned by critical hermeneutics, gives rise to new hybrid cultures and cultural identities. Neither the modern nor the traditional is privileged; both are transformed. Referring to the writings of Franz Fanon (like Keith, originally from the Caribbean) about the struggle of the Algerian people to gain independence from French colonial rule, Bhabha explains the paradox of hybridity which transforms as it renews:

In the moment of liberatory struggle, the Algerian people destroy the continuities and constancies of the nationalist tradition which provided a safeguard against colonial cultural imposition. They are now free to negotiate and translate their cultural identities...the native intellectual who identifies the people with the true national culture will be disappointed. The people are now the very principle of 'dialectical reorganization' and they construct their culture from the national text translated into modern Western forms of information technology, language, dress. (Bhabha, 1994, p. 55)

One of the outcomes of the intensification of global interconnectedness is the flourishing of hybrid cultures worldwide as a result of what Appadurai (1996) calls the 'indigenization' of Western culture. But this is not restricted to formerly non-Western nations within Africa or Asia, it is evident also within the geographical borders of the former imperial powers of Europe and the USA where, as a rich legacy of empire, an intercultural flow of persons, ideas, capital and commodities occurs. Schech and Haggis (2000) argue that paradoxically cultural diversity is increasing as a result of the process of Jamaicanisation of Western culture within the cities of England, and the same may be said of the Africanisation and Latinisation of Western culture within the USA.

So, if science educators are to develop culturally inclusive pedagogies, in the sense of connecting respectfully and meaningfully with the worldviews of children of already hybridised cultural identities, then the creation of third space science classrooms may be a way forward. Within third space science classrooms children would develop deep understandings of Western science and critical understandings of the cultural nature of science (Harding, 1998; Hines, 2003), especially its historical contextualization and epistemic contingency. Third space science classrooms also would afford students opportunities to learn about alternative sciences, such as the sophisticated sciences of Islam (Rafiabadi, 2005) or India, particularly quantum theory (Chattopadhyay, 2004) and environmental science (Srivastava, 2005), but especially the (ethno)sciences of indigenous peoples with whom students might forge cultural affiliations.

A major challenge facing curriculum designers wishing to embrace the concept of third space is to reconceptualise long-standing curriculum structures which privilege the discrete bounded identities of modern school subjects: 'Science', 'Mathematics', 'History', 'Social Studies', and so on. These disciplines are cultural products of an early Western Modern Worldview frozen in time and are largely unresponsive to the flow and flux of twenty-first century globalization. Third space classrooms are likely to be multidisciplinary in nature requiring responsive and open curricula that teachers can adapt to local cultural contexts. The *Malama I Ka `Aina* curriculum program at the University of Hawai'i at Manoa is an excellent example (see <http://www.hawaii.edu/malama/home.html>).

There is little doubt that deep intercultural understandings are required of teachers who work in third space classrooms. And this issue takes me back to the beginning of our discussion, to my concern about the need for culturally inclusive science teacher education that values the cultural capital of preparatory teachers and works purposefully and with vision to develop intercultural pedagogies so that new teachers, such as Keith, can reach out in culture-sensitive ways to students worldwide.

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