Postgraduate Research in Education

Proceedings of the Second Annual Higher Degree Student-led Conference, 9 November 2012

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Edited by Umi Tursini, Dean Utian, Somruedee Khongput, Siri Na Chiangmai, Huong Nguyen and Nanis Setyorini

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Proceedings of the Second Annual Higher Degree Student-led Conference held at The University of New South Wales, Sydney, Australia, 9 November, 2012

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Foreword

It is our great pleasure to introduce this volume of papers presented at the Postgraduate Research in Education, Proceedings of the Second Annual Higher Degree Student-led Conference, The University of New South Wales, 9 November 2012. This publication contains 11 of the papers presented at the conference. The event was highly successful, attracting 44 paper presentations and 6 posters. The presenters came from across Australia, including from Deakin University, Griffith University, La Trobe University, Macquarie University, Monash University, Swinburne University of Technology, The University of Melbourne, The University of Newcastle, The University of New South Wales, The University of Sydney, The University of Western Australia, University of New England, University of Technology Sydney, University of Western Sydney, and Victoria University. Poster presentations extended student diversity and included work from The Australian Catholic University and The University of Adelaide.

Conferences provide opportunities for the sharing of new knowledge and engagement with current issues. Our student-led conference delivered on this front with a diverse range of passionate researchers in education. We thank all those that presented and shared their ideas with others in the field. This volume is a small snapshot of the conference and provides different perspectives and considerations in education.

This publication is the result of a collaborative effort of many people. We would like to acknowledge the contributions of all members of the conference committee for their enthusiasm and commitment in organising the event and producing this volume. They are: Umi Tursini, Dean Utian, Somruedee Khongput, Siri Na Chiangmai, Huong Nguyen, and Nanis Setyorini.

We also thank Robert Howard for his guidance and support throughout the process. Thanks also go to Anthea Flint for her help in looking after the conference website, Catherine Courtenay for the financial management, and all staff in the School Office, School of Education, for their support in various aspects of the conference, from its promotion to the publication. The last thanks is to the School of Education, UNSW, for developing this initiative and providing the backing to ensure its success.

The Editors

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Bin Ai is a PhD candidate in the School of Education at Deakin University. He has worked as an EFL lecturer in the International School of Wuhan University of Science and Technology, China for around ten years, and his research interests include TESOL, communication, identity, and cultural studies.

Beeken, Clinton Glenn

Clinton Glenn Beeken is currently completing a Masters of Educational Studies (Philosophy of Education/Educational Research) at The University of Newcastle. He obtained his BA (Drama) in 2006 and BTeach (Secondary)/BA (English) in 2009 at The University of Newcastle. He plans to enrol in a PhD to further examine philosophical issues in education.

Chandrasena, Wanasinghe

Wanasinghe Chandrasena is a PhD candidate in the Centre for Positive Psychology and Education, University of Western Sydney, under the supervision of Rhonda Craven, Danielle Tracey and Anthony Dillon. Teaching and research focus is on science education, with a particular emphasis on chemistry education.

Clarke, Charmaine

Charmaine Clarke began her career in nursing and eventually became a Head Nurse at The Royal Newcastle Hospital. She loved people and loved helping them, thereby giving freely and happily of her time doing charity work. Later in her life, she had what she called an 'epiphany' and enrolled at The University of Newcastle, with a Religious Studies major. Her interest in the area grew and she completed the Honours Program under Professor Laura's supervision, followed by a Masters degree. Charmaine was close to completing her doctoral thesis with Professor Laura when she sadly and unexpectedly passed away. She was working on an earlier version of the paper you see published here at the time of her death. She will be remembered very warmly by the many people whose lives she touched in kindness and love.

Jiang, Guowu

Guowu Jiang is currently a PhD candidate at The University of Newcastle. He has also attained a Master of Applied Linguistics (2010) with Distinction in the same university. Guowu has previously taught English as a foreign language at both high school and university level in China. He has a passionate interest in EFL teaching/learning, particularly in the area of vocabulary acquisition. His PhD topic is "The Effects of Bottom-up and Top-down Approaches on the Acquisition of English Academic Vocabulary by Chinese University Students".

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Munirah Kadir is a PhD candidate. Her study is about designing and evaluating the effectiveness of an intervention for students studying physics, in terms of the students' skills in physics, cognitive load, as well as motivation. Her research interests include curriculum development, cognitive load theory and psychology in physics education.

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Ronald Laura was educated at the Universities of Harvard, Cambridge, and Oxford. He received his D.Phil at Oxford University. He is currently a professor in Education at The University of Newcastle, Austria. With a forty published books and some three hundred journal articles to his credit, his philosophical views on education are widely known and respected. His pioneer work in the development of empathetic epistemologies of education, have challenged current thinking of the deeper value and purpose of education.

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Kylie Smith is a PhD candidate at The University of Newcastle. Her dissertation topic employs Professor Laura's Theory of Transformative Subjugation to examine the potential role of music in health education.

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Thi Thu Hang Truong was granted a bachelor of English teaching degree in Ha Noi Open University and a bachelor of information technology in the University of Information Technology and Communications in Vietnam. She graduated with a Master of English Teaching degree in Laguna State Polytechnic University, The Philippines. She is in charge in teaching English for IT and doing international relationship activities. Currently she is a PhD student in educational leadership in The University of Newcastle.

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Neil Tucker [BA BD Dip Ed Gr Dip Psych & Couns MA(Educ) MBA (Exec) FAIM] is an educator, leader and learner. Former principal of five schools, founding chair of a school, EO of community learning projects, writer on school governance, leadership and management, he now is pursuing doctoral studies in best practice individual learning.

Zhou, Dan

Dan Zhou is currently in his final year of a research program and has had four conference publications so far. After working as a formally trained hydraulic engineer for over 13 years, he shifted his research interest to philosophical theories on engineering education and developed a philosophical perspective of engineering education in China.

An Ethnographic Investigation into Chinese Students' Identity Negotiation in Australia

Ai, Bin
Deakin University

Abstract

The purpose of this paper is to engage in an ethnographic investigation of Chinese students' identity negotiation in Australia. Semi-structured interviews are used as an ethnographic method to collect detailed data from a set of participants in an Australian university. Based on relevant theories of identity and the dialogic interviews with these participants, I have attempted to explore the forces involved in Chinese students' identity negotiation from the perspectives of culture and identity. It is expected that the detailed data and the analysis of these forces will help us understand their identity negotiation in Australia.

Keywords: Chinese students, identity negotiation, centripetal forces, centrifugal forces

Research Context

In today's China, many parents are greatly concerned about the quality of education, and thus would like to support their children to study overseas so that they achieve cultural capital. Chinese students are likely to stay in overseas universities for a few years although some of them stay permanently after graduation. 'Some students do want to become migrants and this seems to be happening today' (Wang, 2007, p. 165). However, some students choose to go back to their familiar space after they finish their course. The process of their identity negotiation is highly influential upon their final decision and their future life. In this paper, the forces that push Chinese students to go back to China or pull them to stay in Australia are discussed in order that an understanding of their identity negotiation can emerge.

Theorising Identity

Here, identity is considered as 'our understanding of who we are and of who other people are, and, reciporcally, other people's understanding of themseves and of others (which

included us)' (Jenkins, 2004, p. 5). Identity is crucial since 'all human behaviour is ultimately motivated by the need to maintain one's identity' (Bracher, 2009, p. 24). Without identity, people feel unsafe and even have a sense of crisis in life.

Identity is fluid and dynamic, and it is 'never either pure or fixed but formed at the intersections of age, class, gender, race and nation' (Barker, 2008, p. 260). Once social and cultural context changes, one's identity needs to change simultaneously. If a new identity has not been achieved with the change of place and space, identity clashes may occur. Identity is always in the state of 'becoming'; therefore, 'committing oneself to a single identity for life, or even for less than a whole life but for a very long time to come, is a risky business' (Bauman, 2004, p. 89). The 'becoming' identity is often accompanied with changes in culture and language. In turn, changes in language and culture often trigger identity work.

Chinese students' cultural identity and national identity influence their everyday communication in Australia. Cultural identity is 'one's sense of belonging to a particular culture or ethnic group' (Lustig & Koester, 2010, p. 142), and it is 'the emotional significance that we attach to our sense of belonging or affiliation with the larger culture' (Ting-Toomey, 1999, p. 30). National identity is 'a form of imaginative identification with the symbols and discourse of nation-state' (Barker, 2008, p. 252), and it is 'forged, or instilled in individuals growing up in particular places and times' (Block, 2007, p. 29). National identity is connected with one's social, cultural and educational experience.

Today, globalisation has provided everyone a context for the possibility of identity crisis and/or the production of a new identity. Living in a fluid society, people may face their negotiation of identities in-between two or more cultures. It is possible to form a hybrid

identity, 'an identity that is consciously a mixture of different identities and cultural traditions' (Martin & Nakayama, 2007, p. 66). In this paper, I have observed how Chinese students face the possibility of constructing a hybrid identity in negotiating their identities in-between cultures in Australia. Their complex lived space also makes their identity negotiation a sophisticated process.

Research Method and Data Collection

Ethnography as an inquiry mode is applied in this paper. As a Chinese student in Australia, I am an insider immersed in the participants' community, which affords particular insight into my observations. My use of semi-structured interviews is made in order to collect the data as it provides 'a way of generating empirical data about the social world by asking people to talk about their lives' (Gubrium & Holstein, 1997, p. 113). The participants are allowed a great deal of latitude in the way they answer, the length of their responses, and even the topics that they discuss in these interviews.

Following are the methods used in the selection of the participants. First, an invitation letter in plain English language was placed in University X in Melbourne so that potential participants could understand the project. An invitation letter was also placed in a Chinese students' virtual internet forum. Visiting classrooms to draw attention to the invitation letter was another way to find participants. Those students who responded were contacted and selected based on their learning experiences, the period of stay in Australia and their personal background, etc., to ensure that they are representatives of the large population of Chinese students. Finally, seven students from Mainland China were selected as participants. They are heterogeneous in various aspects such as age, gender, geography, family, cultural and social class status.

Data and Analysis

'In Bakhtin's view, every utterance is a dialogue between the givens of language or discourse and the speaker's intentions, the hearer, the situation, and so on' (Smith, 2005, p. 127). When analysing my data, I work from the discourse and specify the meaning in each utterance by reading the interview record as a dialogue between the participants and me. Hopefully my writing will also establish a dialogue with my readers, the people I write for.

Identity is 'a "hotly contested concept". Whenever you hear that word, you can be sure that there is a battle going on' (Bauman, 2004, p. 77). To capture the details of this battle, I place Chinese students' identity negotiation in an imagined but practical discourse, that is, at the point they finish their course and make their decision – to go back to China or to stay in Australia. I use 'imagined' since not all the participants are facing such a decision at the moment of interview; I use 'practical' since it is a reality that nearly all of them have to face this negotiation at the end of their university life. In this paper, centripetal forces refer to those forces driving Chinese students to go back to China, their first home, 'an anchoring point through which human beings are centred' (Blunt & Dowling, 2006, p. 11); centrifugal forces refer to those forces that attract them to stay in Australia, their second home.

It is supposed that centrifugal and centripetal forces exist simultaneously but play opposing roles in their mutual influence. The centripetal forces consist of Qinqing ('family relationship'), personal future career, Chinese culture and national identity. The centripetal forces consist of the reality of current China, negative influence of Chinese culture, Chinese students' expectation in Australia and the reality of Australia. I shall first examine the centripetal forces as discussed by the participants during interview before focusing on the influences of centrifugal force.

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Centripetal Forces to Go Back to China

Qinqing as a centripetal force

   Qinqing, as a centripetal force, means Chinese students' strong emotional attachment to their family and relatives in China. For instance, Alex, Baixue and Shao mention that *Qinqing* is an influential force in their identity negotiation.

   I go back to seek a job is because of Qinqing, since it is always at the first place for me. … I have responsibility to stay along to devote Xiao ('filial piety') to them. *(Alex)*

   Interviewee: … But here … life is lonely and solitary here, so I want to go back to China.
   Interviewer: Is it because your parents are there or because you are familiar with that environment?
   Interviewee: Both. *(Baixue)*

   I think it has very strong relationship to the fact that my parents are in China. *(Shao)*

   After all, their parents and friends are still living in China. Some Chinese students thus emphasise that it is the influence of their parents as a centripetal force that drives them back.

   My parents don't have any intervention. … But at the bottom of their heart, they still hope that their children can stay around them. *(Ivy)*

   Interviewee: Although my parents say that it is better to stay here … they have started to arrange my job without telling me. …
   Interviewer: … They are waiting for your return. …
   Interviewee: Yes. *(*Jordan*)*

   Influenced by *Qinqing*, these participants feel that they should go back to China. To them, to go back to look after parents has become an intuitional response, *Qinqing* is compulsory and these students can never refuse such a mission.

Future career as a centripetal force

   For Chinese students, the decision of whether to go back to China or to stay in Australia is also related to their future career. Some students feel that it is too difficult to find

a job in Australia and choose to go back to China. For instance, Jordan feels that perhaps it is easier to go back to China and find a job so will realize his dream in China.

> After looking for a job for one and two months, I find that it is hard to realize my dream here. … It would be better if I go back to China to fulfil my dream. *(Jordan)*

Shao also proposes his argument for going back, based on his judgment regarding the future of China and Australia. According to him, China's development makes him believe that by going back to China he can tie his future to this country's development. He is optimistic about the future of his country and himself.

> China is independent and it has its influence. … Economically … now Australia's economy is fine, but who knows after twenty years? ... But China is different, and it has its own position. … I will have a better life in China. *(Shao)*

Influence of Chinese culture

Culturally, these participants have a strong sense of going back to their first home. Such instinct is produced by the influence of Chinese culture. To Chinese students, living in their second home, their 'attachment to the homeland can be intense' (Tuan, 1977, p. 149).

> I will go back but not stay here. … I have sentimental feeling on this place after I stay here for two years. … But I am eager to go back to China. … Yes, I belong to that place. *(Jordan)*

Shao uses a Chinese idiom *Luoye Guigen* (*'a person residing elsewhere finally returns to his native land'*) to prove that culturally it is nature that drives Chinese to go back.

> The reason that I don't want to stay here is that, after all, I come from China. There is an old saying, Luoye Guigen. … Yes, this is why I want to go back. *(Shao)*

Chinese culture has been bred into these students and then brought them cultural identity, which, consciously and/or subconsciously, drives them to return. Additionally, in China 'the ideological weight of Confucian principles remains and has been reinforced by the

Communism experience' (Price, 2000, p. 88). As such, Chinese students are not only influenced by Chinese culture but also the ideology.

> To me, Confucianism, or Chinese traditional culture, has an impact upon me. In my room I have books by Kongzi (Confucius), Mengzi (Mencius) and some prose by The Eight Famous Writers in Tang and Song Dynasties on the bookshelf, also including Songci, and I often read these ancient Chinese works. The influence also exists in my everyday work and life. *(Alex)*

Similarly, Ivy admits that the influence of Chinese culture and ideology is too strong to change, and thus she will also finally return to this space.

> We communicate with a Chinese style. … It is an inculcation of ideology. … It is hard to change. *(Ivy)*

'Ideology is not separated from the practical activities of life. Rather, it is understood to be a material phenomenon rooted in day-to-day conditions' (Barker, 2008, p. 66). Although these Chinese students are influenced by the ideology integrated in Australian education and everyday life, Chinese students are often united in their circle, and the influence of Chinese culture and ideology thus push them to go back.

Influence of national identity

'A nation is an "imagined community" because it exists as an entity in so far as its members mentally and emotionally "identify themselves" with a collective body' (Bauman & May, 2001, p. 140). Although these Chinese students are physically in Australia, they feel the influence of their national identity imprinted on them. They have identity negotiation as to whether they should denounce their Chinese nationality, a form of the representation of national identity.

> I am a Chinese, and I do not hope to join in Australian nationality. … Otherwise, I will have a sense of betrayal. *(Baixue)*

I still belong to China. … I feel it is hard for me to integrate into the society. *(Jordan)*

China makes me feel proud. … Yes, a sense of pride being a Chinese. … When the sense of national identity comes to me, I have stronger desire to go back. *(Shao)*

To conclude, these centripetal powers consist of their attachment to Chinese family, relatives and friends, which is caused by *Qinqing* in Chinese everyday life and encompasses their expectation of a future career in China, the influence of Chinese culture, including ideology, and the influence of national identity. These centripetal forces are woven together and influence Chinese students when living in-between cultures in their Australian space. Now the discussion turns towards centrifugal forces:

Centrifugal Forces to stay in Australia

The reality of current China

First centrifugal force is the reality of today's China. There is a need to re-examine China, since the current reality is not what may have been imagined previously. These changes make some Chinese students hesitate and decide to stay.

I went back to China twice last year … for looking for a job. … Finally I choose to stay here. …. In China every year my teachers have a number of papers as a task to write. But … there is Shuifen ('falsity') in it. … Now being a teacher means that you are a poor person. … You cannot devote yourself to teaching. *(Alex)*

I find that here living stress is smaller. … In China the stress is too large. *(Jordan)*

Compared to Australia, some aspects like employment in China are too difficult. *(Ivy)*

With regard to the employment competition in China, Shao chooses to stay so as to avoid it.

The employment in China is a very important factor. … For each position there are too many competitors. I can compete, or even I may defeat them and get that position. … The competition may be positive, and it also may be negative. … I do not want to ask for trouble for myself. *(Shao)*

Negative influence of Chinese culture

Another centrifugal force that attracts Chinese students to stay in Australia is the negative influence of Chinese culture. These participants detest the negative influence of Chinese culture, and some prefer to find an ideal place to stay. For instance, Shao talks about how the negative influence of *Guanxi* makes him feel upset.

> The interpersonal Guanxi is rather complex. … There is possibility. … China is a large country and Guanxi is so complex. … I would rather not touch this. *(Shao)*

Guanxi, represented as a social network, is related to certain interests. The ubiquitous personal connections in China are founded 'on family ties, ties of shared experience and ties of friendship and involve an obligation to help when asked' (Irwin, 1996, p. 112). *Guanxi* is reciprocal and sometimes endless, so people normally regard it as rather complex. *Guanxi*, or simply 'whom you know' (Barker, 2008, p. 430), exists as a form of 'social capital' (Bourdieu, 2002, p. 286). Given their lack of *Guanxi* as social capital, they prefer to stay in Australia to avoid *Guanxi* and avoid competition.

Rock feels that he may not have an independent social space if going back to China. According to Rock, Chinese parents expect their children to fulfil the dreams that they have not achieved yet in their life; this makes these Chinese students feel that it is difficult to choose an independent life in China.

> If the parents have regret, they expect children to fulfil dream and eliminate regret. … China is a nation where people respect parents. … Some people … may have to give up their ideas for making their parents happy. *(Rock)*

It should be noted that the opinions of these students are a representation of their fight against Chinese culture. In Chinese culture, 'Confucians valued respect for parents and loyalty to superiors. It is believed that the subordinate has the duty to obey (*xiao*) ('*filial piety', noted by author*) and fulfil role obligations that signify his or her submission to duty'

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(Ng, 2002, p. 36). Influenced by a new sense of independence, Chinese students will not go back to China.

Future expectation in Australia

Chinese students have witnessed the everyday life in Australia and they often have a wonderful expectation of their future. For instance, Alex and Ivy witness that Chinese-Australians have lived a happy life, and they expect that they can live like this although they may experience setbacks.

> I have two uncles working as professors in University M and they live happily here. … I feel my future is full of hope. *(Alex)*
>
> These Chinese immigrants have … enjoyed the life here, since the life is much better than in China. *(Ivy)*

Chinese students' parents and family place expectations upon them, so they, including their parents and their family, may lose *Mianzi* ('face'), if they go back to China. For instance, according to Baixue, her effort to stay in Australia is to avoid losing family's *Mianzi*, which includes her *Mianzi*.

> I hope to bring glory to parents. … All the people around me have such an opinion, expect for those urban students, whose parents just hope them to … go back to take over their business, or find a position in a friend's company, or find a good job. *(Baixue)*

Such expectation originates from Chinese parents, since they will have *Mianzi* and thus feel superior to others. For instance, if Chinese students go back as a permanent resident of Australia, Chinese parents may feel that they '*Yijin Huanxiang*' ('*return to one's hometown in glory*'). It is highly-valued honour and it brings '*Mianzi*' to the family. Chinese parents' expectation, of course, subconsciously becomes these Chinese students' expectation.

The reality of Australia

In addition to their expectation, Chinese students have talked about their everyday experiences in Australia. If we agree that 'the very way that we see things reveals secrets about us: what we see reveals what we are looking for, what we are interested in' (Russon, 2003, p. 10), then the experiences mentioned by these Chinese students have a significant influence.

> I like the environment. Here the environment is very good. … It is a suitable place to live. *(Baixue)*
>
> The natural scenery … is very good, and I feel it is not easy to leave. *(Jordan)*
>
> Now China's natural environment is becoming better and better, but compared to Australia, it is not as good as Australia. *(*Shao*)*

The participants also admit that the social, economic and educational environments in Australia are better than in China.

> Here people make more money but spend less money. … You can save some money. *(Baixue)*
>
> In China, the natural and humanistic environment, including food, makes you worry. But here … you don't have to worry whether there is any poison in the food. … It may not be prosperous like Beijing and Shanghai, but … there are not unsafe elements like in China. *(Malu)*
>
> The relationship between people here has a bit less complexity but more frankness. … The school system is better than China. … Yes, more freedom. … The welfare policy is another point. *(Shao)*

To sum up, these centrifugal forces include their dissatisfaction of the reality of China, their expectation of future life in Australia, their desire to escape from negative influences of Chinese culture such as *Guanxi*, and their seeking an independent space. *Mianzi* and other factors have been addressed in order to describe the expectation of Chinese students and their

parents. All these centrifugal forces are working collectively on Chinese students, and are as powerful as the centripetal forces.

Conclusion

Chinese culture has influenced Chinese students deeply so that they are attached to their cultural identity and national identity. The ubiquitous influence of Chinese culture makes these students feel that they have a compulsory obligation to go back to China and fulfil their responsibilities, for example looking after their parents. Their national identity makes them feel hesitant in Australia; otherwise, they may have a sense of betrayal. They feel proud of being Chinese, even in Australia, and national identity ties their future to their homeland. On the other hand, some changes occur in these students and are visible as the representation of their identity work. For instance, they have realized the problems of China from the standpoint of being an *other* in Australia. They have tried to avoid negative influences of Chinese culture, although they admitted that they have an influence on them. They no longer accept all aspects of Chinese culture but start to have their own opinions and even criticize some issues during discussions. They are eager to stay, to accept, and even long to be accepted in Australia. There is a different self now for these students, which is precisely a sign of their hybrid identity.

Chinese students' identity negotiation essentially is 'a sort of bridging' (Castro, 1995, p. 7), and for me it is a commencement of their hybrid identity work. Such identity negotiation may not come to an end, since 'identity is always in process, is always being reconstituted in a process of becoming and by virtue of location in social, material, temporal and spatial contexts' (Edensor, 2002, p. 29). In this sense, their identity negotiation is a dialogue that cannot be finalised. It will stay with them for life.

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The Commodification of Education: The Hidden Pedagogy of Consumerism

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Abstract

Whatever else education may purport to be, it involves, at least, the endeavour to transmit knowledge. Although it may be that ' not much of education takes place in school', we shall argue that the values embedded in the dominant epistemology of institutional learning giving rise to a number of education myths, one of which is narrated in the currency of scientific materialism: an ideological coin whose other side is rampant consumerism. Because we end up commodifying everything, there is little, if anything, that has intrinsic value. We commodify both space and time and everything in these domains, and the value we ascribe to spatio-temporal things depends upon their potential capacity to be bought, sold or leased. We commodify not only material goods but also the whole of culture. We commodify our relationships with each other and we sell to each other cultural experience, both manufactured and virtual to extend the sphere of commercialization infinitely. One consequence of the mythology of consumerism is that it leads ineluctably to futile, or endemically frustrated, aspiration on the one hand and increasing alienation on the other. We argue that both outcomes are inimical to an educational epistemology of emancipation.

Introduction

Whatever else education may purport to be, it involves, at least, the endeavour to transmit knowledge. Although it may be that not much of education takes place in a school, we shall argue that the values embedded in the dominant epistemology of institutional learning give rise to a number of educational myths, one of which is narrated in the currency of scientific materialism: an ideological coin whose other side is rampant consumerism. Because we end up commodifying everything, there is little, if anything, that has intrinsic value. We commodify both space and time and everything in these domains, and the value we ascribe to spatio-temporal things depends upon their potential capacity to be bought, sold, or leased. We commodify not only material goods but also the whole of culture. We commodify our relationships with each other and we sell to each other cultural experience, both manufactured and virtual to extend the sphere of commercialisation infinitely. One

consequence of the mythology of consumerism is that it lends ineluctably to futile, or endemically frustrated, aspiration on the one hand and increasing alienation on the other.

Development of the Philosophy of Consumerism

According to Rifkin (2000), consumerism was first developed as a philosophical belief in the 1920s, although the concept, and the framework of discourse constructed to express it, remained recondite until the finish of World War 2. During the 1920s and early 1930s, considerable effort was being directed by business leaders and philosophical economists to undermine the hold held upon the American public by the so-called Protestant Ethic, or the part of it which emphasised the moral import of restraint required to ensure frugality in all aspects of life, but especially lustful spending which is a vital precondition of the consumerist economy. The idea was to break the hold that Puritanical Protestantism had on parsimonious spending by, as Galbraith later phrased it (1958), seeking to 'create the wants it [business] seeks to satisfy'. Contriving to create the stage upon which consumerism could most effectively be played out, Kettering and Kryk did much in the 1920s to make the consumerist curtain rise to an enthusiastic public audience.

Aspiration

In Hazel Kyrk's A Theory of Consumption (Rifkin, 2000), for example, the outlining of the idea of aspiration in consumer psychology is evident: 'Luxuries for the well-off [had to be] turned into necessities for the poorer classes.' Through developing marketing and branding in the 1920s, the average low-to-middle class worker was starting to develop the idea that they could be better off than they were. This development of marketing and branding coincided with the notion of credit: a burden most people, and indeed sovereign states, are overwhelmed by even ninety years later. Thus, aspiration became an ideal that, at least in

principle, could be 'achieved', even if by its very nature is rarely satisfied, or at best is only momentarily subdued. However, business thinkers quickly became ahead of the average consumer: as Kettering stated, 'the key to economic prosperity is the organized creation of dissatisfaction' (Rifkin, 2000). Therefore, the key tenet of consumerism named aspiration was developed in the 1920s as way of selling goods to 'dissatisfied' customers. It is a tenet that most major corporations cling to now: why keep the iPad 1 when the New iPad is exponentially better? Why not take your children to this fast food restaurant when the family in the advertisement is so happy there?! The key to creating a dissatisfied Consumer is to lay out the possibility of the perfect Consumer and then convey subtly to the audience that 'this could be you, if you want it to be you.' The problem with aspiration is that it is always replaced by aspiration. The grass is always greener on the other side: it just so happens that there exists infinite 'other sides' and levels of 'greener'. Hence, the ideal of aspiration as a basis for the Consumerist paradigm was established early and led to Consumerism's next two interrelated tenets: egotism and alienation.

Entitlement

As established in the previous paragraph, the best way to produce the 'Dissatisfied Consumer' is to create the idea of the 'Perfect Consumer'. The Perfect Consumer can come in many guises, but when all is said and done, they all strive to fulfil one uniting conceit: happiness. Through achieving whatever these imaginary characters want, they become happy, content in their life of consumption. What these advertisements tell the Consumer is that this could be you: essentially, you can be perfect, you can have the whitest teeth, be the size and shape you want to be, have as much fun as you want in your life, and be endlessly affluent. As advertisements (in any form) are a form of persuasion, there is a creation of a direct dialogue with the Consumers, with an aim to convince them that this is a special message just for them.

And while advertising has been around for centuries (some would argue millennia), it is with the development of the 'Consumer Paradigm' that advertising has been taken to the almost unimaginable heights now witnessed that we see in contemporary society. The legacy we have is that a discourse has been created which represents a highly personalised, distinctive dialogue that emphasises the 'YOU' and only 'YOU'. Thus, through this creation of the distinctive 'YOU', the Consumer believes that he/she is special, and the tenet of egotism is enshrined.

Alienation

However, with the development of these two core beliefs of aspiration and egotism, the core belief of alienation is also concurrently developed. When the luxuries of the rich become aspirational necessities for the poor, a necessary condition for ensuring maximal consumption, the concept of alienation as an integral part of consumerist discourse becomes obvious. In regards to advertising, the persuasive nature of the text fosters a sense of alienation through the use of aspiration and egotism as key features of the advertisement structure. This occurs when the advertising machine is thrust upon those who are deemed by society to be valued at a below-average level. When lower classed peoples are subject to the Perfect Consumer as shown in advertisements, the model of perfection on offer is so distant from their reality that the advertisements take on an appearance of mockery to those who are alienated from the Consumerist structure; the advertisement is implying: "You are not valued enough to be able to afford these products, yet you are a worthless person if you cannot obtain them." The aspiration and egotism becomes flipped, as if in a hall of mirrors, showing the alienated lower class member that they are worthless people: the grass is definitely greener over there as your patch is just a dustbowl.

When examining the schism between the dissatisfied consumer and the perfect you, one conceit becomes clear: it is all about the construction of identity. The construction of identity has become increasingly problematic throughout the development of the Consumerist paradigm. Whereas, human adults could be expected to identify with work, community, religion, and country in centuries previous, the hyper-globalised, technologised world that has developed deems that one must identify themselves through lens of mass culture. The development of mass culture is a tool of the Consumerist paradigm. By creating, and marketing, products that create a sense of dissatisfaction and the possibility of perfection, the Consumer is a perpetually anxious being. This anxiety perpetuates itself through what Giddens labels the reflexive self (Willett, 2008). As Giddens acknowledges, the reflexive self is participatory: one chooses a lifestyle that one wishes to project and one must continuously work and reflect upon that self. The strength with which the Consumer paradigm has become the dominant social state, however, is analogous to the European Church before the Age of Enlightenment: to reject it, is to be excommunicated. To not be a part of the Consumerist agenda in this day and age, however, is to reject life itself, all-encompassing as it is. Therefore, the construction of identity in the Consumerist age is under the watchful eye of the purveyors of Consumerism. This identification of Consumerism allows for Foucault's theory of Consumerism as technology of the self to be remedied with Giddens' reflexive self as this identification acknowledges that there is a participatory element within the confines of the mandatory dominant paradigm (Willett, 2008). Thus, the alienation that Marx argued would be a contributing factor toward the development of class consciousness is supplanted by the euphoria of identification: the development, realisation, and refinement of identities that allow the alienated worker to feel de-alienated. However, the consumer is far from de-alienated: by consuming products that are separated from humanity and nature, the consumer is consuming alienation as defined by Marx. Add to this the concept the Marcuse argument that society

itself is now a bureaucracy through which one is bound: that the mass culture produced by the consumerist machine develops a false consciousness (1964), allowing one to believe that they have a Giddean self-reflexive choice in how to choose one's identity, when it is but a selection of choices offered by an elite bourgeois to help the proletariat feel in community. This advanced form of alienation also informs the anxiousness in the dissatisfied consumer, the aspiration to keep up with the Joneses, and the need for the euphoria of identification. Consumerism breeds alienation.

Thus, our consumerist lifestyle promotes the idea that our humanity and our self-worth are things that can be acquired. This 'acquisition' concept is easily understood if we undertake a linguistic study of the term 'goods'. Goods are, essentially, items that can be bought and sold at will and are the building blocks of any consumer society worth its salt. The issue is that the term 'goods' has been linguistically co-opted from the idea of 'good', as opposed to evil. This is Weber's idea of the Calvinist aesthetic writ large: if one can find the idea of God in everyday hard work and toil, then God can be found in payment of our services (Weber, 1930) and what is the payment of services good for if not the acquisition of goods. This is a simplistic explanation of the development of capitalism, as defined by changing the benevolent God into the benevolent items that make consumers feel morally good. After all, there isn't much difference between believing in universal sin and 'keeping up with the Joneses.' Therefore, by building up self-worth through the acquisition of goods, the consumerist idea of moral good is built. However, if moral good is developed not through a 'benevolent' Almighty but seemingly 'neutral' things, then the idea of a moral 'good' must be questioned. It follows that, at the very least, if 'goods' are just neutral items that humans place their own self-worth and value upon, then the entire consumerist endeavour is morally ambivalent at best. The issue must then become: are these 'goods' morally neutral at all?

Power over Nature

Francis Bacon's creed states that scientific knowledge equals power over nature, the idea that humanity can control its surrounds (Laura and Cotton, 1999). While this was postulated many generations ago, the creed still lives on through what Laura describes as transformative subjugation. Essentially, the answer to what transformative subjugation can be found in the phrase scientific knowledge is power over nature: that is, that knowledge, the perception of truth, is the ability to control our surroundings. To control our surroundings, we deaden the world that surrounds us, as lifelessness is one of the only certainties that we can believe. This deadening can be found all around us through biotechnology, pyrotechnology, and compu-technology: through technologies to control the DNA of living things, to chemical reduction of natural things to create new compounds, and onto the depersonalisation of humanity through the screen. Therefore, we surround ourselves with dead things, thereby deadening ourselves and our relationships to each other at the same time.

Which is where we find the crux of this argument: that providing ourselves with power and control over nature, each other, and ourselves, we are killing nature, our nature, and the nature of our relationships. And it is these relationships that form the core of the human experience: that life is not the pursuit of reductionism, but the opening up of our experience to others, which is almost the diametrically opposed position. And yet, the dominant paradigm in which our truth is currently held, is one which can be described as depersonalising, dehumanising, and desanctifying. However, the growth of consumerist philosophy out of capitalist endeavours is not only indebted to the epistemology of power, but also has at its core an actual malevolence that seeks to inculcate all into its base philosophic tenets of aspiration, entitlement, and alienation.

Consumerist-Informed Globalisation

With the establishment of these Consumerist tenets in place, it now becomes important to understand how this dominant paradigm has shaped all ideological and technological change that has occurred since its passive acceptance into society. The major ideological change of the past century that has been shaped by the Consumerist paradigm is that of the globalisation of the world economic markets. Globalisation can be viewed as two distinct, yet related, movements: one as a technological system of interconnectedness; one as an economically-driven political structure. Globalisation, as a structure designed for change into a free market, neo-liberal world-wide economy, has a history that reaches back to the late 1940s. Proponents of Globalisation in the economy argue that with the development of free trade, open markets, and floating currencies, businesses, and indeed sovereign states, will be able to compete at a more efficient level than ever before. This new context of consumerist exchange was deemed to represent a major economic advance not only by the policy makers of sovereign states but also by the worlds' most independent and highly regarded economic institutions: such as, the IMF, and the World Bank. These two institutions, created by the Bretton Woods agreement at the end of World War 2, have slowly but surely pared the road by way of which the Globalisation economic structure could be put into place. What these institutions have failed to identify is the devastating effect that Globalisation can have on the highly advanced Western societies and, also, the destabilising effects that it can have on developing countries.

Globalisation as technological agent for change has directly affected globalisation as an economic force (Rizvi and Lingard, 2006). As technology has improved, and opened up the world, the globalised society has become integrated. This means that many of the barriers that stopped trade and communication have been removed with the advent of easy and cheap

transportation, and information technology starting with telecommunication to the instantaneous movement of information over the internet. Therefore, globalisation as technological agent is another way of re-framing the reduction-mechanist scientific method into modern philosophical concerns. Additionally, the economic force of globalisation gained momentum with the corporations focused on their bottom line realising that basic manufacturing labour costs much less in developing nations, with lower standards of living, than it does in the traditional homes of their companies. This has led to the dissolution of the manufacturing class in countries where the third and fourth sectors are expected to absorb the unemployed. However, in a country with growing income inequality, such as the USA, the service sector uses corporate theory, and with high demand for jobs, providers can start lowering their overhead with lower wages (Madden, 2000). This leads to a situation where, as in the US, the conservative reports on underemployment peg the figure at 20% (Shedlock, 2011). However, to truly understand how both the consumerist paradigm and, by proxy, globalisation as a technological agent for change can be dangerous paradigms in which to inculcate into our children, one must first piece together these theories and philosophies to provide a look at how this plays in our contemporary society.

Consumerism, Transformative Subjugation and the Bureaucracies in which they are found
In contemporary society, the bastion of the consumerist endeavour can be found in the devolution of education. While the nous of critical thinking and compassion are the elements of the human mind that need developing throughout a young person's life, arguably, the manner in which mass schooling has developed has led to different priorities, as we will see. Henry Parkes, a politician who helped shape the development of mass schooling in New South Wales, put it succinctly when, in 1863, he argued that it is cheaper to provide schools than to build gaols (Murray, 1999). This recently has been echoed by current the US President

when he stated that higher education is an economic imperative, due to the costs related to the high rates of unemployment amongst those without a university degree (UPI, 2012). Reid also argues that the current focus in Australian schooling is on the economic function of creating human capital for the labour force (Reid, 2010), a view of the Australian education system that is supported by Axford and Seddon (2006).

An alternate view of this economic rationalisation of schooling can be seen in the views that denounce the corporatisation of schooling. Outcomes-Based Education, a framework that guides contemporary curricular and pedagogical movements in mainstream Australian educational discourse, has been accused of leading the corporatisation of schooling due to the business-like jargon that permeates its theory (Berlach, 2004) such as: outcomes; performance enablers; discrete content skills; and, compartmentalisation of tasks (Killen, 2000). There have been concerns regarding the corporatisation of schooling as far back as Kohn, in 1993, who stated that "a performance focus is inherently problematic in a classroom." Jorgensen references this concept of 'performance focus' in her examination of Aboriginal attendance and performance in relation to Mathematics education, and how problematic the introduction of NAPLAN testing is to the perceived achievement of those children in remote areas (Jorgensen, 2010). This perspective of but one minority, alienated by schooling, highlights the idea that pedagogy, despite being steeped in "principles of social justice and equity (NSW DET, 2003)", is schismatic with the corporatized bureaucracy in which it operates: or as Reid would phrase it, that the purposes of schooling are incompatible with the modalities (structure, culture, processes) of schooling (Reid, 2010).

As a force for the perpetuation of a socially cohesive society, schools train and mould the people who control the future. This is acknowledged by various writers throughout

history: from Foucault's musings on the similarities and differences between penitentiaries and schools (1979); Dewey's insistence that schools must represent present life, and that the teacher is responsible for the maintenance of proper social order (1897); and, MCEECDYA's goal to "ensure that schooling contributes to a socially cohesive society that respects and appreciates cultural, social and religious diversity (MCEECDYA, 2008)".

The alternate views of how this function of schooling is affected have been well documented over time. Freire looks at the perpetuation of the status quo as perpetuation of prejudices and of the unjust society, and denounces the ideal form of schooling as one which cannot just be emulated for all minorities as a form of cultural imperialism (Freire, 1972). This links in with Jorgensen's appraisal of pedagogies built around urban concepts of learning not being able to be simply grafted onto a civilisation that experiences pedagogy differently (Jorgensen, 2010). While Freire takes a Marxist approach to the solution, seizing the means of production for the benefit of all, the synthesis of these articles into a coherent assessment of the dominant paradigm will reveal that Marxist revolution has not occurred in Western societies due to the diligence with which the dominant paradigm is inculcated into our youth through the idea of schooling as a perpetuator of the status quo.

This status quo, as evidenced above, is the dominant paradigms of consumerism based in an epistemology of power: the deadening of our world through the methods we have developed to reductify and manipulate ourselves, each other and the world around us. We place a high significance in schools on remembering facts and readings, as opposed to critically thinking and learning. Schools should be a bastion of free thinking and the development of the human mind, however, the bureaucracy we have built around the

schooling system has evolved to place the economic needs of society ahead of the individual pursuit of happiness for each person.

Outro

The rise of consumerism, as a direct result of the progress of technology made possible by the creed of science as defined by Bacon and incorporating Laura's critique, is completed by occupying a need in society: the need to feel de-alienated regarding one's life, in order to avoid Marxist revolution, or a spiritual disenfranchisement. By establishing how these dominant paradigms came into existence, and what tenets they exemplify – reductionism, transformative subjugation, aspiration, entitlement, and alienation – it becomes necessary to examine how they have infiltrated our lives at the core: through training and 'education'. It, then, becomes imperative to develop models of change and progress, as opposed to death and decay.

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Seeding Science Success: Ascertaining the Barriers and Relations of Students' Self-concepts, Motivation, Aspirations, and Achievement in High School Science

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Abstract

Science is very important as it focuses on meeting basic human needs. However, there has been a steady decline in the number of students studying science over the past decades. Past research has shown that the decline is linked to many interrelated factors. The relations between students' science self-concepts, motivation, aspirations, and achievement in different domains in science have not been examined. As such, the aims of this study are to: (1) develop a psychometrically sound tool to measure secondary students' science self-concepts, motivation, and aspirations in biology, chemistry, earth & environmental science, and physics; (2) test the relation of multi-dimensional facets of secondary students' science self-concepts, motivation, aspirations, and achievement across gender and age levels; and (3) identify the barriers to undertaking science for secondary students. Student surveys, teacher interviews, and student focus groups were conducted in three schools in New South Wales. The first phase of results shows high reliabilities of the scales in the instrument and positive correlations between students' self-concepts, motivation, aspirations and achievement in high school science disciplines. A number of perceived barriers were raised surrounding issues of the difficulty of the subject matter, quality of teaching, and the limited perceived career opportunities available in science.

Key words: Science, Self-concepts, Motivation, Aspirations, Achievement

Introduction

The present era is the era of science. Science has been helpful for inventing innumerable ways of making the life of humanity more comfortable and happy. Every sphere of life has been affected by science.

Science has been defined in many ways. Ferrari (2012) reported that science has been defined as a social and cultural activity through which explanations of natural phenomena are generated. Explanations of natural phenomena may be viewed as mental constructions based on personal experiences and result from a range of activities including observation,

experimentation, imagination, and discussion. Science can also be simply defined as an organised body of knowledge.

The Significance of Science Education

No country, no matter how sophisticated technologically, can advance its society fully without the informed engagement of its citizens. The non-scientist is increasingly at a disadvantage because he or she lacks the information to engage in these important public policy dilemmas as an informed, independent thinker. How can we equip our people with sufficient scientific skills to enable them to develop informed opinions about these important issues, without imposing the unrealistic expectation that they be trained as scientists? Without a broad populace of 'science appreciators', both the continued national investment in science and the implementation of enlightened public policy will be threatened.

The nature of updating our knowledge and understanding about science constantly is one of the most significant characteristic features of science. As such, scientific knowledge is contestable and is revised, refined and extended as new evidence arises (Ferrari, 2011).

By considering the importance of comprehending science, Aschbacher, Roth and Li (2010) state that understanding concepts and principles in science is a more and more valuable practice and experience throughout the world. Further, DeBoer (2000) stated "Science classes should give students the knowledge and skills that are useful in the world of work and that will enhance their long term employment prospects in a world where science and technology play such a large role"(p.592).

Deviation of Students from High School Science

In spite of the importance of science education throughout the world, the percentage of school students studying science is particularly low (Hannover & Kessels, 2004; Birrell, Edwards, Dobson, & Smith, 2005). There is an international decline in the number of students studying science especially in developed countries such as United States of America (U.S. Department of Education, 2006), United Kingdom (Schoon, 2001), and Germany (Roeder & Gruehn, 1997). This has resulted in a lack of expertise for science employment and endangers the economy.

Science Education in Australia

Aschbacher, Li, and Roth (2010) stated that school science is often difficult and discouraging; there are very few science advocates at school or home; and meaningful opportunities to work with real science professionals are scarce, even in schools with science or health academies. There has been a steady decline in the number of students studying science, technology, or engineering over the past decade (Birrell, Edwards, Dobson, & Smith, 2005). The number of students taking science in Year 11 and 12 in Australia has been falling steadily since 1976, and the proportion doing physics has almost halved (Wood, 2004; Hassan, 2008). As such, it is apparent that many students are moving away from science.

The three discipline-oriented Public Examination subjects (Biology, Chemistry, and Physics) reached a peak in popularity in 1992, but then suffered a decline in enrolments. In 1998, the difference between the total number of Year 12 cohort and the total number of Year 12 science enrolments was approximately 29,000 (Dekkers & Laeter, 2001). Whilst it is pleasing to note the initiatives in science education that have occurred in Australia over the

past two decades, the net result had been a decline in the proportion of students studying science subjects at Year 12 since 1989.

McDougall (2011) reports that the number of Year 12 students studying any of the science subjects has dropped from 94 per cent to just over 50 per cent in the past 20 years - and enrolments are still falling, according to the available data. He further reports that Australia's performance in international tests for younger teens has flat-lined with six countries - China, Finland, Hong Kong, Singapore, Japan, and Korea - now doing better than Australia, the so-called 'Clever Country'. Only 9% of Australian university students study science.

Hall (2012) reported that, according to Australia's chief scientist Professor Ian Chubb, many students do not see maths and science as the "coolest" subjects in the world. According to Hall, one of the reasons why there are not more students doing science is because they think it is boring. Science, math, and technology need to be elevated so people who live in this country can understand that these are critical areas for the future. Chubb has said "The better we do it now the better our future" (p.1). Also teachers should make teaching of science and maths more relevant to students' lives rather than overhauling or "dumbing down" the curriculum.

In Australia, the proportion of Year 12 students taking physics has fallen 32 percent between 1992 and 2009. The decline for biology was the same, while chemistry was down 25% (Lane & Puddy, 2012). Moreover, they stated that we need to increase the demand; we need to make these subjects so compellingly interesting that students want to do them.

Further, Werner (2012) reports that the Dean of Science at the University of New South Wales has said more people need to be trained in science.

Ferrari (2012) reports that aspiring teachers will have to study math and science at school, and meet minimum entry scores, to qualify for a limited number of places in education degrees at university under reforms proposed by the New South Wales (NSW) government. It suggests minimum standards to qualify for teaching, including prerequisite study at school of mathematics, science and/or a language as well as English, and an assessment process of applicants to ascertain their suitability and commitment to teaching.

Thus this investigation facilitates in clarifying these issues, thereby offering novel and evidence-based methodological approaches in explicating the nature of science learning and teaching with regard to the decline of students' enrolments in science. Hence, it contributes in elucidating the psychosocial determinants of students' decision making process in regard to science enrolments.

As past research has not investigated the relations between students' science self-concepts, motivation, aspirations, and achievement in the different disciplines of science, the purpose of the present study is to contribute to addressing this gap in the literature by (1) developing a psychometrically sound tool to measure secondary students' science self-concepts, motivation, and aspirations in biology, chemistry, earth & environmental science, and physics; (2) testing the relation of multi-dimensional facets of secondary students' science self-concepts, motivation, aspirations, and achievement across gender and age levels; and (3) identifying the barriers to undertaking science for secondary students.

Methodology

According to Mertens (2005) a mixed-methods approach is most appropriate for this research as this investigation is intended to serve multiple audiences such as students, teachers, and educational professionals. Moreover, the combination of both qualitative and quantitative methods has the potential to offset many of the limitations of each method when used in isolation, as well as consolidating and elucidating additional findings illuminated by either method (Cresswell, Clark, Gutmann, & Hanson, 2003; Tashakkori & Teddlie, 2003, 2009). As such, the mixed-methods approach was used in this investigation.

Participants

Three hundred and ninety five students from Year 7 to Year 12 participated in this study. The distribution of the student sample among the years was given in the Figure 1.
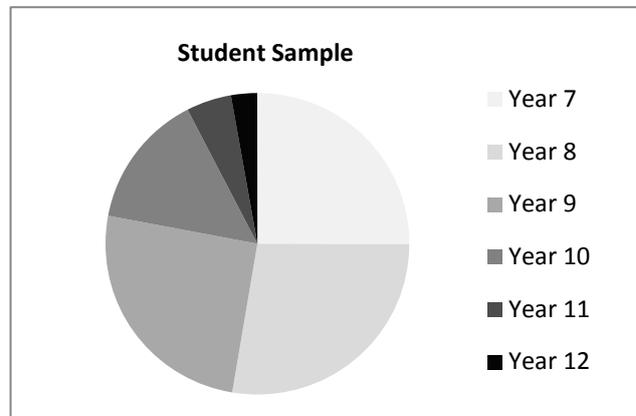
Figure 1. The distribution of the student sample
Eleven science teachers participated in this investigation.

Recruiting Procedures for School Students and Teachers

Once schools agreed to participate, information letters and consent forms including information on the project and confidentiality were sent to schools to be distributed to the parents/guardians of students in years 7 - 12 for their signatures and consent for their children

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to participate. Students who returned their parental consent forms were invited to participate in a 30-40 minute survey. Consent was given on a voluntary basis. All participants were provided with an information letter which outlined all details of the study.

Based on students' responses to the student questionnaire, 20% of students were invited to participate in a 30 minute semi-structured focus group discussion, with 5-6 students per focus group. Science teachers from two schools were invited either for face to face interviews at the school premises or for over the phone interviews.

Instrumentation

Science Secondary Questionnaire (SSQ) and interview schedules for teachers and students were the instruments used in this study.

Components of the SSQ

The SSQ comprises the following measurement scales: Science Self-Description Questionnaire (SSDQ), Science Motivation Questionnaire (SMQ), and Science Aspiration Questionnaire (SAQ). Appendix A provides a summary of these measurement scales, with sample items for each of the subscales that comprise the Secondary Science Questionnaire. Each of the subscales is measured on a six-point Likert scale (1= *strongly agree* to 6= *strongly disagree*).

The SSQ survey instrument (See Appendix A for a list of scales and sample items) is divided into four sections: demographics, science self-description questionnaire scale (SSDQ), science motivation questionnaire scale (SMQ), and science aspirations questionnaire scale (SAQ).

Demographics. This section was very brief and aimed to collect only basic information (e.g., age, gender) about the student completing the survey. In addition, some basic information regarding the students' science achievement was collected.

Science Self-Description Questionnaire Scale (SSDQ). This scale comprises of survey items related to students' science self-concepts. To address this complexity, advice based on the findings of Marsh and Craven (2006), was adopted. Due to the multidimensional nature of students' science self-concepts this scale includes the following five subscales: biology, chemistry, earth and environmental science, physics, and general science. Students' self-concepts were measured by a researcher-devised multidimensional measure of science self-concept description questionnaire (SSDQ) that has been developed based upon the self description questionnaire (SDQII) (Marsh, 1990).

Science Motivation Questionnaire Scale (SMQ). The SMQ was adapted from a motivation scale developed by Marsh, Craven, Hinkley & Debus (2003) to measure science motivation. SMQ comprises three different motivational orientations: mastery, intrinsic, and ego in different domains in science.

Science Aspirations Questionnaire Scale (SAQ). It is more likely for higher achievers to have clear post-secondary plans, and plan academic science-related pathways (Adamuti-Trache, & Sweet, (2009). Educational aspirations and career aspirations are measured by a scale adapted from Yeung and McInerney's (2005) school motivation and aspirations scale.

Interview Schedules

Semi structured interview schedules were used for teacher interviews and student focus groups. Student interview questions were based on their experience in studying science as a subject and different disciplines of science, academic and career aspirations etc. They were also asked to compare their science subjects with other subjects in the ways and means of easiness, enjoyableness and achievement.

Teacher interview questions were based on their teaching experience as a science teacher, students' perceptions about science, students' interests in different disciplines of science, and students' decision making process to continue their science studies.

Survey Administration

A paper version of the survey was administrated in pre arranged school halls and classrooms with a minimal disturbance to the normal school work and procedures. At the beginning of the survey it was announced to the students that the data collected would only be used by the researcher for research purposes by maintaining confidentiality without reporting back the raw data to the schools, parents and other people. The survey was administered according to the other usual survey administrative procedures.

Both interviews and focus groups were conducted by experienced researchers. Teacher interviews were conducted with individual teachers at the school premises in a time convenient for the teachers. Student focus groups were conducted at the allocated rooms in the school premises with selected students.

Data Analysis

Data screening and general analyses (reliabilities, frequencies, etc.) were performed using SPSS 20.0 version. Advanced statistical techniques such as Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) were performed using Mplus version 6.12. A descriptive analysis was carried out on students' science self-concepts, motivation, aspirations, and achievement followed by reliability tests and, confirmatory factor analysis (CFA). Invariance testing was carried out to examine the factor structure of the SSDQ, SMQ, and SAQ across gender and secondary schooling stages. Students' science achievements are measured by teacher and student ratings. The relations between student science self-concept, motivation, aspirations, and science achievement were investigated through structural equation modelling (SEM). The data collected through the students' and teachers' interviews were subjected to thematic and content analyses.

Multiple imputation frame work was used to treat missing values of the data set. In multiple imputation method each missing value is replaced with a set of plausible values that represent the uncertainty about the right value to impute instead of filling in a single value for each missing value (Rubin, 1987).

Once adequate reliability estimates for each factor were identified, a series of CFAs were conducted to validate the factor structure for each scale in the instrument. Specifically, CFA was used in this research to investigate the structural validity of the constructs of interest.

The survey items should measure the same construct comparably across different subgroups of the sample (Brown, 2006). Such recognized equivalence, also referred to as

invariance (Byrne, 2006), is a necessary prerequisite for establishing validity of the survey scales as well as generalisability. For this research, two different groupings were of interest: (a) age of the child, and (b) gender of the child.

Structural equation modeling (SEM) was used in this research to test and estimate causal relations using a combination of statistical data and qualitative causal assumptions.

Results and Discussion

Findings from Quantitative study

All scales of SSQ demonstrate strong and robust structural validity, excellent internal consistency reliability, and invariance across the grouping variables of interest (i.e., gender and secondary schooling stages). In addition, SSQ fulfils the requirement of the integrity of the full assessment battery by indicating the strength of the overall instrument.

The strength of students' science self-concepts varies in different disciplines of science. Science self-concepts in general science, chemistry, and physics vary across gender. Students' self-concepts in general science and biology become stronger with the students' age of secondary schooling.

Out of the predictive factors, students' Year level, biology self-concepts, and physics self-concepts are significant predictors in students' science and career aspirations. Students' biology self-concept is a significant predictor in students' achievement on the teacher ratings. Students' general science self-concept is a very strong factor in predicting students' achievement according to student ratings.

Students' intrinsic motivation in science is a stronger predictor in students' science aspirations and achievement.

Findings from qualitative study

Enthusiasm, enjoyableness, fun experience, experimental nature, less content, understanding, and effective and passionate teachers emerged as significant factors that influence secondary students' decisions to undertake science subjects at school.

Students with strong self-concepts in science have high intention of following science courses in their further education than the students with low science self-concepts. As such, there is a relation between students' science self-concepts and students' decision making process for students' further education in science. Also the students' achievement in science is greater in the students with high self-concepts than the students with low science-self concepts.

Students who are highly motivated towards science and have strong intention to pursue careers in science show a better achievement in science compared to the students who are less motivated towards science and not interested to pursue careers in science.

According to the teachers' points of view the factors influencing students' decision making process to follow science at secondary level are students' performance, parents' expectations, teacher characteristics, students' interests, career aspirations, difficulty of the subject, and the relevance of the subject to day-to-day life. Further, students' experience in their academic life, career aspirations, interest, teacher characteristics, family influence,

students' career ambitions, financial rewards, and peer pressure affect students' decision making process in pursuing science at post-secondary level.

The following graph shows the percentage responses on barriers perceived by teachers related to school science education.
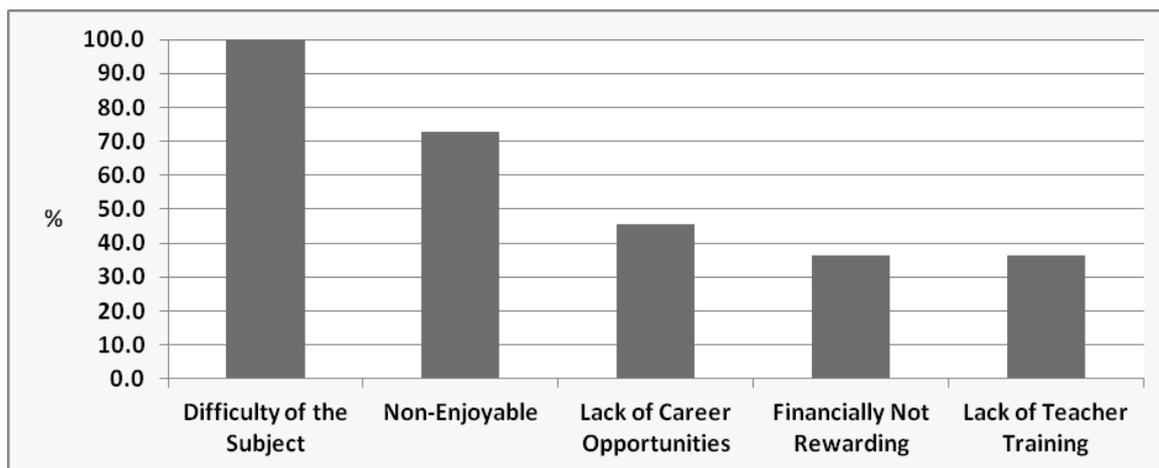
Figure 2 Barriers perceived by teachers on school science education

Hence, difficulties of the subject and non-enjoyableness have become more significant factors among other barriers in pursuing science.

Conclusions

Students' science self-concepts demonstrate a multi-dimensional nature in different disciplines of science. However, science motivation and aspirations do not exhibit a multi-dimensional nature in different disciplines of science.

Students' science self-concepts and motivation are related to their aspirations and achievement in high school science and students do have very definite opinions about science. Both quantitative and qualitative results elucidate what may be important characteristics for the fostering future science students.

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Appendix A. Summary of the Measurement Scales and their Respective Subscales

Measurement Scale	Sub-scales[a]	Sample Items
Science Self-Description Questionnaire (SSDQ)	Science Self- Concept (10)	"I am good at SCIENCE"
	Biology Self-Concept (10)	"BIOLOGY is one of my best subject areas"
	Chemistry Self-Concept (10)	"I look forward to CHEMISTRY classes"
	Earth and Environmental Science Self-Concept (10)	"I enjoy studying for EARTH & ENVIRONMENTAL SCIENCE"
	Physics Self-Concept (10)	"I often need help in the subject area PHYSICS"
Science Motivation Questionnaire (SMQ)	Mastery Motivation (06)	"I feel most successful in SCIENCE when I reach personal goals"
	Intrinsic Motivation (06)	"I do SCIENCE because I like learning new things"
	Ego Motivation (06)	"I feel most successful in SCIENCE when I am the best"
Science Aspirations Questionnaire (SAQ)	Science Aspirations (04)	"I hope I continue my SCIENCE studies"
	Carrier Aspirations (03)	"I wish to get a good job in SCIENCE"

[a] The number of items for each subscale is given in parentheses after the subscale name.

Philosophical Reflections on the Problem of Teaching Religious Education in a Multicultural Society

In beloved memory of Charmaine Clark

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Abstract

A considerable scholarly literature has accumulated on the pedagogic viability of religious education. Dawkins has strongly argued that religious education has no justifiable place in the school curriculum. According to Dawkins, one can teach about religion (e.g. history of religion, comparative religion), but to teach religion, in the sense of inculcating religious beliefs which he calls the 'false science of religion' is tantamount to indoctrination (Dawkins, 2006). The main focus of the paper is to suggest that while the scriptural teaching of religious education in a multicultural society is likely always in some sense to be controversial, it is possible to reconceptualise religious education as a reflective discourse for the development of spirituality. Our view is that religious education can best be pedagogically justified when its primary concern is to expand the spiritual consciousness of its students so that they recognize and understand that the moral worth of sacred texts in such a way that the edification enshrined within them transcends the doctrinal formulations that express them. In essence religious education becomes less culturally bound by enhancing the moral sensibilities of its students through a spiritual awakening of the universal virtues, which define the spiritual integrity of their loving relationships and responsible stewardship of the earth.

Keywords: spiritual development, indoctrination, multiculturalism, religious education, moral edification.

Introduction

It is our view that multicultural society presents problems for the teaching of religious education that are highly controversial. We argue here for a form of religious education, which uses sacred scripture to develop spirituality in school children, not their institutional religiosity and worship commitment to a particular religious tradition. This reconceptualisation of religious education provides a salutary corrective to certain elements contemporary pedagogic tension in schools of religious diversity. Given the putatively contradictory beliefs among at least some of the diverse religious faiths

embraced by pupils attending our schools, it is certainly difficult to comprehend how any one religious educator of specific religious disposition could provide a non-biased and specific denominational lesson of scripture to students from different religious backgrounds. We argue here that a reconceptualisation of religious education that seeks to develop a moral consciousness of spiritual awareness which transcends orthodox ritualistic and doctrinal differences can significantly diminish the sectarian conflicted aspects of religious education in multicultural societies. Unless a particular school has closely monitored its religious programme, there may remain a tendency for a volunteer religious teacher to place too much emphasis upon inculcating certain doctrines that encapsulate the decrees of a particular canon, despite recent Rawlinson recommendations on this matter that this should not happen. As faith systems are based on differences of doctrine and consequent religious practices that seemingly contradict each other, underscore religious education has been misconstrued as being intrinsically divisive, thus perpetuating community division through sectarian conflicts that fracture not only school communities, but the global community.

Conflicting Issues: Interpretations of Morality and Religion.

Conventional religious education has commonly inculcated doctrinal beliefs through the systematic transmission of what is regarded somewhat simplistically as a discourse of belief structures of parochial epistemic origin which accentuate the doctrinal differences amongst religions. Traditionally, religious teaching has been reliant upon differing elucidations of revelatory belief structures of parochial disposition which accentuate those doctrinal differentiations which serve to individuate one religion from another. This may well result in conflicting interpretations of the nature of morality and of religion itself, thereby marginalising the importance of both (Dworkin, 2013). Denominational conflicts of this kind

are regarded by some philosophers as intractable, and thus the teaching of religion is tantamount to a form of indoctrination. This helps to explain why some of the opponents of funding for teaching religious education in both religious and secular schools have so fervently voiced opposition to it (Flew, 1972; Snook, 1992; Dawkins, 2006).

The curtailment of funding for the support of scriptural education in schools could be construed by many as a disappointment, and even discriminatory. We suggest that religious education, sponsored on scriptural and doctrinal teaching should be the responsibility of denominationally- based institutions, where the teaching of specific religious beliefs is consistent with parental wishes. We submit that developing a spiritually oriented and philosophically reflective exploration of comparative religions within the school curriculum may create exciting and novel opportunities for directing children of different faiths to discover universal examples of ethical and moral insight that help us understand how we can learn to live in right relationship with each other, and the world around us. A perusal of the policy document on the guidelines that pertain to scriptural teaching, as issued by the NSW Department of Education should assuage anxieties in regard to the Department's protocols. Consistent with this approach, Lovat has written that '…an understanding and appreciation of religion … does not involve or necessitate personal submission to a particular creed…' (Lovat, 1995).

Developing the Moral Dimensions of Spiritual Consciousness

This section of the paper will enumerate a few examples of situations, both positive and negative, whose reflection illustrates the way in which the faculty of spiritual sensibility can be deepened. It is clear that a response from a spiritually oriented individual to a given situation can often serve to create profound moral consequences, of considerable benefit to

all these involved, as in the case where individual and community decision-making capacity can be spiritually heightened to serve humanity rather than desecrate it. The harmony of multicultural schools could be profoundly improved if religious education were grounded in what we call a 'consciousness of denominationally transcendent moral and ethical insight'. This reconceptualised form of religious education serves to encourage the view that living one's life with a positive sense of purpose and a conscious awareness of the needs of others, rather than consistently making instinctive egotistic choices in accord with one's own self-aggrandizement and personal advantage, represents a deeper level of moral enlightenment and provides a way of enhancing the spiritual wholeness of one's own life. In the end living selfishly reduces the quality of one's own life and that of others. Egoistic interconnectivity diminishes the human spirit and imprisons our moral conscience in a lower level of fulfilment which Maslow (1976) describes so aptly in his hierarchy of needs theory, as the 'baseline of living' in the materialist domain.

Currently, some forms of sectarian teaching seem to be based on ideological pedagogies of covert indoctrination that use funding in sectarian or private institutions to further their own particular agendas, rather than employing this time and money to forge links with the wider society (Marples, 2005). From this perspective, an advantageous method of promoting spiritual consciousness in school and society derives from finding from within any religion, a moral injunction which transcends the ideological boundaries of that religion and seeks to instil within each of us a more empathetic and universal consciousness of interactive stewardship (Laura, 2012). The teacher would thus work to sublimate religiously focused ideals into spiritually-based principles of mutual co-operation, thus seeking to moderate, at the grass roots teaching level, the denominational preoccupation with institutional modalities of vested-interest. Admittedly, the teaching of doctrinal

interpretations of sacred texts can become contentious, if the vested interests of established religious fraternities are so dominant that they fracture rather than unite the vision within a universal consciousness of inter-empathetic connectivity and love (Laura, 2008). Alienation amongst religions can occur by creating dissention through the indoctrination of religious beliefs, motivated by a power epistemology of dominance and control (Laura, 2012). From the position of trying to understand the interface between spiritual and religious education, the question presents itself in the following terms: From a moral perspective, '*to what extent, then, is Religious Education a contradiction in terms?*' In the sphere of religious education indoctrination results in situations where the beliefs which are taught are inculcated as factual views; that is to say, as a description of fundamental truth about how the world is, and the relationship God has with it (Kinney & Smoley, 1999). Religious indoctrination of this kind often results from inculcating the doctrinal presumptions of sacred texts as truths grounded in the alleged authority of revelation, and in turn by way of prophets and religious authorities who, in their various dogmatic interpretations feel entitled to instil such doctrines and dogmas as creeds which are regarded by them as epistemically incorrigible or inerrant.

Is Religious Education a Contradiction in Terms?

Whether scientific or religious belief is a form of knowledge rather than a form of faith cannot simply be assumed. It is in this framework of debate that our original question "Is Religious Education a Contradiction in Terms?" takes its force when religious belief is reduced to prescriptive dogma and doctrine. If we define education as a process which at least involves the transmission of knowledge, then the question whether the teaching of religion is tantamount to the inculcation of beliefs based solely on faith becomes of paramount

importance (Cotton & Laura, 1999). For if religious teaching reduces factual claims to beliefs grounded solely in faith, only those who are of that faith will regard what they have 'faith in' as true and as the only form of knowledge that can be accepted (Lovat, 1995).

This means that the teaching of religion can give rise to spheres of discourse which are hermetically sealed or circumscribed, if you like, by dogma and authoritative doctrine. If religious belief is sustained by dogmatic authority and assertion, the teaching of religion is little more than indoctrinative proselytization. As a consequence, indoctrination involves closing minds on matters which should be open, and this constitutes a great departure from the goal of education which involves opening minds to enhance the intellectual imagination in ways which help us to see the scope and limits of how we think about the world (Cotton & Laura, 1999). The two processes are diametrically opposed, and thus the extent to which religious teaching is a form of indoctrination (Cotton & Laura, 1999) depends upon the extent to which betrays that it is in essence a form of sectarian propaganda.

Paradoxically, the usual tolerance shown towards the teaching of religious education may itself be a feature of the cultural status of the particular religion being taught. Some fundamentalist, if not fanatical religious educators hold that all those believers outside their particular religious sect are infidels, and thus the enemies of their faith. In a number of cases publicised within Australia and abroad, some fanatical religious educators urge that such infidels, be they Jews, Christians, Hindus, Buddhists, Islamists are, along with the culture of corruption which they embrace, a threat to more orthodox belief, The long history of religiously motivated ideological conquests are well documented by Ninian Smart and serve as illustrative testimonies to this fact (Smart, 1998). We submit that religious conflicts, based on differences of dogma can be avoided by reconceptualising religious education as a

modality of spiritual education. Our point is that the development of spirituality encourages a form of religious education that constitutes a framework of empathetic consciousness that impels people to think in universal moral terms (Derrett, 1998). In this sense religious education which preaches intolerance of those persons outside their faith, and encourages manifest acts of indiscriminate terror upon them, contradicts the very rationale in respect of which, spiritual consciousness unfolds and upon which moral education is based. This being so, it is palpably evident from the history of religious interface that the teaching of religious intolerance is tantamount to using religion as a socio-cultural tool of power to separate people from each other by denigrating the worth of others of different belief. Historically, religious exclusionism has been used to disenfranchise members even of the same general religious community, (Smith, 1991) whereas the focus on spiritual development allows us to search in every religion to find principles or narrated examples of universal wisdom and empathetic connectivity, both of which join rather than separate humanity (Stark, 2007; Laura 2012).

Sectarian Diversities and the New Paradigm.

In order for a change to come about that introduces a transformation and responsibility of stewardship towards our fellow creatures and the environment, a new paradigm of thinking, teaching and living is required. The concept of religious education as a modality of spiritual education could assist in ameliorating divisiveness and contentiousness amongst special-interest religious factions. Strategically devised terrorism currently threatens the world, and in the wake of attacks on prominent western locations and those in the Middle East, violence is covertly fostered without impunity to strike suddenly at any perceived 'soft' target anywhere. We read, see and hear almost on a daily basis, reports of unrestrained

military invasions on the one hand, and terrorist aggression on the other. Horrific acts of violence are executed with impunity, with no sense of guilt for the many innocent civilians who are slain.

Conclusion

Our principal objective in this paper has centred upon the idea that doctrinal or dogmatic forms of religious education throughout the world have failed in unifying their adherents, and they have similarly failed to create goodwill between the faithful of diverse creeds (Harvey, 1997).doctrinal forms of religious education have also encouraged a certain kind of implicit paranoia, due to the separatist barriers erected by religious denominations, by virtue of which vested interests operate in protective ways to safeguard the individual doctrines of their respective faiths. These obstructive activities agitate against the very ideal many traditional religions purport to advocate, namely that of encouraging and striving to achieve spiritual unity, in search of 'global unity,' characterised by interempathetic connectivity.' In short, religious education, which is designed to inculcate doctrinal beliefs enshrined in sacred scripts has proven to be alienating of other religions of different persuasion, particularly in multicultural pedagogic environments.

We have argued that the reconceptualisation of religious education away from its traditional mode of doctrinal teaching to the new goal of finding within sacred text a vital source of spiritual insight. This in turn provides the opportunity for the discovery of universal morally-textured principles which transcend the particular tradition from which they are derived. Spiritual development is itself a measure of transcending sectarian boundaries. The search for the spiritual, not doctrinal truths it licenses are grounded in the moral sensibilities which touch the hearts of all people, o matter their religion or creed.

Many of the members of alternative spiritualties, to quote the preface of a recent and relevant book, '...tend not to draw rigid lines of demarcation between themselves and others' (Scotland, 2006). Unity does not of course presuppose uniformity, and it is quite possible for diversities to complement each other and to form a spiritual unity of purpose with cooperation. Such complementarity can eventuate without the loss of an individual's beliefs or convictions, provided they do not impinge forcibly, or be used to act coercively upon others (Trenworth, 1995). They serve, nevertheless, as an invitation to open minds and hearts to religious truths which feature a new consciousness of love and empathetic stewardship. The objective of love is to draw people together in empathetic connectivity, respect and consideration, care. The goal is not to place focus on dogmatic injunctions of vestal interest that perpetuate division.

From this standpoint, what is primarily of importance concerns how a change can be effected to bring about a deeper acceptance of the importance of spiritual consciousness. Often things which are termed 'spiritual' have bizarre connotations in many people's minds. Spiritual development is not generally thought to be able to stand independently of a particular religion which is in turn typified by specific denominational practices, dogmas and rituals (Swimme, 1996; Dworkin, 2013). Undoubtedly, the proposal to shift from a form of sectarian religious education to a curriculum development of metaphysics of heightened human spirituality is likely to be received with alarm. Within the context of this new realm of spiritual awareness, a person's talents are gifts to be put to the service of others. Elevated spiritual awareness opens the channels of the conscious mind to find in oneself an innocent heart of compassion, empathy and healing love for others. As Laura and Heaney write,

> *Spirituality refers to a vision of one's life which embraces the concept of universal healing in new terms, for all universal healing is ultimately self-healing and self-healing is itself a dimension of universal healing (Laura & Heaney, 1990).*

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The Evolution of English Language Teaching (ELT/TESOL) in China

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Abstract

Our primary aim in this paper is to provide an account of the evolution of English Language Teaching (ELT) in China. Our first task will be to afford readers an opportunity to understand the various factors that have impacted on the development of ELT in China. One of the most significant of these relates to the way in which the dominant theories and practices have both shaped and conditioned the scope and limitations of the pedagogic framework of ELT. Once this facet of our task has been completed, we will briefly explore the technical problems and theoretical issues that have arisen within the context of the various approaches adopted within the field. In the final section of the paper we consider the most effective methods for language acquisition, with special emphasis on the role of 'theoretical plausibility', 'contextual acceptability', and 'practical flexibility', proffering an epistemic model which we call, 'Eclectic Dynamic Language Teaching' within which the forgoing methodological approaches can be integrated.

Key words: English Language Teaching, China, theoretical plausibility, contextual acceptability, practical flexibility.

Introduction

English has become the dominant language of international trade (Davies，2003) and is used by over two billion people around the world (Graddol, 2006). China, one of the significant global trading partners within the world market (Hu, 2002a), houses the largest population of EFL learners, possibly as many as 300 million or even more (Crystal, 2008; Yong & Campbell, 1995). Given the growing commitment to learning English, ELT has come to play a paramount role in the commercial and socio-cultural development of China. One reason for this is that by augmenting the level of English proficiency among the Chinese public, China has in essence transformed conversancy in English into a national resource in its own right (Hu 2002a; 2005c). English education is now regarded by the Chinese government as a vital component of the development and modernisation of the country

(Aadmson & Morris, 1997; Ross, 1992). From another perspective, the acquisition of English should undoubtedly be acknowledged as a potential and in most cases a 'real' benefit at a personal level for those who can speak it. We would also add that the larger and more widespread the population of fluent Chinese speakers of English, the more secure English speaking tourists from around the globe feel in visiting China for the first time and in making return visits. The revenue from increased tourism affords the general public greater "access to both material resources and 'symbolic capital' for the betterment of personal well-being" (Hu, 2004, p. 26). We suggest Chinese public fluency in English is in essence a passport to better education, a kind of intellectual credit card to access better professional and social opportunities, and, ultimately, a higher standard of living (Hu, 2002a; 2003; 2004; Jiang, 2003). Being able to communicate more easily with visitors provides a context within which Chinese can develop business opportunities, research collaborations and lifelong friendships.

Influential ELT Theories and Practices

According to many scholars (e.g., Burnaby & Sun, 1989; Chen, 1989; Ross; 1993; Su, Liu & Liu, 1994; quoted in Hu, 2002a), a variety of ELT approaches have been imported, reformed or localised in accord with the long history of ELT in China. However, the majority of these approaches, including the Direct Method, Situational Language Teaching and the Silent Way, have failed to have a far-reaching impact (Hu, 2002a). Some scholars argue that only three approaches have been truly efficacious: "the Grammar Translation Method (GTM), the Audio-Lingual Method (ALM), and the Communicative Language Teaching (CLT)" (p. 28). The following section reviews these three main methodologies and how they have been applied in English classrooms.

GTM was initially used to teach Latin and Greek in Prussia and was originally called the "Prussian Method" (Richards and Rodgers, 2010, p. 5) in the United States. The main technique used by teachers was an integration of both grammar and translation (Escher, 1928; Kelly, 1969, quoted in Hu, 2002a). According to Richard and Rodgers (2010), the main goal of this method is to train learners to read the literature of a target language in order to obtain mental discipline and the knowledge of a foreign language. The first language (L1) is always used as the reference template for learning the second language (L2), by way of which grammatical rules are introduced and practised from morphological to syntactical levels. Accurate translation is the criteria for measuring learning outcomes. According to Hu (2002a), the classic version of GTM in China can be represented in intensive reading classes, which are commonly used at virtually all levels of ELT.

The second influential approach is ALM (Audio Lingual Method), and it is fully imported from abroad. This approach originated in American and is known as the "Army Method". The approach was firmly grounded in behavioral psychology (Richard & Rodgers, 2010, p. 51) and it is postulated that foreign languages are most effectively learnt through the process of "mechanical habit formation" (p. 57). This methodological process involved "acquiring a set of appropriate language stimulus-response chain" (p. 56).

This approach was first introduced in China in the 1960's and very quickly spread to in both universities and schools alike. This approach was very successful, because some of its teaching principles (e.g., accuracy-focused, teacher-controlled, and structure-based syllabus) are well suited and cater for the Chinese educational context (Hu, 2002a). It is considered by many to be the most valuable and effective approach, so it's teaching principles and techniques are still deployed in current textbooks (Grant & Liu, 1996, cited in Hu, 2002a).

The more recent innovation in ELT is the CLT, which focuses on the communicative competence (grammatical competence[1], sociolinguistic competence[2], discourse competence [3]and strategic competence[4]) rather than upon grammar and structure of a language (Hu, 2002a). It is believed that language is best taught within a humanistic setting, where real life scenarios are the basis of effective language learning. Meaningful communicative goals, in other words, serve as a process which itself facilitates language learning (Richards & Rodger, 2010).

It is reported that CLT (Communicative Language Teaching) first received very little attention in China, and it was even resisted in some teaching circles. However, it was gradually adapted and combined with the GTM or ALT approaches, and thus finally accepted by a number of schools and universities (Hu, 2002a). Currently, more attention has been paid to the development of CLT programs in China. Liao (2004), for example, even argues that CLT is the best approach for ELT in China, because it can be easily adapted for the Chinese educational setting, given its student-centered and innovative methods.

Inherent Problems

China's ELT system is still hampered by a variety of problems, some of which are reasonably easy to resolve, while many other issues are more intractable and "deserve serious

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[1] An understanding of the L2 linguistic system (Canale & Swain, 1980, quoted in Richards & Rogers, 2010)

[2] The knowledge the communicative dynamics of the L2 social context (Canale & Swain, 1980, quoted in Richard & Rodgers, 2010)

[3] Understanding how an individual piece of discourse is interrelated to the whole discourse (Canale & Swain, 1980, quoted in Richard & Rodgers, 2010)

[4] The ability to use diversified strategies to reach communication goals (Canale & Swain, 1980, quoted in Richard & Rodgers, 2010)

attention and careful deliberation" (Jiang, 2003, Niu & Wolff, 2003, quoted in Hu, 2002a, p. 18). We can only touch on these briefly here and thus make no pretense that they have been as adequately articulated as we would have liked. This being so, we restrict ourselves to making explicit some of the primary flaws of ELT which are related to the three main methods and approaches reviewed above.

GTM, ALM and CLT are generally regarded as the top three from amongst the most influential approaches and methods of ELT in China. The GTM treats English as a system of sentences or grammatical patterns filled with lexical items (Howatt & Wddowson, 2004), but in doing so, it overemphasises the teaching of grammatical rules and in turn neglects two important English skills: listening and speaking (Xu, 2006; Stern, 1993; Raouf, 2010). In addition, this method overuses deliberately-designed teaching materials which diminish the deeper communicative dimension of 'real-context' language-learning (Hu, 2002a; Krashen, 1994; Larsen-Freeman, 2000; Raouf, 2010). Furthermore, this method is too teaching-centered, and L1-dependent. Some critics thus protest unabashedly that it produces deaf and mute grammarians (Raouf, 2010).

Despite the dominant role and significant influence of ALM in China, it has its own weaknesses. ALM learners are most likely to fail in converting the language learned through pattern drilling and structured memorising to real life communication scenarios, Hu (2002a). Moreover, the contrived teaching activities upon which it relies contain too much emphasis on meaningless learning discourses (Nation, 2007; Hu, 2002a; Richard and Rodgers, 2010), thus

neglecting Nation's (2007) well-evidenced idea of "The Four Strands of Language Course[5]" (p. 1). Nation claims that ELT should involve "meaning-focused input in reading and listening, and meaning focused output in speaking and writing" (p. 1). Although, the ALM method might lead to language-like behaviour, it does not necessarily result in achieving true language competence (Richard & Rodger, 2010).

Likewise, a number of obstacles emerge with regard to the implementation of CLT in China. First and foremost, a large number of teachers, researchers, and experts in China remain doubtful about the effectiveness of CLT and tend to use traditional methods or a mix of both (Yu, 2001). Others are still not familiar with this approach, simply because the majority of the English teachers were educated in the more traditional approaches (Hui, 1997; Hu, 2002b; Yu, 2001). In addition, this approach does not fit the particular educational context in China (Hu, 2002a; 2002b; 2003, 2005a; 2005b; 2005c; Yu, 2001). For example, the type of English classes with over 60 students or more, such as is common in China, make it difficult if not impossible to implement the type of student-focused approach CLT requires. Apart from the points above, the unique "Chinese culture of learning" is not fully comfortable with such an approach (Hu, 2002a; 2005a; 2005b; Hu, 2003, p. 33) still favouring the Confucian idea that "teachers are viewed as knowledge holders" (Hui, 1997, p. 38). As Hui states, "If teachers do not display their knowledge in lectures, or play games with students or ask students to role-play in class, then they are not doing their job" (Hui, 1997, p. 38).

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[5] Nation claims that a balance language course should include activities which contain four strands: "meaning-focused input, language focused-instruction, meaning focused-out put and fluency development" (Nation, 2007, p. 1).

Recommendations

Given to the present state of ELT in China as discussed above, we suggest that an epistemically oriented heuristic model for ELT can be elaborated in the form of what we shall call the 'Eclectic Dynamic Language Teaching' or 'EDLT' model. This new model would articulate in epistemic terms the nature of the relational approaches to ELT with the aim of coherently integrating the following strategies: Theoretical Plausibility, Contextual Acceptability, and Practical Flexibility. It is our aim to show that the coherent integration of these ideas can be consolidated to serve as the foundational basis upon which a more comprehensible theoretical edifice for ELT can be built. Not being monolithic in structure, EDLT can function as a theoretically multi-faceted framework to facilitate new frontiers in the area ELT in China.

Theoretical Plausibility

"Theoretical plausibility" means that ELT should be derived from research-based and clinically evidenced successful teaching approaches. Understanding the theoretical issues surrounding language teaching and incorporating the study of past and present teaching methods should be regarded as an important dimension of language teachers' education (Richards & Rodgers 2010). Firstly, it can provide teachers with the knowledge of the evolution of their own field. Secondly, it can function as a source of well-tested practices, such that instructors can adapt or apply according to their own circumstances. Thirdly, by using various teaching approaches, teachers can gain new teaching skills and enrich their own and the students teaching experience.

In China, the benefits associated with the above approach can be extremely important. According to Hu (2002a, 2005a, 2005b) and many others (e.g., Wang 2009; Yu, 2001), a

majority of English teachers in China do not possess sufficient knowledge and understanding of modern teaching approaches such as CLT. Not infrequently, their assumptions and beliefs about how language works and how language should be learned or taught remain subjective rather than clinically tested to determine their objective value within the classroom. In order to achieve a sound teaching outcome, understanding of well-used approaches and tested theories of ELT should be regarded as fundamental. For example, Richard and Rodgers (2010, pp. 20-22) proposed that ELT approaches can be classified into three distinctive theoretical views: the "structural view", "functional view", and the "interactional view". The "structural view" is sponsored on the assumption that language is a system of discourse in which the elements for semantic coding are structurally interconnected; therefore, a key dimension of ELT is the structure of the language. The "functional view", however, professes that it is the meaning of language and communication that primarily matter, which in turn leads to the assumption that language teaching should focus on the themes and ideas for communicative needs rather than upon the structure of language. Unlike the previous two approaches, the "interactional view" regards language as a tool to realize social relations.

Contextual Acceptability

Kumaravadivelu (2009) argues that specific approaches and methods should be designed to suit the specific learners, which does not ignore their particular social, cultural and educational context. According to Hu (2003; 2005a; 2005b) the construction of a new approach should be driven by the desire to enable learners to attain a high level of competence in a new language relatively quickly and easily. While some approaches may have been marginally more successful than others in terms of the outcomes they have produced, none has been able to achieve the "magical" results that their proponents had been anticipated. This being so, Howatt and Widdowson (2004) argue that every approach to ELT has been

developed and elaborated as a response to the problems/weaknesses of the foregoing ones, but will itself inevitably exhibit its own problems and weaknesses, particularly when used in different educational contexts.

EDLT is sponsored on the salutary reminder that the nature of language acquisition means that the most comprehensive model upon which we can depend is epistemetically multifaceted, not monolithic. No matter what rule or pedagogic principle is foundational to a model, the problem is that its acceptance as an epistemic directive does not contain within itself the criteria for its specific applications. As far as specific teaching approaches are concerned, it has been observed that methods are often sufficiently overgeneralised to be able to provide effective solutions to all classroom contexts, and that while they can be very distinctive in the initial stages of instruction, they often become indistinguishable at the end. As intimated earlier, many approaches are based on assumptions which have not been verified via classroom or scholarly research. Similarly, it is clear in some cases noted earlier that methods or approaches are sometimes promoted because of the vested interest success they can generate for their sponsors, not because they have necessarily produced outstanding results (Kumaravadivelu, 2009; Richards & Renandya, 2008). Construed epistemically, the EDLT approach integrates the dynamic ontic connectivity of conversation, interaction, and negotiation. This being so, learners are treated as having more than just interactive roles in our theory of EDLT. Obviously, different scholars and teachers may interpret or adapt evidential results in quite different teaching modalities, and these disparate interpretations can significantly affect the entire teaching process and consequent performance outcomes (Richard & Rodger, 2010). The judgement that is made here will epistemically grounded, thus transcending the traditional ELT resolution. Only by satisfactorily understanding the place of theory and practice in ELT, however, can a plausible approach be articulated to suit the

general ELT condition in China. This transition requires the meta-theory of EDLT, and in reference to which the pedagogic approach will be adapted to suit the specific needs of its many culturally diverse regions.

This problem has led ELT researchers to re-evaluate their understanding of the role that highly specialised methodologies play in the teaching of non-primary languages. When making ELT policy, or designing pedagogy, it is our view that the EDLT model represents an epistemically contextualized system by way of which the ELT model can pedagogically be integrated and adapted to socio-cultural contexts, with their own particular and possibly peculiar infrastructural influences (Hu, 2002a, 2002b; 2002c; 2003; 2005a; 2005b). In his critique of Liao's paper titled 'The need for Communicative Language Teaching in China', Hu (2005b) urges that when a new approach such as CLT is introduced into China, it should suit or be adaptable enough to accommodate the demands of its unique educational situations. "For such an approach to be maximally effective, it is necessary to encourage and help teachers to heighten their awareness of contextual influences", He claims (p. 67). Our point is that the interpretation of those influences can only be made within an epistemically-mediated framework of linguistic reference, provided by EDLT.

Practical Flexibility

There is a growing conviction that a specialised approach does not have the capacity in and of itself to guarantee high learning outcomes for all learners, and that language teaching needs to go "beyond approaches and methods" (Richards & Rodgers, 2010). This view is aptly captured by Nunan's (1991, p. 228) assertion:

It has been realised that there never was and probably never will be a method for all, and the focus in recent years has been on the development of classroom tasks

and activities which are consonant with what we know about second language acquisition, and which are also in keeping with the dynamics of the classroom itself.

Reinforcing this disposition, Brown has argued that methods are not as relevant to language teaching as they used to be, suggesting that we are now in what he calls the "post-method era" (Brown, 2008, p. 9; Richards & Rodgers, 2010, p. 247). Brown also advocates that contemporary language teaching should involve "principled approaches" (Brown, 2007, p. 62; 2008, p. 12) in addition to a sophisticated process of diagnosis, treatment and assessment of learners. According to Brown, a principled approach means that teachers should take the communicative and situational needs of specific learners into consideration. It also assists instructors in identifying suitable curriculum materials and approaches for learners in a particular context, thereby designing more effective pedagogical methods better suited to realising teaching objectives. Moreover, it enables teachers to assess systematically lesson contents and their structure, while permitting for evaluative assessment so that course can be revised as required in rigours but more flexible ways.

In China, for example, ELT should take the advantage of the pre-existing approaches that proved to be effective, and at the same time, adopt a more holistic EDLT heuristic to make these revisions in the most fruitful ways. In other words, GTM, ALM, CLT or other approaches, no matter how conventional or innovative, can be used in our proposed EDLT to provide the best possible explanation for a particular teaching situation at a particular time. Given the fact that Chinese learners of English have insufficient exposure to a real life context of English language, the task of providing leaners with more opportunities to communicate, experience, and practice the target language is essential (Celce-Murcia, 2001, Hu, 2002a, 2005b). Teaching success is based partly on knowing when to adapt or not to adapt an

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existing approach (Celce-Murcia, 2001). According to some scholars, it is the educators' beliefs, conception, and the implementation of ELT that that makes the difference (Widdowson, 1995).

Conclusion

In conclusion, the state of ELT in China is quite complicated due to its specific historical, political, socio-cultural, economic and educational contexts. Currently, ELT development in China proceeds on the presumption of three main influential approaches (GTM, ALT, and CLT) and we have observed that each of them has its own strengths and weaknesses. The benefit of EDLT is that the holistic epistemology that underpins it treats each of these approaches as heuristic models of overlapping but different approaches, all of which are epistemically entangled. Although limitations of space have prevented a comprehensive elaboration of our EDLT model, it is to be hoped that the platform of epistemic holism upon which it rests provides a more adaptable and richer account of ELT to advance the most effective teaching programs of English in China.

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Relationship between Self-Concepts and Achievements of High-Ability Students

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Abstract

Self-concept research has demonstrated positive correlations among achievements in various curriculum domains with their respective self-concept domains. The present study tested whether such patterns of correlations would be similar with a sample of high-ability students in the first year of secondary school ($N = 272$). In this sample, the correlations among standardised test scores from a national examination known as the Primary School Leaving Examination (PSLE), for English, maths and science, were close to zero. After the first semester in the secondary school however, the near-zero correlations of English with maths and science achievement scores remained, but the correlation between maths and science achievement became significantly positive. For maths and science, there was even a substantial positive association between maths achievement and science self-concept, although the association of science achievement with maths self-concept was not significant. This finding is unique because it reflects a shift in trend during the transition between primary and secondary school. Educators need to make the best use of the first year of secondary schooling to build on students' self-concepts in order to maximise their potential.

Key words: self-concept, achievement, high-ability students, secondary school, correlations

Introduction

The importance of self-concept research lies with its significant effects on learning outcomes (Marsh & Yeung, 1997; Shavelson, Hubner, & Stanton, 1976). Self-concept research in the last two decades has repeatedly demonstrated that students' academic self-concepts are domain specific (e.g., Marsh & Craven, 2006; Lee, Yeung, Low, & Jin, 2000). That is, students clearly differentiate their self-concepts in various curriculum areas (e.g., English, maths, science, etc). The relationship between self-concept and achievement is also found to be so domain specific that the self-concept in a specific curriculum domain (e.g., maths) only influences achievement in the respective domain (i.e., maths) but not any other domain (e.g., English). In the present study, we examined the relationships of students' self-

concepts in English, maths, and science with their achievement scores in the respective domains using a sample of high-ability achievers in a secondary school which only takes in students of high-ability. The purpose is to test the hypothesis that the positive relations between achievement in the various curriculum domains (i.e., maths, English, and science) and self-concept hold true for a group of high-ability students in the first year of secondary school.

Relations between Self-concept and Achievement

The interest in the relations between self-concept and achievement stems from research findings which led to the belief that when there is a change in academic self-concept, subsequent academic achievement also will change (Byrne, 1984). The relationship between self-concept and achievement been investigated for decades. Initially, studies examined their relations utilising correlations (Brookover, Thomas, & Paterson, 1964). Recent research has advanced to examining the causal ordering between them (Marsh, Bryne, & Yeung, 1999).

Brookover et al. (1964) found that there is a "significant and positive correlation between self-concept and performance in the academic role" (p. 278). They also found that there are specific self-concepts of ability related to specific areas of academic role performance, which are different from the general self-concept of ability. This finding is now more commonly known as the domain specificity of self-concept. Domain-specific self-concepts make better predictors of specific subject achievement than the general self-concept of ability (Brookover et al., 1964).

There exist important unanswered questions about the causal ordering of self-concept and achievement, such as the underlying processes which facilitate the casual ordering of self-

concept and achievement. In this study, we investigated the relations between high achieving students' past achievement on their existing self-concepts and also looked for evidence of their domain specificity.

Domain Specificity

There is strong evidence showing the domain specificity of academic self-concepts and their relations with other variables (Lee et al., 2000; Marsh & Craven, 2006; Yeung & Lee, 1999). That is, students can clearly differentiate their self-concepts in various curriculum areas (e.g., English, maths, science, etc). Whereas most studies have focused on verbal (e.g., English) and maths domains (Marsh, 1986; Möller, Retelsdorf, Köller, & Marsh, 2011), we included science self-concept in the present study. We would expect English and maths self-concepts to display patterns that are consistent with previous research, indicating a non-positive association between them (Köller, Klemmert, Möller & Baumert, 1999; Marsh, 1990, 1991). However, we would expect maths and science self-concepts to be positively associated because of the similarity between the maths and science domains. Consequently, students' perceptions about themselves in learning maths and science are more likely to be related.

Relations between Maths and Science

The link between science and maths started many centuries ago and has since resulted in the integration of the two domains in many academic programs. Rutherford and Ahlgren (1991) wrote about the positive relationship between maths and the fields of basic and applied science and how they complement each other. They mentioned that science offers maths meaningful problems for investigation, and maths offers science tools to use in data analysis. This is especially so for physics, a branch of science that often involves measurement and calculations of certain physical quantities using scientific formulas (thus requiring

mathematical skills like algebraic manipulation) and considered to be similar with certain branches of maths. Whereas students who possess good mathematical skills would have experienced academic achievement in the domain, contributing to positive self-concept in maths, their good mathematical skills would also help them handle mathematical calculations or graphical analysis required to solve quantitative physics problems, resulting in confidence and achievement in physics. This achievement in physics, in turn, contributes to positive self-concept in physics.

The overlapping of the maths and physics syllabi could be one of the causes of the positive association between the maths and science (physics) self-concepts. For example, if students did academically well in maths in which "kinematics" was part of the assessment, they would develop positive self-concepts in maths and would most probably also do well in "kinematics" when it is taught in physics, thus having positive self-concepts in physics too. On the other hand, while the skills in maths could be applied to and thus could help the students solve quantitative problems in physics, not all the skills and concepts learnt in physics will help students perform well in maths, as the field of physics goes beyond quantitative problem solving. For example, if students perform well in physics because they are able to understand physics concepts and have the ability to reason out scientific phenomena, they would have positive self-concept in physics. However, such ability may not help them score well in maths, thus may not contribute to positive self-concept in maths. In essence, students need not possess good scientific skills and knowledge of physics in order to have high achievement in maths.

The Present Investigation

In the present study, we attempted to test the relations between self-concepts and achievements in three specific curriculum domains. We used a sample of secondary 1 (Grade 7) students from a school in Singapore that admitted only students who obtained high scores in the Primary School Leaving Exam (PSLE), a nation-wide standardised test upon completion of primary education. Survey items about their self-concepts in English, maths, and science were administered in Semester 2, which is the second half of their Grade 7 school year. Their PSLE scores and semester 1 test scores were also collected. Because of the very narrow range of scores between students, the correlations between PSLE scores in English, maths, and science may not be moderately positive as would be found in average-ability schools. However, based on domain specificity, we would expect that self-concept and achievement in each respective domain would be positive. The findings would provide a better understanding of high-ability students' self-concepts in a range of curriculum domains that would enable educators to optimise self-concept enhancement effects from a multidimensional perspective.

Methods

Participants

Grade 7 students from a secondary school in Singapore participated in this study ($N = 272$; median age = 13; 40% boys). All the students were ethnic Chinese, the largest ethnic group of the nation (>75%). Although the students were of Chinese origin, over 50% of them used English as a major spoken language at home. English is the medium of instruction in all government schools in Singapore, and all students formally start learning English in Primary 1 (1st grade). All the students were high achievers in primary schools. They were selected for admission into the participating school on the basis of their PSLE scores (see Road to PSLE, 2010), ranging from 0 to 300. Usually only students with an aggregate score of about 240 and

above would be admitted to this highly reputed school, although there were also students with lower PSLE scores admitted for their sports or other achievements. The mean PSLE score for this sample was 242.85 ($SD = 7.36$).

Whereas all the students were clearly above national average in the Singapore school system and the differences among students were small, their performance in different specific areas of PSLE may differ somewhat. In each of the four main areas of assessment in PSLE, namely, English, Mother Tongue (Chinese, for this sample of students), maths and Science, students are rated in a range of six grades: A*, A, B, C, D, and E, A* being the highest grade and E, the lowest. Nevertheless, because the students' admission to the school was based on the aggregate PSLE score, they differed in their abilities in English, maths, and science, which are the focus of interest in the present study. In other words, whereas almost all students had a high aggregate PSLE score so as to be admitted to this school, some students were particularly strong in English, some others were particularly strong in maths, and yet some others were particularly strong in science. In this way, the sample provided an interesting combination of different strengths that allowed us to explore the special patterns found in a high-ability school setting that may not be found anywhere else.

Material and Procedure

In a survey, the students were asked to rate on three self-concept factors: English, maths, and science self-concepts on a six-point scale (1 = strongly disagree to 6 = strongly agree), with all items in a randomised order. Background information such as age, gender, and language background were also collected. For the self-concept variables, a total of 12 Likert-type items were used. The variables were:

English self-concept was adapted from the Marsh (1992) Academic Self-Description Questionnaire (ASDQ) instrument. A total of four items were used to ask students about their self-concept in English (Appendix).

Maths self-concept was also adapted from the Marsh (1992) ASDQ instrument (Appendix).

Science self-concept asked students about their self-concept in science. Because only physics was taught in the science class in the first semester of Secondary 1, students' self-concept in science at that time was equivalent to self-concept in physics.

PSLE scores were obtained from the school. The scores included English, maths, science, and the aggregate scores based on which the students were placed into the school. These scores were used as predictors in subsequent modelling.

Test scores were obtained from the school for each of the three curriculum domains: English, maths, and science, after the first semester. For science, because only physics was taught in the first semester, the term science and physics were used interchangeably, as students understood physics as science at that time.

Procedures of the research were approved by the university's ethics committee. Informed consent was obtained from the school and the parents of the students before data collection. The survey was uploaded onto the school online portal and was open to all Grade 7 students for one week. The students logged on to their individual accounts in their own time (at home or in school) to respond to the online survey at any time during the access period of one week.

Statistical Analysis

The students' responses were coded such that higher scores reflected more favourable responses. In preliminary analysis, we examined the descriptive statistics of each item and the alpha reliability of each *a priori* scale formed from respective items. Then confirmatory factor analysis (CFA) was used to test the hypotheses. First, we examined the ability of 12 survey items to form the respective self-concept factors (i.e., English, maths, and science self-concepts). Then we further tested a model including PSLE scores of the three domains and test scores also of the respective domains. When the measurement was established, we would be able to examine the paths from the PSLE scores to self-concepts, and then to test scores. Such CFA procedures would enable us to test the domain specificity of relationships between self-concepts and achievements.

Specifically, Model 1 tested 12 survey items to form three factors, allowing each item to load on to one factor only (i.e., English, maths, or science, but not on other factors). Then we tested a single-factor model with the 12 items so as to compare against the *a priori* three-factor model (Model 2). Further, we included three PSLE scores for English, maths, and science respectively and the semester test scores also for the three respective domains (Model 3). Based on this model, we examined the paths from PSLE scores to self-concepts, and then to semester test scores in the three domains (Model 4). The procedures for conducting CFA have been described elsewhere (e.g., Byrne, 1998; Jöreskog & Sörbom, 2005; Pedhazur & Schmelkin, 1991) and are not further detailed here. The CFA was conducted with the LISREL software (Jöreskog & Sörbom, 2005).

Findings

Preliminary Analysis

The mean score for each item and the alpha estimate for each scale are given in Appendix. All the three *a priori* self-concept factors had acceptable alpha reliabilities (αs = .89, .92, and .94 for English, maths, and science self-concepts, respectively). For the high-ability students' PSLE scores for selection into the high-ability school, a breakdown of the scores in Table 1 shows that most students (85%) scored within the range of A* to A (231 students out of 272), with very few students with a B or C grade. This very narrow range of scores indicates a very selective sample of high-ability students in the study, and provides little room for self-concepts to play any significant role in these high-ability students' personal development.

Table 1. *PSLE Scores of Students in 3 Domains*

PSLE (English)	PSLE (Maths)	PSLE (Science)	*N*	Subtotal
A*	A*	A*	2	
A*	A*	A	4	
A*	A	A*	2	
A	A*	A*	15	
A*	A	A	11	
A	A*	A	83	
A	A	A*	17	
A	A	A	97	231
B	A*	A*	1	
A*	B	A	1	
A	A*	B	3	
B	A*	A	6	
B	A	A*	3	
A	B	A*	2	
C	A*	A	1	
A	A	B	8	
A	B	A	7	
B	A	A	2	
A	A	C	1	
A	C	A	1	
A	B	B	2	
B	A	B	1	
B	B	A	1	
B	B	B	1	41
		Total =	272	

Measurement Model

All the CFA models reported here converged to proper solutions. Model 1 tested the ability of 12 items to form three distinct self-concept factors. The model provided an acceptable fit (TLI = .95, CFI = .96, RMSEA = .08, χ^2 (51 *df*) = 161.22). The factor loadings were all acceptable (the lowest = .75). The parameter estimates are identical to those of Model 3 which can be found in Table 2.

In contrast, Model 2 that tested a single-factor model with 24 items did not provide a reasonable model fit (TLI = .09, CFI = .25, RMSEA = .37, χ^2 (54 *df*) = 2046.54). Hence there was support for Model 1 with three self-concept factors representing the 12 items about students' self-concepts. Model 3 included three PSLE scores and three semester test scores. Hence Model 3 had 18 items forming 9 factors. The model provided an acceptable fit to the data (TLI = .95, RNI = .96, RMSEA = .07, χ^2 (105 *df*) = 235.11).

The solution of Model 3 is presented in Table 2. The factor loadings were reasonable (all > .5), and substantial (the lowest being .75). The correlations ranged from -.27 to .67, indicating that the variables were clearly distinguishable from one another. This provided a sound background for further exploring the relationships among variables.

An inspection of the correlations among the three self-concept factors (English, maths, and science) found that whereas maths and science had a significantly positive correlation (*r* = .53), neither the correlation between English and maths self-concepts nor the correlation between English and science self-concepts was positive. The correlation between English and

science self-concepts was near zero ($r = .02$). The correlation between English and maths self-concepts was negative ($r = -.23$).

Table 2. *Solution of CFA Model 3*

	PSLE(E)	PSLE(M)	PSLE(S)	Self(E)	Self(M)	Self(S)	Test(E)	Test(M)	Test(S)	Uniq
Factor Loadings										
PSLE(E)	1	.00	.00	.00	.00	.00	.00	.00	.00	.00
PSLE(M)	.00	1	.00	.00	.00	.00	.00	.00	.00	.00
PSLE(S)	.00	.00	1	.00	.00	.00	.00	.00	.00	.00
Self(E)1	.00	.00	.00	.82*	.00	.00	.00	.00	.00	.32*
Self(E)2	.00	.00	.00	.88*	.00	.00	.00	.00	.00	.23*
Self(E)3	.00	.00	.00	.75*	.00	.00	.00	.00	.00	.44*
Self(E)4	.00	.00	.00	.82*	.00	.00	.00	.00	.00	.32*
Self(M)1	.00	.00	.00	.00	.87*	.00	.00	.00	.00	.24*
Self(M)	.00	.00	.00	.00	.93*	.00	.00	.00	.00	.14*
Self(M)3	.00	.00	.00	.00	.76*	.00	.00	.00	.00	.42*
Self(M)4	.00	.00	.00	.00	.91*	.00	.00	.00	.00	.17*
Self(S)1	.00	.00	.00	.00	.00	.95*	.00	.00	.00	.10*
Self(S)2	.00	.00	.00	.00	.00	.88*	.00	.00	.00	.23*
Self(S)3	.00	.00	.00	.00	.00	.92*	.00	.00	.00	.15*
Self(S)4	.00	.00	.00	.00	.00	.80*	.00	.00	.00	.37*
Test(E)	.00	.00	.00	.00	.00	.00	1	.00	.00	.00
Test(M)	.00	.00	.00	.00	.00	.00	.00	1	.00	.00
Test(S)	.00	.00	.00	.00	.00	.00	.00	.00	1	.00

Factor Correlations

	PSLE(E)	PSLE(M)	PSLE(S)	Self(E)	Self(M)	Self(S)	Test(E)	Test(M)	Test(S)
PSLE(E)	1.00								
PSLE(M)	-.05	1.00							
PSLE(S)	.06	.11	1.00						
Self(E)	.33*	-.19*	-.04	1.00					
Self(M)	-.13*	.38*	.09	-.23*	1.00				
Self(S)	.04	.24*	.25*	.02	.53*	1.00			
Test(E)	.40*	-.04	-.02	.36*	-.13*	-.05	1.00		
Test(M)	-.03	.28*	.14*	-.27*	.67*	.39*	.05	1.00	
Test(S)	.05	.23*	.25*	-.14*	.38*	.55*	.03	.52*	1.00

For achievement scores, some interesting patterns were found. Intuitively, we would expect PSLE scores to be substantially correlated. That is, in standardised tests, we would expect high-ability students to achieve well in most areas such that the correlations between domains would be expected to be substantially positive. Nevertheless, the results showed that although the correlation between maths scores and science scores in PSLE was positive (*r* = .11), it was not statistically significant. The correlations between the English and science scores in PSLE (*r* = .06) and between English and maths scores in PSLE (*r* = -.05) were near zero. The respective correlations for the semester test scores showed a different pattern. Whereas the correlations between the English and science test scores in the semester (*r* = .03) and the correlation between English and maths test scores (*r* = .05) remained to be near zero, the correlation between maths and science test scores were substantial and significantly positive (*r* = .52).

Between the PSLE scores and the semester test scores, however, there was a clear domain-specific pattern. Positive correlations were found between PSLE and semester test for English (*r* = .40), maths (*r* = .28), and science (*r* = .25). Whereas English scores in PSLE did not correlate with semester maths and science scores (*r*s = -.03 and .05, respectively) and semester English scores did not correlate with maths and science scores in PSLE (*r*s = -.04 and -.02, respectively), significant correlations were found between PSLE maths and semester science (*r* = .23) and between PSLE science and semester maths scores (*r* = .14), although these correlations were not as strong as domain-specific correlations for each domain (Table 2).

Path Model

Based on Model 3, a path model (Model 4) was examined. Because Models 3 and 4 were equivalent models, the fit indices were identical. The results showed that whereas the paths for matching domains were significantly positive ($\beta = .37$ from PSLE maths score to maths self-concept and $\beta = .23$ from PSLE science score to science self-concept), the paths between non-matching domains were also positive ($\beta = .22$ from PSLE maths score to science self-concept, and $\beta = .05$ from PSLE science score to maths self-concept, although this path was not statistically significant).
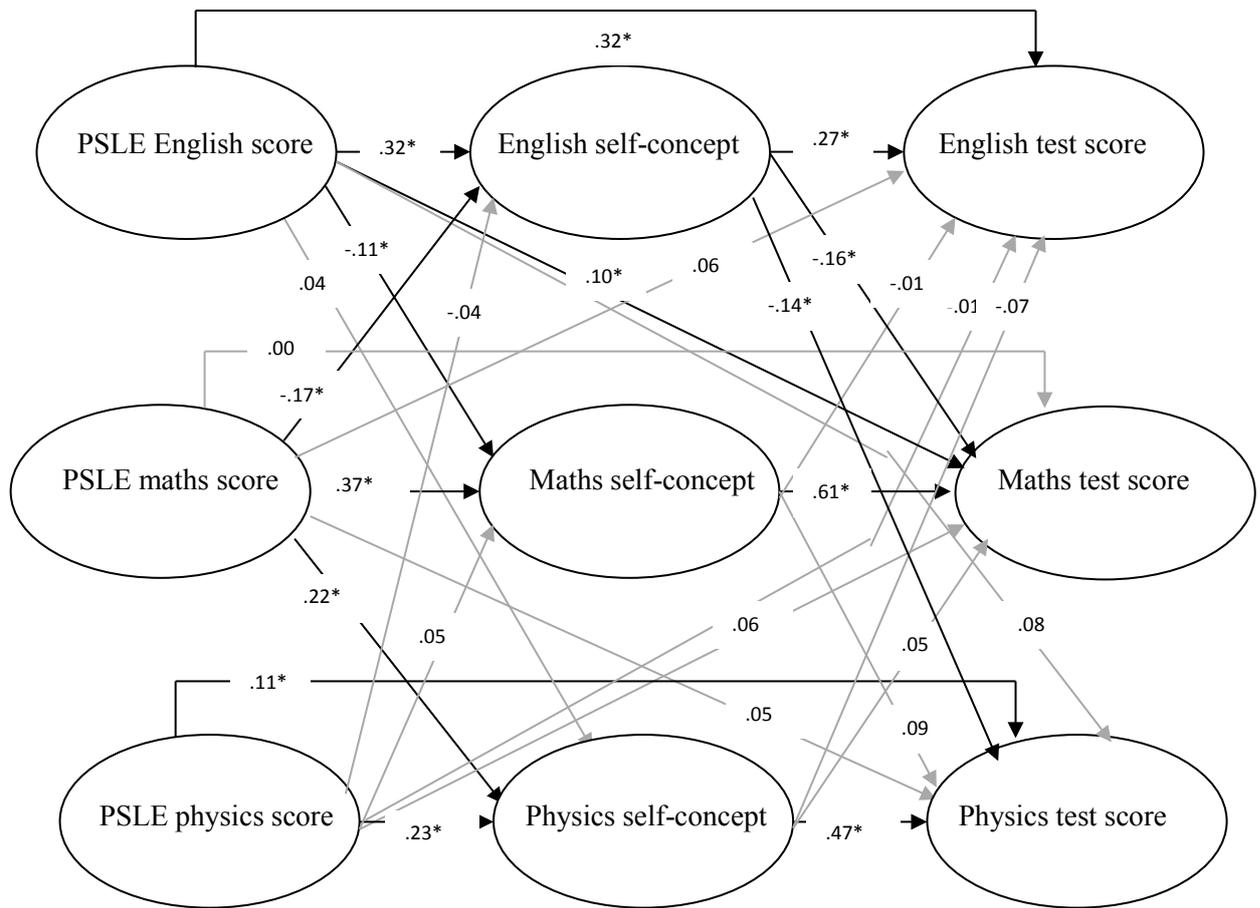

Figure 1. Path model

Note: * $p < .05$.

An interesting finding was that the paths from English self-concept to both maths and science semester scores were significantly negative (βs = -.16 and -.14, respectively). This seems to suggest that students who had higher English self-concept tended to perform less well in subsequent maths and science assessments. Whether this pattern is specific to the present sample or a general phenomenon in high-ability groups requires further investigation. Overall, the results from the high-ability sample generally supported the generalisability of the domain-specific relationships between self-concepts and achievements.

Discussion

The analysis found strong support for the domain specificity of self-concepts in three different domains - English, maths, and science. The analysis found a non-positive correlation between unrelated domains such as English and maths self-concepts (e.g., Marsh, 1987; Yeung & Lee, 1999). The correlation between English and science self-concepts was near zero ($r = .02$), whereas the correlation between English and maths self-concepts was significantly negative ($r = -.23$). The typical observation in school settings has shown a near-zero correlation between verbal and maths self-concepts but a positive correlation between verbal and maths achievements (Marsh, 1986). There was strong evidence of the domain specificity of the relationship between self-concept and achievement. Consistent with Marsh's (1986) interpretation, higher achievement seemed to have a positive influence on self-concept for matching domains but a negative influence would be expected for non-matching domains.

English and science have little in common such that the self-concept and achievement scores between these two domains are unlikely to influence each other. Between maths and science, although a high score in maths could lower the self-concept in science due to an internal comparison effect, because of the many common features across domains (see

Rutherford & Ahlgren, 1991; Stavy & Tirosh, 1996), high achievement in maths may also lead to a positive perception in science. Specifically, students may think "I am a maths person, not a science person", but "since I am good at maths, I can do similarly well in science". This is because the effective learning of science often requires the knowledge of maths and related logical thinking (especially in this particular case where science refers to physics taught in the first semester of Grade 7). This interpretation seems reasonable especially when the lack of influence of science achievement on maths self-concept was found in the analysis. Because the effective learning of maths does not always require science knowledge and science-related skills, a superior science score does not necessarily result in a higher maths self-concept.

Whereas students' learning experiences in different domains tend to have distinctly different influences on their development of self-concepts, competence in a certain domain may help students' self-development in other related domains. This new understanding of students' academic self-concept would enable us to help students build up their self-concepts in new learning areas such as physics in secondary school. Educators can consider programs and curriculum materials that integrate the pedagogy of related domains for a more meaningful and exciting learning experience.

Although the correlations among prior PSLE scores for English, maths, and science were uncorrelated with one another primarily due to the lack of variance between the high achievers, the PSLE scores had logical correlations with subsequent assessment scores after the first semester. The maths and science semester scores became significantly positive, indicating significant similarities between the curriculum domains in Grade 7. In particular, for high-ability students, higher English self-concept may lead to lowered subsequent

achievement score in maths and physics. Educators need to be aware of the special characteristics of high-ability students' self-concept development in order to provide them with the best learning environment so that their potential will be maximised.

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Appendix

VARIABLE	Mean	*SD*
PSLE Aggregate	242.85	7.36
PSLE English	6.01	0.38
PSLE Maths	6.36	0.60
PSLE Science	6.09	0.48
Test English	60.09	5.22
Test Maths	74.34	10.69
Test Science	64.01	10.34

English Self-concept Scale (α = .89)
Example item: I learn things quickly in ENGLISH classes

Maths Self-concept Scale (α = .92)
Example item: MATHEMATICS is one of my best subjects

Physics Self-concept Scale (α = .94)
Example item: I am good at PHYSICS

Electronic Microphone: Exploring the Nexus between Education, Instrumental Exchange and Social Change

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Abstract

Whatever education may be argued to involve, in current western society it must be said to be concerned with at least the transmission of knowledge. While considerable attention has been directed to the improvement of means for such transmission, it appears that relatively little notice has been called to the nature of the epistemology, or knowledge basis, that is presently propagated in the Western educational system. In this paper, we wish to explore the significance of the knowledge basis that has become dominant in western society, by considering a particular application of it, that is, the electronic microphone. Following a brief outline of the central role which this microphone has come to play in Western popular music, we shall consider certain of the ways in which the electronic microphone displays features corresponding to the preferred educational philosophy, as well as the social implications for the use of this microphone. We shall then suggest how an alternate epistemology may support a different approach to music generally, and suggest a conceptualisation of 'microphone' harmonious with such a view.

Introduction

Reflecting upon the common understanding of the microphone as an 'instrument for converting sound waves into electrical energy' (Fowler and Fowler, 1964, p. 766), it is evident that without this type of microphone, which we shall refer to as the 'electronic microphone', many of the sounds consumed as music by large numbers of people in the West would not exist in their current form.[6] Besides the use of the electronic microphone in

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[6] Théberge (2001, 4-8) distinguishes between the technologies of the electronic microphone, amplifier and loudspeaker. In this paper, we consider the electronic microphone as implicated in the ramifications of all social shifts where its employment is indispensable. As we shall later expand on in more detail, earlier uses of the term 'microphone' denote 'an instrument by which quiet sounds may be made louder' (Trumble, 2002, 1769). This definition may be seen to encompass all three of these technologies, thus providing further justification for our use of the single term.

recording, it is today also an almost indispensable element in forms of live popular music such as rock 'n' roll (Eargle, 2001, pp. vi, 7). Pop music relies upon the 'conversion of sound waves into electrical energy' for not only the realisation of sounds made by electric guitars and keyboards, but in the amplification of what has historically been the *musica harmonica*, the natural instrument of the human voice (Théberge, 2001, pp. 4-7; Alba, 2005, pp. 57-59). So common has such utilisation of the electronic microphone become that it now functions as a symbol: in idiomatic expressions such as "Pass him the microphone"; or in the hairbrush imitations of pop stars' use of the microphone. So habituated have Westerners become to this piece of equipment that even in situations where its projecting power is evidently and immediately superfluous, the use of the electronic microphone is still urged. For instance, one of the present authors has, upon a number of occasions, experienced difficulty in persuading particular programme associates that she does not require an electronic microphone in the performance of a musical item, in spite of clear evidence of the ample projection of her voice within the space. Théberge (2001, p. 4) sums up the pivotal role of this device in current popular Western music in his statement,

> [s]pecifically the (electronic) microphone… must be considered as absolutely fundamental to contemporary popular music… even in the digital age, (this technology) remain(s) the beginning and end point of virtually every act of musical production and reproduction.

However, it appears that the role of education and the social ramifications for such widespread use of the electronic microphone, have not yet been fully explored, a topic that we purpose to address here.

Methodological Paradigm

We suggest that our understanding of the central function of the electronic microphone in popular western music today may be enriched by perceiving of technology, including the

electronic microphone, as applied knowledge, and thus inextricably bound to education. Perhaps part of the reason why the electronic microphone so often appears 'transparent' in popular music today (Théberge, 2001, p. 4) is because it may be seen as a product of the dominant epistemology adopted in the Western education system. The presumption covert within the atomistic view of nature explicitly taught in the current science curriculum may be seen to link with the philosophy of primary contributors to current educational thought, such as Galileo Galilei, Sir Frances Bacon, Rene Descartes and Sir Isaac Newton. Such proposed divisions as objective from subjective knowledge, and the fragmentation of the path of a trajectory through means of calculus, intended to achieve the goal of human power over nature, may be seen to undergird a form of technological development which focuses on the dissection, concentration, rearrangement and amalgamation of the presumed-component parts of nature into the myriad technologies of increasingly inert substances with which we surround ourselves, and to which our time is increasingly devoted (for more on these ideas, see, for instance, Ashton and Laura, 2003; Laura and Cotton, 1999). This form of interaction with nature has been dubbed by Laura as 'transformative subjugation', for our environmental manipulations are sponsored on the assumption that we will by such machinations gain power over nature by making her more predictable. Through this process, the subject matter of educational knowledge becomes increasingly predictable because it is made increasingly synthetic. We have committed ourselves to a form of technological development, sustained by a form of knowledge, the remit of which is to turn the natural environment into an artificial one, over which we have great control. We thus transform our living world into a world which is increasingly inert, chemicalised and lifeless, by fragmenting the smaller and smaller wholes found in nature, into the deadened hulls of our technology. The process of a technology of power does this because the less alive something is, the more predictable and thus controllable it is. This is the sense in which technological transformations are also

subjugations. The more chemically inert a thing is the easier it becomes to subsume that thing under the aegis of mathematical laws designed to quantify its behaviour in countless circumstances of our interactions, both personally and by way of our machines, to do it. This being so, the world of technological control determined that the world be reconstituted by things which have by way of technology had the very life within them systematically withdrawn from them. While on the one hand we may have gained control over nature, it is sobering to think that the control we exercise is essentially over things which are dead and lifeless. Certain of the ramifications for transformative subjugation have been developed in the fields of health, education, societal relations, industrial development and religion. In our exploration of its implications for music today, we seek to emphasize that the electronic microphone does not stand alone as a single piece of equipment to be utilized, but that it is part of a far broader context in which our world is being exponentially synthesised, thereby allowing us to control it externally in ways which increasingly make it more immediately predictable.

Applying the Heuristic of Transformative Subjugation

Reflecting upon the electronic microphone, we can see that in both its construction and power source are manifested the fragmentation characteristic of what we call a 'technology of transformative subjugation'. More than this, the electronic microphone in turn provides to humanity unprecedented power over the sonic element of music.[7] For example, the conversion of sound waves to electrical energy provides opportunity for the concentration of volume; for amalgamation with technologies of increasing complexity for preservation, in,

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[7] Elizabeth Leach (2007) has noted the contribution of recording to the modern conception of music as solely an aural experience.

for instance, LPs, CDs or midi files; for contextual splits achieved through radio, TV and personal playback devices; and for further fragmentation and manipulation of the already-disembodied audible element by editing in numerous ways. Music herself is thus 'mechanized' in the sense of her being divided up into component parts so that these can be controlled and reorganized to suit the whims of humanity. Thus the transformatively subjugated technology of the electronic microphone may be seen as a tool to be employed in what we call the 'transformative subjugation of music'. It is not to be denied that the use of such equipment does allow for the development of certain skills, in terms of the manipulation of technological devices. However, in the use of devices such as the electronic microphone, not only does the locus of music now reside external to the human body, as was effected by the gradual ascendency of instrumental over vocal music from approximately the beginning of the eighteenth century, but the amount of work performed by such devices places an ever-increasing load upon the equipment utilised, as compared with the performer. We have reached the point, as Kunkel (2009, p. 74) says, where 'we can now do anything we want to do to audio' via our technologies. The utilisation of mechanical equipment to edit, tune, colour and add gimmick effects to sounds, particularly those originally deployed via the voice of the human body, means that in essence we have created the musical counterpart to photo-shop. Such equipment may then be employed as a prophylactic, so that, rather than caring for the body-instrument, as tends to be encouraged in the classical school of singing (see, for instance, Alba, 2005), musicians, including singers, can smoke, consume alcohol, and treat their body carelessly in other ways, while relying upon such devices to make their voice sound fantastic. While on the one hand, it is to be acknowledged that in certain instances, such as karaoke singing, massed singing at rock concerts and via Youtube, the microphone is associated with mutual human activity, we shall argue that the nature of the connections

formed, and thus their inherent potential for social education, has been altered in covert but significant ways, as we shall now briefly set forth.

One way in which the electronic microphone can contribute to 'social transformative subjugation' occurs in the contextual split implicit in recording. This may be seen to result in a loss of face-to-face contact between the listener and the performer. The significance of such a limitation is suggested by the clinical experience of psychiatrist Edward Hallowell (1999). Hallowell (1999, p. 3) has referred to the loss of a phenomenon which he calls the 'human moment', that is, "an authentic psychological encounter that can happen only when two people share the same physical space". Hallowell's basic thesis is that the scarcity of the human moment in modern society is inimical to the stabilisation of the contexts of interchange which foster our emotional well-being (Hallowell, 1999). Moreover, it is Hallowell's belief that this scarcity of intimate human connection is responsible for the rise in many emotional and mental health maladies, including suicidal depression (Hallowell, 1999). The electronic microphone thus provides opportunity for a form of sonic interchange bereft of the social potential of the human moment.

A point to be noted with respect to live performances employing the electronic microphone is the way in which normally distant para-social relationships may be strengthened due to the incommensurate proximity evoked by the excessive amplification possible through this device. Music at volumes above 100 decibels, common in night clubs and rock concerts, has been shown to induce sexual arousal, and is designed to create 'an orgasm' between performer and audience (Patel, 1996, p. 5; Marks cited in Sognesfest, 2000, pp. 235-256; Taylor cited in Bacciocchi, 2000, pp. 127-160). We suggest this may be of considerable significance in view of the fact that these same volume levels have been linked

with noise-induced hearing loss (NIHL). The National Occupational Health and Safety Commission (2009, vii) states:

> NIHL is irreversible and leads to communication difficulties, impairment of interpersonal relationships, social isolation and a very real degradation in the quality of life. The family and others close to the affected person often experience secondary consequences of the condition.

Social support, primarily centred in close relationships, may in this way be undermined. (Ross, Mirowsky & Goldstein, 1990, pp. 1062, 1065). The concentration of volume made possible by the electronic microphone's capture of sound may thus provide the illusion of ultimate physical closeness with people from whom we are physically and personally distanced, while potentially diminishing the personal relationships more likely to provide social support (Kessler and McLeod, 1985, cited in Ross, Mirowsky & Goldstein, 1990, p. 1065).

The final point we shall make in this paper concerning the implications for the use of the electronic microphone relates to the implicit dehumanisation involved. We refer here to the way in which the human voice is affected in its communicative capacity by its mediation via a machine. Such dehumanisation of music is highlighted in an extreme form by an advertisement in the March 2009 edition of *Electronic Musician*, where music producer Doug Grean is cited as saying "'I have not yet found a situation in which these mics don't sound brilliant'"(Lauten Audio, 2009, p. 65). Such a statement effactually portrays the substitution of a piece of equipment for the entire human presence involved in music making. We have thus converted something that is natural into something that is artificial. Not only do we thus exchange the living, dynamic uniqueness of each individual vocal expression for an imitation predictable primarily in its monotony, but there is a subtlety not to be passed over in terms of the loss of the natural human voice. This can perhaps be best appreciated in light of the fact

that sound appears not dissimilar in certain respects to touch. Both are received through the sensory organs, and musician-scientist Manfred Clynes (1986, p. 185) posits that a melody 'can touch the heart as directly as can a physical touch'. Not unlike its current fascination with on-line relationships, the ever-expanding global western community may to a significant degree be considered to have exchanged the genuine personal intimacy potentiated through the agency of music, for a relationship with a machine. While humanity has sought to dominate nature by technologies of transformative subjugation such as the electronic microphone, this illustrates that too often the final result is that we are held captive by the inert, deadened and lifeless world of our own invention.

An Alternate Epistemology of Empathetic Education

This paper has sought to establish the electronic microphone as a product of an epistemology reliant upon chemical and electrical fragmentation, manipulation and reorganisation into new products in order to achieve the goals of humanity. However, we submit that this has not been without consequence, and have outlined certain of the social issues which may arise from the electronic microphone's further reorganisation of the aural component of music. In view of this research, we suggest that an alternate view of matter utilising a quantum perspective may offer a model more favourable to social well-being. The work of, for instance, Bell (1964, pp. 195-200) and Bohm (1983) suggests that the ontological nature of the universe is not fragmentary, as presumed in the dominant worldview, but rather a seamless, indivisible whole, the division of which cannot be undertaken without some loss being experienced (see also Ashton and Laura, 2003; Laura and Cotton, 1999). Our view is, that the greater the division, the greater will be the sustained deficit in some form. Let us explore how these ideas can be applied in our conceptualisation of the microphone in music by all.

We believe the etymology of the word 'microphone' offers an alternative to the general view and practice described thus far in this paper, in which a transformatively subjugated technology is premised to a dominant position in much popular music today. The word 'microphone' derives from two Greek words, μικρος φωνη, meaning a 'small voice' (Murray et al., 1933, p. 414). Earlier uses in English, today lost or recognised as 'rare', denote 'an instrument by which quiet sounds may be made louder' (see, for instance, Delbridge et al., 2001, p. 1207; Trumble and Stevenson, 2002, p. 1769). This broader definition gives opportunity for us to call attention to the inherent capacity of the human body to act as resonator for the human voice, an idea frequently emphasized by representatives of the classical school of singing. Although the *bel canto* style of singing is generally regarded as elitist, it is our contention that the basic skills therein developed, such as reliance upon the breath to support the sound, need not remain so. As the superb German soprano Lilli Lehmann (1993, p. 57) has observed in her book *How to Sing,* '[t]here are strong, weak, deep and high voices by nature; but every voice, by means of proper study, can attain a certain degree of strength, flexibility and compass'. The accessibility, even immediacy, of this instrument to the overwhelming majority of people, is perhaps what established its primary role in virtually all cultures including the West, over millennia of time. Even today, while the unique music of indigenous cultures has to a large extent been diminished or influenced by that of the ever-expanding global Western community, where traditional practices do survive, the strains of the unmediated human voice often constitute the central component in music which is to a large extent inclusive (see, for instance, Ellis, 1985; Stubington, 2007; Bebey, 1975, p. 115). For example, Australian Aboriginal groups in their entirety participate

> together… in… open songs…Being present and participating in a performance
> in which every other member of the group is likewise present and participating
> has a tremendous impact on the individual, giving him a strong sense of identity
> (Ellis, 1985, pp. 55-56).

This example illustrates how the unmediated human voice can contribute to a sense of belonging within support networks of the type revealed by numerous studies as vital to not only social, but emotional and physical well-being (see, for example, Spitz and Cobliner, 1965; Schultz, 1965; Kotler and Wingard, 1989, pp. 607-612; Chopra, 1988; Rowe and Kahn, 1998; Kraut et al., 1998, 368-383).

Conclusion

In this paper, we have outlined how the electronic microphone, as a fragmentary product of the dominant western educational epistemology, has thus become a tool to dismember and rearrange music, and in so doing has altered social relationships in often-unperceived ways. On our view, the microphone has subtly distanced us from the more intimate aspects of social relationships by lessening face-to-face contact, stressing para-social relationships, at times at the expense of the social, and contributing to the loss of the touch of the unmediated human voice. A musical application of an alternate ontological model which viewed nature as a living whole then served to highlight certain advantages for social health which might be found in employing the unmediated resonance of the human voice in music by all. It is education in the latter of these directions that, we submit, will best facilitate relationships of a deeply satisfying and vitalising nature.

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The Effects of Educating for Soft Skills on Success in Career Development among Graduates at Universities of Economics and Business Administration in Vietnam

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Abstract

It is a fundamental argument of this research paper that the current system of higher education in Vietnam needs to reconsider the extent to which its current curriculum is sufficiently comprehensive to prepare adequately the student workforce to meet the contemporary needs of employers. We shall argue that the focus on 'hard skills', though important, is too limited to do justice to the array of human resource skills now found to be essential to compete effectively in the national context and particularly in the global market place. Our specific pedagogic aim will be to show that students should be provided not only with a high level of technological competency, but with a deeper understanding of their full potential when grounded in the rich discourse of 'soft skills' pedagogy. We are confident that this more holistic framework will serve to foster innovative ideas, methods and evaluative techniques better designed for achieving excellence in tertiary education and in the competitive business context. We shall argue that human resource development with its emphasis on soft skills plays an integral role in advancing economic growth, especially in developing countries (Keeley, 2007). Given the importance of the human resource factor in business development, and the distinct role of higher education in that process, we aim to show that reforms of pedagogic structure are clearly necessary to maximise business school performance outcomes.

Key words: soft skills, hard skills, interpersonal skills, curriculum reform, business success

Introduction

The emphasis placed in the tertiary curriculum upon the acquisition of what have come to be known as 'hard skills' (the sciences, mathematics, economics, statistics, etc.) is prevalent in many universities around the globe. However, the extreme emphasis on hard skill acquisition features prominently in the universities of Vietnam, and especially so, within the tertiary sector of business education. One reason for this is due to the well-entrenched presumption in Vietnam that maximum competency in hard skills is a necessity if Vietnam is to continue its extremely impressive economic success and expansion within the trading market. The central contention of the present paper is that although the tertiary institutional

emphasis on 'hard skills' was initially a move in the right direction, Vietnam has now gone too far in that direction. We shall argue that a considerable literature has accumulated to show that to compete effectively within the global economic market, the efficacy of 'hard skills' mediation and deployment requires that the people who make use of them must also possess a high level of competency in 'soft skills', largely grounded in communication ability, negotiation skills, flexibility and a capacity to adjust to new situations and negotiate challenging proposals. Soft skills encourage forms of empathetically motivated interaction with the aim of building bonds of trust and relationships of loyalty with colleagues and customers, and soft skills interaction of this kind are now being recognized as the foundation upon which the edifice of successful business relationships can be built. Hard skills are admittedly the foundation of certain aspects of technological production, but to achieve long term success, even in this area, requires that employees with these technical skills are able to get on amicably and civilly with each other. Thus, it is the balance between the acquisition of hard skills and soft skills that allows for a sufficient level of personalisation to occur to ensure that bonds of trust and loyalty can be formed within business relationships. Achieving this balance, we shall argue, will serve to enhance profitable and personally satisfying business outcomes. In this sense, the cultivation of soft skill pedagogies reflects a certain degree of conceptual confluence with the objectives expressed by the general discipline of 'human resource development'.

Background of the Study

Vietnam has been one of the best performing economies in the world over the last decade. Real GDP has on average grown by 7.3 percent per year during 1995-2005 (Anh, 2008). Nevertheless, the economy is facing multiple challenges of globalisation. A key challenge is to maintain growth in the context of environmental concerns which have been

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heightened through global integration. In addition, the need has arisen for educators to address new problems associated with the increasingly excessive pedagogic focus on the competitiveness of the economy in general and the technological skills of the workforce which support it (Hung & Chen, 2010).

The central concern of this paper is to show first that improvements in the skill composition of human resources play an important role in achieving Vietnam's anticipated goals of economic growth and second, that it is the educational system which predominantly bears the burden of inculcating the technical skills required (OECD, 2007). While infrastructure and resources are generally tolerably adequate, the curriculum desperately needs revision not only to attract students but to meet the contemporary needs of employers (Powell & Lindsey, 2010). According to Hien (2007), this has put pressures on Vietnamese higher education to keep pace with the market demand, not only in regard to the acquisition of the technical knowledge workers presumably require but for the inculcation of the 'soft skills' requisite for effective social interaction and overall performance success. This being so, universities in Vietnam are in the midst of a curriculum crisis driven by the need to reconsider and reconceptualise their pedagogic goals in light of changing job markets and approaches to them. In the context of this new economic environment and the growing awareness of the integral place of soft skills training, in business success, new educational directions are rapidly emerging, and skilful leadership will be required to resolve the burgeoning crisis. We shall argue for a measure of curriculum reform and reconceptualization of tertiary areas of business education which have traditionally neglected soft skills development. Philosophical reflection on the growing body of scholarly research that establishes the importance of soft skill interaction will be imperative.

In the previous pages, we reviewed the changing economic milieu for Vietnamese market trading within which the acquisition of soft skills is becoming increasingly important. We have suggested that the magnitude of this importance is significant enough to warrant a revision of current business school curricula to incorporate human resource programs which can serve to foster the development of soft skills. The time has now come to examine more closely the definitional account of 'soft skills' with which we will be working.

Definition of Soft Skills

The understanding of what should be recognised as a soft skill is still a disciplinary facet of an inchoate contextual discourse, and thus varies sufficiently widely from one economic context to another. Nevertheless, there is emerging within the scholarly literature, a more precise account of the concept of soft skills; one which reflects a certain degree of coherence amongst the sundry perspectives proffered.

As defined by Perreault (2004), the concept of "soft skills" is intended to emphasise an individual's personal qualities, attributes, and communication skills which enable that person to inform and shape productively the rudimentary ideas of others into transparent and pragmatic scenarios. For example, the level of personalised commitment exhibited by a person that sets him or her apart from other individuals who may have similar technical 'skills and experience' is one example of a soft skill capacity which has also now been shown to augment the efficacy of committee and other interpersonal discourses.

In business, soft skills may thus characterize a certain dimension of the career attributes which an individual may possess (such as team skills, communication skills, leadership skills, customer service skills, and problem solving skills). Such skills can serve to

integrate fragments of technological discourse into a unified field of behavioural praxis (Laura, 2010). In addition, Dubrin (2004) agrees that soft skills which maximise the diverse functions of communication, such as enlightened listening, team problem solving, cross cultural relations and customer service, have a dramatic impact on encouraging within the workplace a unified sense of mission and shared vision, both of which maximise performance outcomes.

Although the concept of soft skills cannot yet and may never be, or need to be defined monolithically, there exists an emerging conceptual confluence of 'family resemblance' that can be derived from the overlapping descriptive categories to which we have alluded in the present section. We believe these overlaps of soft skills confluence are sufficient to give sense to their pragmatic use and pedagogic application.

The Importance of Soft Skills

It should be evident that a considerable literature has now accumulated to show that soft skills are far more important to education, workplace and life-performance outcomes than has previously been recognized. We shall now consider this point more determinately. According to Hommerichhousen (2002), soft skills account for as much as 70% of individual performance of business success, whereas hard skills and technical learning account only for the remaining 30%. Soft skills are so important that employers identify them as "the number one differentiator" for job applicants in all types of industries, and soft skills are being recognised as becoming increasingly important in all types of occupations (Wilhelm, 2004; Sutton, 2002). Glenn (2008) added that studies show that hiring individuals who possess soft skills will statistically improve the chances that the employing organization will retain and even improve its high-performing competitive edge. Hemby and Crew (2005) observed that

when the economy is slow, employers are understandably very selective and discriminating in their hiring procedures. The best and brightest employers will be sought, and studies show that within that group the largest constituent is made up of those with a strong foundation of soft skills. From these studies, it was made clear that job candidates who possessed soft skills, along with their technical competencies, emerge as the preferred applicants for jobs by employers (The World Bank, 2008). A study by Fotopoulos and Psomas (2008) confirmed that soft skill elements are important for total quality management in business today; stating that improvement in quality control and the consolidation of the company's market position are mostly influenced by adopting soft skills which serve to organize the instrumental praxis framework of hard skills competencies. According to Schulz (2008), soft skills are imperative to any educational program which aims to foster competencies which lead to the provision of a balanced life-style for its students, both during and after college. Kauffeld; Grote and Frieling (2003) propose that hard and soft skills together constitute the unifying dimension of professional competence which allows an individual to achieve a goal-oriented and situational directedness with regard to working tasks, and that the best indicator for the assurance of predictably higher success outcomes will depend on the level of harmonic integration of hard and soft skills. Human resource programs can be developed to ensure that the soft skills selected complement the hard skills which are associated with the acquisition of technical knowledge. When this balance is mediated effectively, the training program will provide a strategic framework of praxis by way of which professional objectives can felicitously be achieved by better understanding the extent to which the techniques deployed to enhance cooperative collegiality.

The Importance of Soft Skills in Business Education

Amongst some educational researchers, soft skills are gaining greater recognition of their potential importance, especially in the field of business education. Schaffer and Kelley (1993) observed that graduates of most business schools did not possess the basic etiquette and interpersonal skills that were necessary to succeed even in the business world as it existed in the 90's. In support of this approach, a study by James (1996) indicated that higher education apparently has not yet succeeded in adequately incorporating soft skills training programs into business management curriculum. Haws (2002) identified five critical success factors such as communication abilities, interpersonal skills, creative problem solving, ethics education, and technological and analytical competence indispensable in preparing students for the global marketplace, thus encouraging the integration of these factors throughout the business curriculum. While the importance of some of these competencies has sometimes been addressed in certain disciplines, their importance has still not been sufficiently appreciated within the field of business education. Our aim is to ensure that this imbalance is redressed and we submit that sufficient evidence has accrued to support the recommendation that soft skills training should be integrated throughout all business disciplines in order to improve business students' overall potential contribution to future employers, while maximising the greatest chance of his or her own success.

According to Jamison (2010), since the job market for business graduates is steadily becoming more competitive, business programs must endeavour to develop creative and innovative ways to provide soft skill training for their students which are specially designed to enhance their competitive edge. We have observed that acquiring technical skills alone does not guarantee that a student will make a good employee or a good leader and that Communication skills, teamwork capabilities and leadership skills are decidedly important in

determining success in the workplace. The likelihood that a business graduate will secure an initial position and advance within an organization is dependent upon having these skills.

Despite the fact that soft skills proficiency is important for business graduates, we have also established that many employees/graduates in business are reported to be deficient in soft skills. More education programs are needed to secure its importance and thus improve the quality of business education. We would admonish that additional research is also needed in the area of soft skills, not simply to demonstrate their importance in business, but to ensure that improved instructional methodologies will be developed and in turn applied by business educators in ways which augment their degree of relevance, and theoretical practical justification.

The Status of Soft Skills in Vietnam

The process of Vietnam's economic development and its integration into the world economy will require a greater recognition than currently exists that the acquisition of soft skills is imperative to redress the imbalance caused by the over-emphasis on hard skills. Interestingly, soft skills have been perceived as important by tertiary students, but comprehensive soft skill programs are not yet available within the formal curriculum. Unsurprisingly, it is estimated that 83% of higher degree students in Vietnam remain deficient in soft skill areas (Tuyet, 2010), and 50% of graduates are unable to find jobs, partly as a consequence (Vallely & Wilkinson, 2008). Statistics reveal that 50% of employees have to be retrained at work, because they try and fail to maximise their performance by relying solely upon their technical skills (study by Ho Chi Minh University of Pedagogy, 2010).

In recent years, employers have continuously complained about the quality of business training provided by universities which relates to soft skills and human resource development. The national education system, together with its various research institutions, is slowly becoming aware of this problem, and some progress is being made to address the need for soft skills development in the country (Nguyen Loc, 2009). More recently, the Vietnamese government and MOET have issued stipulations and instructions that universities have to take responsibility to 'equip' students with soft skills before graduation (Vietnamese Minister of Education and Training, 2008, p.1). The problem is that 'soft skill' course development lags drastically behind and little has happened.

According to Huong (2009), an executive manager at the training organisation Skill Group, has stated that the teaching of soft skills should be strongly encouraged and form part of the formal curriculum in tertiary education so that the students can practice these skills every day. This would allow them to cultivate a professional dispositional habit that reflects the importance of such skills not only in business, but in life generally. There is now a strong movement that the curricula in Vietnamese universities should be reconsidered and that an infrastructure should be established to accommodate a restructuring of the curriculum to address the integration of soft skills. An infrastructure is expected to be put in place sometime during the 2013 school year within which soft skills will be integrated into the curriculum as optional credits (Mai & Minh, 2012).

Challenges of Conducting Soft Skills Education

Many scholars believe that soft skills should be specifically related to academic performance. Thus, soft skills should be a necessary precursor to content based learning as a formulation of academic knowledge (Barrie, 2006). This requires that business educators

must be able to adapt to reflect in their teaching the current technological changes, and transformed job market scenarios which condition specific workforce needs. Moreover, the workforce will have to establish a closer relationship with local businesses is a way which reflects the harmonic balance of soft and hard skills.

According to Wiedmaier (2003), planning for instruction is one of the most important and challenging steps in this process of transition. It includes systematic processes wherein instructional materials are created effectively and beneficially for both students and the teacher. Furthermore, planning can be an effective strategy to improve the organization and readiness of a teacher within the pedagogic context. Instructional attributes like teaching diverse learners, providing transfer of learning, and assessment of instruction are all critical considerations when teaching soft skills.

Summary and Conclusion

The need for integrating soft skill training into in business education programs is increasingly being acknowledged among many business organizations today, but the pragmatic vision as to how programmes of soft skills acquisition can be implemented and what such programs should "look like" are cogitations which are still problematic and inchoate. The question to whether business education institutions in Vietnam can move fast enough and in the more balanced direction which strongly features the place of soft skills in the business education curriculum is difficult to predict. Given our limitations of space, this paper has obviously not been able to address specific issues relating to the kind of soft skill programs required to achieve the standard of pedagogic excellence required. Nevertheless, it is to be hoped that the research findings to which we allude and have elaborated here may serve to provide a measure of insight and direction for educational leaders, managers and

policy makers within universities. Based on the argument presented here, it is clear, however, that until business education programs do include soft skills training, the critical balance business between soft and hard skills necessary for ensuring Vietnam's economic success will inevitably remain allusive.

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"Education depends upon a belief in the power of the child …" Dr M Montessori

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Abstract

The paper identifies the power oriented learning structures of much contemporary schooling in Australia and proposes that learning structures of schooling and the processes which mediate school learning should focus more on empowering the individual child than the institutions within which they learn. To achieve this objective we propose a reconceptualisation of each of three ideas central to education in schools: the power(s) of the individual child, the purposes of school education, and 'the dominant educational epistemology of power' operating in (at least) Australian or Western societies. In the view we advance here, this pedagogy of power epistemology has defined, shaped and limited the dominant theory and praxis of education in schools as we know it. We advocate a model of empathetic epistemology and participatory pedagogic consciousness affording a 'reformed' educational context within which a holistic pedagogic conception of, and emphasis on, individual child development from early childhood to schooling completion can thrive.

Keywords: power, pedagogy, child, epistemology, holistic

Australian Schooling Structures and Practices – the Power(s) of Schools

There is *variety* in Australia (and internationally) in how schools are physically structured, organised and operate, but the great majority have many practical *similarities.* These include (rectangular) physical plant, organisational and governance structures, calendar, time-tables, curriculum segmentation, teacher-led learning in classrooms, age (gender) groups, 'core' and 'specialist' teachers, transition from primary years to secondary school, and formal assessment of learning. Most students wear uniforms. Schooling is compulsory. Students in Australia who are 'home-schooled' or attend the 'School of the Air' (an Australian government initiative for children in remote communities providing access through technology to teachers and peers) have other more individual practices.

Most of the approximately 9500 schools in Australia are administered by eight state and territory systems of education, servicing 70% of students, and by Catholic Church education systems managed by regional offices. Another 11% of schools are in smaller systems, or are 'independent', usually incorporated. These are almost all 'sectarian' by religious affiliation or educational platform. All 'non-government' schools are resourced by private and public funds. Processes of accountability for use of funds and the education of students (curriculum, policy, teachers, assessment, safety) in 'non-government' schools are defined and instituted by state and Australian government authorities.

Since 2008 Australian governments have taken deliberate steps to achieve greater national coherence of curriculum and assessment and public knowledge of schools performance and coordination of tertiary entry by the creation of the Australian Curriculum, Assessment and Reporting Authority (ACARA), the introduction of the national assessment program of literacy and numeracy (NAPLAN) testing at each of school years 3, 5, 7, 9 (www.nap.edu.au), and the *MySchool* website (www.myschool.edu.au) providing public access to the testing data of comparable schools. A national curriculum conceived in terms of 'general capabilities' is being developed and tested. The curriculum is accorded dominance in the purpose of schooling after early childhood. The previously developed Australian Schools Values statement of 2005 is posted at the entry passageway of many schools.

There is a national digital education revolution program and secondary school computer fund (apo.org.au/; www.deewr.gov.au/). Schools nonetheless vary in their ICT provision and student access to technology. Individual schools have different practices with respect to student access to and use of mobile phones in school hours. Some are exploring 'paperless' schools through use of student iPads.

In the 1990s, the state of Victoria introduced greater devolution of responsibility for daily operation to individual local schools, providing for local school councils, some responsibility for budgets, teaching staff search and employment, and local school policies (Caldwell and Hayward (1998); Caldwell and Spinks (1988). In 2012-3 the state of NSW is pursuing such devolution, with some objections from teachers and principals.

One in four current residents of Australia was born overseas. Schools enrol students from diverse home languages. There are, however, no Australian 'international schools' like those operating in other countries and key cities, whose intents are to educate itinerant and local students for global citizenship. There are Australian secondary schools which solicit and enrol fee-paying overseas students. Some of these have sought accreditation with the Council of International Schools. There are 140 schools (including now a few 'state' schools) which offer one or more of the three programs of international curriculum provided by the International Baccalaureate (http://www.ibo.org/contact/index.cfm).

This selective overview illustrates some of the typical structures and processes through which Australian schools operate. It identifies *implicit* sources and expressions of power and those of school authorities which are explicit. These structures and processes, whether consciously or intentionally, express the culture of schools and powerfully affect the lives of teachers, parents, students and whole communities.

The 'industrial' or 'factory' model of schooling established in the first half of the twentieth century in Australia and other developed Western democracies and designed to provide opportunities for all children to access 'primary', then 'secondary' and latterly 'tertiary' education, is now outmoded and inappropriate (Beare and Slaughter, 1993, pp.35-6;

Hargreaves, Earl and Ryan (1996, p2). This is despite the introduction of new technologies providing greater teaching and learning flexibility, initiatives for recognition of quality teaching and mechanisms for public accountability. The key reason is that the common model seems (still) to be based on assumptions and premises of content and subject (area) based curriculum, 'necessary' knowledge, modes of instructional delivery, ages of children and stages of schooling. It is a 'top down' model of schooling, notwithstanding the statements in educational writings that later 20th Century school education was 'child-centred' (Collins and Cook (Eds.) (2001, pp.1-11; Chapter 2 (pp.24-31); Chapter 3 (pp.32-43). Some changes in classroom pedagogical approaches have followed the development of theories of multiple intelligences by Howard Gardner (1993, 1999), the recognition that learning should be increasingly 'differentiated' to identify and provide for children's individual differences, and the introduction of new technologies.

The Epistemology of Power

Laura and Cotton (1999) explain the dominant model of content-knowledge and subject-based approach to schooling in Western societies. They contend that "the dominant concept of knowledge that is systematically propagated in our schools is enshrined in a framework of values left largely unarticulated by educational thinkers". What is transmitted is a *"particular form of knowledge"* encouraging a philosophy of nature that is inimical to both the ecological integrity of the physical environment and the integrity of social and personal relations (pp.1-4).

Laura and Cotton offer two main reasons for this concept of knowledge and its transmission. The first is that there is an implicit epistemological position in the way schools are structured and operate. There is a presupposition that knowledge can be obtained only if

the person subject who is investigating the acquisition of knowledge detaches and distances himself or herself from the objects of investigation in order to achieve *"objectivity"*. The second reason they offer is that the Western world has selected a form of knowledge motivated and informed by the value that Western cultures attribute to *power and control.* The particular form of knowledge institutionalised in schools is conceptually conditioned by the political and scientific preoccupation to dominate and direct the entire planet. Laura and Cotton argue that the "educational and social ramifications" of Western cultural commitment to this form of knowledge are "staggering". Western culture "has lured generations of schoolchildren into the false belief that scientific knowledge and the technologies deriving from it are the ultimate tools of social and even personal salvation". Rather children can and should be educated "in a form of knowledge that generates sympathy and understanding" (pp. 1-4).

Laura, Marchant and Smith (2008) also discuss the value–laden aspect of the particular form of knowledge dominating school curricula. When the knowledge transmitted in schools and by institutions is conditioned and shaped by obsession with power, its form and application reflects and 'enshrines' that obsession. Laura and his co-authors contend that "there is a bias within education in favour of an epistemology of control and subjugation." Australia's schools have inadvertently become state-sanctioned vehicles for the cultural transportation of an ideology of power and control enshrined as a "fundamental value presupposed by the kind of scientific knowledge we both seek and teach." One consequence for the curriculum is that "from the vantage of pedagogic epistemology, it is clear that implicit in the very structure of the academic curriculum is a presumption that students working in the arts area are in fact working with ideas that are subjective and thus not representative of real knowledge" (pp.8-11).

Laura and Cotton (1999) are concerned that the very technology societies look to, to progress local and global development and potentially to increase the individuation and flexibility of schooling and education delivery, is itself a critical means of 'transformative subjugation' of nature and natural resources (p.50). They argue that technology is also not a neutral but value-laden concept. "(T)he lust for power is the precondition … which conditions even the most beneficial applications of technology. It is the logical character of technology driven by power to transform the world of nature into increasingly synthesized and artificial environments" (p.70). From this perspective educational institutions are the state sanctioned vehicles which promulgate "society's commitment to the technologisation of nature" (p.70).

Ashton and Laura (2012) proffer a new perspective of educating children in today's highly complex and technologised world, arguing that in our educational institutions there has been "too much focus on the development of intellect at the expense or neglect of the development of the feeling/emotional sensitivity and moral/social intelligence that lies beyond the ordinary reasoning process. ... (T)here is an urgent need to seek an alternate approach in education, which would embrace the human body-mind and spirit in a more holistic and comprehensive way..." (Preface, p.17). They contend that our current system of schools, curriculum and schooling processes, by intention or default, serve social-political rather than humanitarian, universal and 'natural' ends. The maximal limits of individual human potentials have been inhibited. What is needed, Laura, Marchant and Smith (2008, p.153) argue, is an 'empathetic epistemology' which encourages human 'connectivity'. Laura and Cotton (1999) refer to this new way of thinking as an intuition of 'participatory consciousness', encouraging critical reflection on our current relationships both with nature and technological inventions (p.170).

The 'Power(s)' of the Individual Child

We have argued that the continuing conventional structures and processes of Australian schools exist for socio-cultural reasons. We would rather they were based on a contemporary holistic concept of children and on specific sustained educational research into the purposes, values and efficacy of 'schooling'. Even the original semantic of 'education' has been transmuted to refer to what is supplied by schools and to 'instruction', rather than 'drawing out' of each child all the innate and socialisable potentials they possess. Consequently, much current conventional schooling practice inhibits rather than encourages all the development potentials of all individual children and inhibits the potential contribution of schooling systems to human society. Most contemporary schooling practice (after early childhood) is not predicated (and we argue that it should be) on a clear, evolving, concept of the nature of a child and child development, and of the physical (neurobiological), emotional and cognitive nature and powers of children from birth to 16 years. Such a concept would enable (require) the fresh articulation of a vision for school education serving individual, social and human purposes.

What Could Be a Concept of Child?

The central question of this paper is this: *What could be an Australian, (universal), 21st Century concept of a child's innate abilities and potentials, which school based education has the opportunity and responsibility to nurture and develop, in cooperation with families, local communities and diverse cultures?* Is there a single concept of 'whole' child on which we might (broadly) agree? Any concept we adopt will be informed by the multiple epistemologies on which the theory and practice of school education are based.

The Reggio Emilia preschools in Italy have a conception of childhood. Rousseau, Steiner, Montessori, and Dewey each articulated a concept of child. Standing (1984) says that Montessori's view of the child is "the most comprehensive available" (p.xii). Bruce (2011, Chapters 1-3) discusses Locke, Kant, and Rousseau. She compares Froebel, Steiner, and Montessori. Bruce offers a sentiment taken up in the next section of the paper. It is important that teachers see "children as whole people" (p.35).

A key debate of the Tentieth Century was about the relative contributions of 'nature' and 'nurture' to each child's physical and cognitive development. Loughran (2010) refers to the nature/nurture debate with respect to intelligence (pp.22-4). What is 'innate' or 'natural' to children, and how are these capacities influenced by their socio-cultural and physical environment? More recently affective or emotional development has been specifically identified and included in the nature/nurture discussion and in the declared responsibility of schools (Faure, 1975, p.156; Beare (2001, p.105). The nature/nurture debate is unfinished as new insights are contributed from both brain and DNA research and from exploration of child raising practices in different social and familial environments and cultures.

Conceived in terms of the nature/nurture discussion and applying both a neurobiological perspective and the interactionist social-developmental perspective offered by Bruce (2011), the key question becomes: *What are the natural (innate and able to be developed) abilities (capacities, potentials, intelligences) of each child and all children?* There are derivative questions. Does each child from birth (in any culture?) have natural (biological) potentials and abilities for each and all of the following aspects of human experience and expression: oral language, number, music rhythm and song, visual art and manual craft in varying modes and forms, physical development of varying kinds, strengths

and rates, interpersonal awareness, self awareness, affective sensitivity, awareness of nature and the universe, moral sense? Western schooling systems seem to assume, but not articulate this view. Is the idea that all children have such potentials or abilities, a demonstrable concept of a child? If so, and enhanced by further research in neuroscience and educational psychology, what are the similarities for all children and what are the individual differences in style, degree, and potential for development of each of these natural abilities? What are the various relationships between these physical and psychological human capacities? Does it matter whether all these natural human capacities are developed to their fullest extent in each child? What happens if they are not? We address only the originating question here.

Many educators look to contemporary human brain research to provide a biological basis for a concept of a child's innate abilities (Blakemore and Frith, 2005; Jensen, 1998; Zull, 2011). Neuroscientific research observes the activity of separate and seemingly linked parts of the brain for language, number, movement, sound, visual perception of different kinds (movement, light, colour), touch. These brain capacities are 'natural' to all humans. Some, like language, visual and motor capacity are seemingly automatic and self-generating, others are more susceptible to human interaction and deliberate experience (Darling-Kuria, 2010). Differences in cultures impact the brain's 'wiring', for example the way the brain receives music (Courtney (2012), but not its biological capacities.

A Holistic Conception of Child

The conception of 'child' articulated above and the approach to child development and pedagogy it requires is 'holistic' (Jarvis and Parker (Eds.), 2005). Laura and Cotton (1999) attribute the original use of the term 'holism' to Smuts (1926/1973). Smuts explains 'holism' and 'holistic' as the underlying dynamic, creative, tendency of nature. "The character of

'wholeness' … meets us everywhere and points to something fundamental in the universe."
Nature is interested in 'whole making'. Any 'whole' of investigation – such as human life or
'child' cannot and should not be abstracted to its composite parts without losing its integrity
and identity (Laura and Cotton, 1999, pp. 149-153, 156-160).

Laura and Cotton argue that the 'interconnectedness' of the different but not separate
human capacities of body and mind in each child and human being, and of each human being
and child with all of nature, and of bodies of knowledge inviting 'epistemic holism' is an *a
priori* principle. Such a conception is profoundly apposite to that informing the principles and
practices of 'subjugatory transformation' dominating schools we have discussed above. It is
these practices and principles that deny the potential (even requirement) provided by nature
for what Laura calls the 'participatory consciousness' of each individual. Ashton and Laura
(2012) believe "there is an urgent need to seek an alternative approach in education, which
would embrace the human body-mind and spirit in a more holistic and comprehensive way"
(pxvii).

The "principle of infinite connection" as the basis for "true wholism" (sic), which is
'relational' is also remarked by Metcalfe and Game (2006). They aver that a holistic
educational approach is not "summing all aspects of a person" (intellectual, emotional,
physical), but offering new "connections and contexts" (pp. 19-20). Jarvis and Parker (2005)
see a holistic educational approach to learning involving both the nature of person and human
experiential relationship with the world. Understanding human learning must begin with the
nature of the person. Although they accept that philosophers differ as to what this nature is,
their position is that the human person is body, mind, self and soul – or some combination of
them. However, human beings are born in relationship, and it is in relationship and interaction

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of the inner person with the outer world – that experience occurs and through this experience people learn. For Jarvis and Parker an holistic approach to learning is critical because it is essential to a person's humanity. "Human learning .. is the driving force behind the emerging humanity, and this is lifelong" (pp. 1-2).

Marshak (1997) sees the teachings of Rudolf Steiner, Aurobindo Ghose and Hazrat Inayat Khan as offering a common vision of human nature and human becoming and of the universe. "It is … holistic and integrative in character, describing the body, emotions, mind and spirit, and the systems of interactions among them" . Each child is an 'organismic whole' with his/her own 'inner teacher' (pp.6-7, 10). Abbott and Nutbrown (2001) experience the early childhood schools of Reggio Emilia in Northern Italy as having such a vision. The teaching spaces are designed accordingly (pp.32-3, 72-9). The Ross School in New York has evolved a creative and passionate community devoted to students' holistic growth of diverse and multiple intelligences. The 'spiral' uniquely designed curriculum is 'holistic'. The school has a vision for the active engagement of students with the 21st century. It wishes to educate 'the whole child for the whole world' (Suarez and Sattin-Bajaj, 2010).

The argument for a holistic approach to an understanding of human nature and learning derives also from emergent neuroscience. Robinson (2001) notes that "the most extraordinary evidence of the holistic functioning of brain comes from those who don't have a normal range of sensory abilities" (p.104). Darling-Kuria (2010) observes that "brain compatible learning requires taking a holistic approach to helping a child to learn to develop his whole brain" (p.1). Because "infants (enter) the world as holistic learners … they should receive a holistic education" (p.6).

Sousa and Sousa (2010) emphasise the need for educators to understand that learning is "an embodied process". "Teachers understanding of the whole child – body and all – is vital, and it can help researchers take a more holistic stance in … research agendas." (p.253) Caine and Caine (1997) have developed a theory of learning based on an 'wholistic' (sic) interpretation of brain research. They have worked with teachers in schools where they "questioned the deepest assumptions about teaching and learning". They too see an 'wholistic view' having profound implications for realising human potential individually and collectively. Brain research will enable better understanding of 'human potential' and contribute to 'reclaiming humanity' (pp.v, 91).

Faure (1972) notes the complexity of such purposes for education, but stresses that "the physical, intellectual, emotional and ethical integration of the individual into a complete man is a broad definition" of the fundamental aim of education (p.156). He also observes the fundamental uniqueness of each human individual. Forty years later, a conception of complete man and how each uniquely complete person connects with the rest of mankind and the universe of nature and is educated to do so is not yet agreed. This paper contributes to the discourse.

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An Evaluation of the Walker Learning Approach to Educating the Whole Child in Whole School Pedagogy

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Abstract

The paper has three sections. It introduces the Walker Learning Approach (WLA) to primary schooling, provides the contexts and conceptual framework of the research and outlines the research methodology. The Walker Learning Approach to early childhood and primary education was conceived and introduced to Australian schools as a 'developmental curriculum' in 1995. Since 2009 the WLA has implemented a 'whole school' approach to learning and pedagogy in over 200 diverse primary schools in Australia and internationally. The WLA focuses on the learning intentions, interests and voice of each 'whole' child. Teachers are also learners, reflecting on their own practice, and learning daily how to support and encourage each individual child to become independent and collaborative learners. Primary data indicates marked improvements in children's engagement in their learning, in literacy, numeracy and social development and in the satisfaction of teachers, school leaders and parents in diverse settings. The research will undertake four case studies of schools in different community contexts in Victoria and the Northern Territory. It will identify and analyse quantitative data with respect to children's achievement in literacy and numeracy, and qualitative data in each of three areas: children's learning and development, teacher pedagogy, whole school context.

Keywords: Walker Learning Approach, learning, child, pedagogy, school

Introduction

The belief underlying the Walker Learning Approach and the proposed research is that the primary purpose and processes of education, whether provided by the contexts of family, community and/or school, are *for* and *informed by* each individual child and each child's personal unique capacities for learning and development. When schools set out to discover who each child is, to understand each child's personal processes of investigative learning and development, and to nurture these through adaptive, child-focused pedagogy, then student and school achievement in literacy, numeracy, and a range of curriculum outcomes, follows.

Children's personal social and emotional development is enhanced. Teachers and students are engaged in mutual learning which is shared with parents in a whole school approach.

The Walker Learning Approach (WLA)

The Walker Learning Approach (WLA) is the work of Kathy Walker, an Australian, Melbourne- based educator, academic, and consultant. In conception and implementation, the WLA offers an original approach to learning and teaching in primary schools from pre-school to Year 6. Initially conceived and practised from 1995 as a pedagogy for pre-school to Year 2, since 2009 it has been practised as a whole school approach for primary school students, teachers, leaders and parents (Walker, 2011, p.9; Walker and Bass, 2011, pp.8-10). The WLA may be practised with any current Australian state or national curriculum (Walker, 2011, p.2; Walker and Bass, 2011, p.14). Over 200 schools in diverse Australian (and overseas) contexts have adopted it. Rights to the WLA are owned by Early Life Foundations, a not-for-profit organisation that Walker established in 2009 to pursue her commitment to early childhood education, parenting and the transformation of primary school pedagogy. Walker's approach to each is set out in four books published since 2007; *What's the Hurry?, Parenting, Play Matters,* and *Engagement Matters.*

The Walker Learning Approach (WLA) Conceptual Context

The WLA conceptual framework has been developed and is reviewed continuously by Walker's very wide reading of the multiple epistemologies affecting educational theory and practice. Walker is concerned that the WLA be an 'evidence-based pedagogy' (Walker, 2011, pp 2, 26). WLA practice is also constantly reviewed in weekly observation and discussion of its pedagogy in diverse whole school settings and by nightly meetings with parents and school communities.

The WLA integrates a range of principles and practices familiar in early childhood and primary education with Walker's own creations. Walker's professional career is grounded in early childhood educational practice, where individual children, their voices and interests are the focus of all teaching and learning experiences, where exploration and investigation, play, enjoyment in learning and relationship with teachers are daily 'intentions', and daily communication with parents and cultural communities accompanies school based learning. Although the WLA precedes, for example, the Australian *Early Years Learning Framework* (2009), the language and ideas are congruent, given its similar origins and orientation.

Walker acknowledges the importance of theories of play and the concept of 'scaffolding' drawn from Vygotsky (Walker 2007, pp.17, 60-61; 2011, pp.18, 62). Moreover, the WLA is particularly "based on the concept of developmentally appropriate practices " (DAP), which she says has had various interpretations over the past fifty years, but emphasises that both "developmental and environmental influences" affect each child's "ability and timing of learning" (Walker, 2011, p.2). Walker and Bass (2011) add that "DAP is based on the idea that children learn best from doing: when they are actively involved in their environment and build knowledge based on their experiences rather than through passively receiving information. … DAP informs the differentiation of teaching approaches for children's evolving stages of development" (p.7). In teacher training workshop presentations, Bass now speaks of 'developmentally and culturally appropriate' practice (Bass, 2012).

A key principle of the developmental perspective is that all teaching and learning is *intentional* – by teacher and student – all of the time, whether apparent play, or formal learning (Copple and Bredekamp, 2006, p.3; Walker, 2011, pp. 8, 13). Walker (2007) is

concerned that the "language of work and learning" is used in her approach to distinguish it from common connotations of 'play' which do not reflect the 'investigations' used in WLA classrooms (p.9).

Engagement Matters by Walker and Bass (2011) presents the WLA for Years 3-6. It also provides a developmental perspective, including reference to recent brain research. By the age of 8 years, children are developing self-views, feelings and beliefs about themselves as learners, empathic understanding is consolidating in their brain development and they are more aware of similarities and differences of themselves and others (p.5). They wish to voice opinions, will access a wider range of technology, and are more aware of their teachers and what they feel 'works' for them. "This stage of maturity sees significant shifts in brain development. Students are more able to construct understandings not only by engaging in concrete experiences but … by representations in their mind(s), through abstract thinking, writing, speaking and listening, and through the use of other technologies" (p.6).

The WLA is more than a pedagogy with a developmental perspective on children. In *Play Matters,* Walker (2007) declares that the WLA is a play and project based philosophy which places the child and the reality of children's development at the centre of curriculum planning and learning expectations (p.12). The WLA "emphasises that learning is much broader and richer than just literacy and numeracy" and focuses "parents, teachers and children on the 'whole' child" (p.7).

In the terminology of developmentally appropriate practice, there are five developmental domains making up the 'whole child': emotional or affective, social, cognitive, language, physical (Walker, 2007, p.16; 2011, pp.4-8). School environments affect all these

'domains' whether intentionally or otherwise. The pedagogical approach required in schools by the WLA is "holistic and impacts on everything within the learning environment" (Walker, 2007, p.14).

Notwithstanding this primary emphasis, and arguably because of it, Walker (2007) notes that in practice, the WLA is "helping to increase rich oral language for all children and integrating literacy and numeracy into all learning experiences" (p.7). Walker discusses her principles and strategies for literacy and numeracy and how to embed them in other experiences and activities (Chapter 6, pp.64-76). She also notes that the WLA is "ensuring a greater level of engagement for boys and helping to reduce behavioural issues within the classroom " (p.7).

Walker (2007) stated "Education is at an interesting time in history. As educators we know more than we have ever known about children's development, learning styles, personalities, the link between (child) learning and family input, brain research and general development of children" (p.12). Yet society "uses the language of *outcomes, standards* and *testing*" (her italics) to link learning to bureaucratic accountability rather than to "what we actually know about children's development and learning" (p.12). "Not all children are ready to learn the same thing, at the same time, in the same way" (p.12). The rate of acquisition, the way in which learning is achieved and the range of strategies for teaching in the WLA are personal to each child (p.12). The WLA engages children "in exciting and authentic learning experiences that reflect the particular needs, interests and strengths of the individual child" (p.7).

Walker and Bass (2011) have a similar emphasis. The WLA wishes "to maximise each individual child's opportunity to find the learning environment truly relevant, meaningful, exciting and successful" (p.5). The WLA "seeks to ensure that classrooms are filled with highly motivated children who are learning how to learn with a mix of active investigation and formalised instruction alongside opportunities for greater levels of decision-making, choice, active participation and a wide range of mediums in which to explore, learn and acquire skills" (p.2). These aims, they say, are consistent with the key components for 21st century learning, derived from research.

The WLA

The development and implementation of the WLA in increasingly diverse schools over 18 years has been subject to continual observation, teacher training and accreditation, mentoring, professional visits by thousands of visitors, and internal review by participating schools. Previously the WLA in early childhood settings, Years PK-2, was reviewed through an 'action research' model by independent researchers over a period of five years. The data derived was used to refine the original model (Walker, 2011, p.26). The research described here is the first to explore the WLA in 'whole school' mode Years K-6, and to seek formal evidence of its practice and efficacy in whole school, diverse settings.

Australian Political Context

Parallel to the development and widening acceptance of the WLA since 2009 as a whole school pedagogy, there have been various Australian government initiatives affecting schools, particularly those pertaining to literacy and numeracy testing at Years 3, 5, 7, 9 (NAPLAN), and the development of the *My School* website inviting public awareness of testing results, and inter-school comparison. The NAPLAN results also provide opportunity

for international comparison of Australian schools performance. The aim of the Better Schools Program is to lift literacy and numeracy results and international comparison. The Smarter Schools program addresses disadvantage in low socio-economic communities to achieve literacy and numeracy improvement.

Schools are accountable to their communities and to local and systems authorities for student performance and for the school's NAPLAN scores. Schools adopting the WLA have at least in part done so because of the belief that students' achievement in literacy and numeracy will improve. The research will ascertain whether there is evidentiary improvement in students' literacy and numeracy assessments and in what ways the WLA to whole school pedagogy may be responsible for improvement or lack of it.

Pedagogy and Teacher Professional Development

Teachers and teaching practice (pedagogy) are regarded by the political agenda above and by educational research and discourse as the main schooling influence on student learning. Beare (2001) notes that the school effectiveness movement of the 1990s identified student learning and teacher pedagogy as the two features of schooling which make for schooling excellence (pp. 95-8).

Hattie (2009, 2012) rarely uses the term 'pedagogy' but speaks throughout of teaching and learning. Much of the language he uses is otherwise consonant with Walker's: practice, evidence, learning intentions, teacher interventions (Hattie, 2012, p.16, p.47; 2009, pp.22-4). Both teachers and students are engaged in learning and reflecting together. Like Walker, Hattie (2012) also supports broad intents for schooling, teaching and learning that are much

more complex than 'achievement' and content knowledge. At the present time, he says, it seems that the achievement valued is test scores (p.3).

Hattie (2012) has identified from over 800 meta-analyses of educational research those factors which most influence classroom teaching and learning. He discusses two in particular. They are what Hattie calls 'visible learning' and that teachers constantly *evaluate* their practice. He says his fundamental thesis is: there is a practice (not science) of teaching. There is no fixed recipe for teaching ensuring maximum student learning. Hattie offers the concept of teacher mind frames – the professional being of those called effective teachers. Teachers need to have a mind frame to see it as their role to evaluate their effect on students' learning (p.15).

Hattie (2012) asks these essential questions driving teaching and learning in a school. What are the attributes of schooling that truly make the difference to student learning, and to *all* in the school visibly knowing the impact they have on the learning in the school (student, teacher, school leaders)? What does 'visible learning' look like in a school? (p.1) He says "Visible learning' is teachers seeing learning through the eyes of students, and students seeing teaching as the key to their ongoing learning. The remarkable feature of the evidence is that the greatest effects on student learning occur when teachers become learners of their own teaching, and when students become their own teachers" (p.14).

These concepts and principles are relevant to and instructive of the research. The WLA requires teachers to co-construct and to scaffold rather than to instruct learning, to review their own practice, to learn an approach focused on individual children's interests, to change the classroom environment. The research will explore and explain how and why the

WLA affects teacher pedagogy and student learning, and discuss the teacher professional development and changes in teaching practice required.

Ontological and neurobiological contexts

An intent of the research, both in the Literature Review, and in interviews and focus groups at the case study schools, is to explore the concepts of 'whole child' and 'holistic' pedagogy. As observed above, Walker (2007) says the WLA is concerned with 'the whole child', conceived in terms of the developmental domains (p.7). The manner of WLA pedagogy is 'holistic' because it concerns everything in the learning environment (p.14).

The term 'whole child' has a different layer of meaning for one of the proposed case study schools and for the Victorian Catholic Education Office (2009) whose vision for schooling education is that *"the Catholic school sets out to be a school for the human person and of human persons". "(T)he promotion of the human person is the goal of the Catholic school"* (p.4).

Laura and Tucker (2012) discuss the use of the terms 'whole' and 'holistic'. They observe that there does not seem to be a concept of whole child that is articulated nor agreed in contemporary educational thinking – except perhaps in Montessori and Steiner schools, and a few singular schools with their own specific platforms. Nor is there yet a common concept of human wholeness from emergent neurobiology upon which teaching and learning is or can be based.

The research will seek to ascertain the meanings attached by neurobiology and educational discourse, and by participating schools, to the terms 'whole' and 'holistic' and to

inquire whether and how the WLA encourages the education of 'whole children' through an holistic pedagogy. The research will employ an ACER instrument designed to assess children's social and emotional development, such that the development of 'whole child' in WLA terms can be explored and evaluated.

Pedagogy and whole school context

There is one final component in the research topic requiring some explanation. The key words in the research topic besides 'Walker Learning Approach' and 'whole child', are 'whole school pedagogy'. The research intends to pursue concepts and practices of 'pedagogy' but to consider the use and interpretation of 'whole school' in a broader way than being attached only to 'pedagogy'. A whole school comprises not only those directly involved in classroom learning, but a school community of parents, carers, volunteers, suppliers and governance members.

Walker (2011) explains the importance of a 'whole school educational philosophy' (pp.9-12). When a school explores and potentially wishes to introduce a teaching and learning approach (a pedagogy) consistently across the whole school, it is essential for leaders and others to explain to whole school communities what is proposed and why and how it is being pursued. Teachers, students, parents all need to participate in a clearly articulated process. For Walker, a school philosophy is what "guides the practice of all staff working within (a) school" (p.11). The implementation of the WLA has been most effective when the school principal and leadership team have expertise and understanding of both whole school philosophy and whole school pedagogy (Walker, 2011, pp.34-5).

Since the 1990s, the term 'whole school' has been used to indicate that such an approach is needed when specific programs are introduced to schools to enhance their acceptance and effectiveness – literacy, special education provisions and inclusiveness, gifted education and school planning. The islPAL Workshop brochure of May 2013 observes that "the term school wide pedagogy was once rarely heard and yet has now become a part of most discussions around school improvement". The brochure asks: "What does it mean and why is it important?" The research intends to contribute to this discussion.

Research Methodology

The proposed research to be conducted from July 2013 to December 2014 comprises case studies of four primary schools suggestive of the range of school communities which have embraced the WLA as a whole school philosophy. The proposed schools (from which permissions in principle have been received) are three Victorian primary schools (K-6) and one Northern Territory school (PK-6). The schools offer a range of characteristics of context – state, catholic, outer urban, regional, diverse community, leadership and governance, long term experience of the WLA, manner of introduction of the WLA.

A description of each school will be obtained with student and staff numbers, statements of foundation and ethos, features of the school's context school and local community, and any special features of its educational program. At this stage the researcher assumes that each school has at least 300 students in Years Kindergarten to 6, with 15-20 teachers and assistants. There is a principal at each school responsible to a School Council and to a regional authority for the leadership and management of the school. The Principal may be assisted by a 'teaching and learning' leader with delegated responsibility for the oversight of the WLA and training of teaching staff.

A case study methodology is appropriate for the research. The introduction of the WLA to an individual school is a multi-faceted process with multi-faceted intents. The intents, context, process and outcomes are specific to each school. Undertaking four studies of diverse school communities with a common research approach and instruments will allow for both singular investigation and the exploration of any common elements and relative differences. The research allows for multiple sources of information to be gathered and 'triangulated' around particular points of inquiry and findings. The cross analyses within and across cases will contribute significantly to the reliability of the study and the validity of the findings.

The research framework grid and research evidence

A common research framework and process will be pursued at each school, but allow for individual case differences. The framework has been devised to reflect the conceptual discussion above, the intents of the schools which choose the WLA, and the impacts expected of the WLA. It invites findings in 12 pre-set categories. It does not however pre-empt the findings as the researcher evaluates 'how' and 'why' the WLA does or does not do what is intended. It also allows for identification of other factors by participants as may arise.

The research framework will elicit and examine evidence of the practice of the WLA in three key areas providing the theoretical and practical framework of the research: whole child learning and development, teacher pedagogy, the adoption of the WLA by a whole school community. Each area has four particular subsets indicated below. Each subset term has been referred to in the foregoing discussion.

The proposed subsets for (whole) child learning are: engagement, achievement, development and assessment. It is noted here that the WLA distinguishes assessment 'for' and 'of' learning as an alternative or additional concept to assessment of achievement in literacy and numeracy. With respect to 'development', the proposed ACER questionnaire is designed to provide 'hard data' in addition to that provided by participant leaders, teachers, parents and other observers through interviews and focus groups.

The proposed subsets for pedagogy (teachers) are: teacher engagement and satisfaction, professional development of knowledge and skills, classroom practice and classroom environment (with associated learning areas). Again, each of these four aspects is critical to the conception and implementation of the WLA, to the reasons for and impacts of implementation by the practising schools, and (the first three at least) are key themes and ideas in educational literature with respect to school and teaching improvement. Other factors and variations may be identified and explored by the research.

The proposed subsets for whole school are: leaders, parents, process of introduction of the WLA and school community context. The conception of the WLA and the implementation by practising schools presume these four elements. Practising schools plan how to introduce and implement the WLA in the specific contexts of their communities, taking into account cultures, languages, expectations, communication, governance requirements, and any broader community collaboration and partnerships. Other factors may be identified in addition by the actual research.

Each school has its own reasons for selecting and introducing the WLA. Typically there are specific features of its context and learning community it wishes to address and

improve. Frequently principals wish to invigorate the teaching and learning environment of the school community they lead. Their motivation is to challenge and satisfy teachers, to improve students' literacy and numeracy, to offer a broader concept and program of child development, and to improve parent involvement in their children's learning. They want an excited and engaged learning community of students, teachers and parents.

Notwithstanding those aspects of introduction and implementation of the WLA that are unique to each school community, there are also common and necessary features of the process. These include introduction and training sessions for the process leaders, teaching staff acceptance and training – initially and subsequently, modifications to the classroom and associated learning environments, and multiple communications – in person, by letter and intranet – often in multiple languages. The manner of acceptance, training requirements and resources required vary according to the school.

The research requires an understanding of the community context of each school, of the learning and pedagogical environment (teachers, students), of the educational leadership, of the intents for the introduction of the WLA, and of what is being achieved and experienced across the key variables: student learning and development, teacher development, parent and community involvement. The proposed research grid recognises and explores each of these elements.

Data to be Collected

Qualitative evidence will be sought from participants – students, teachers, leaders, parents, other community members – by interview, focus group, observation. The number and scope of participants at each school has yet to be determined. The modes of analysis of the

multiple data has also have not yet been decided. Quantitative evidence will be sought through examination of results of external testing of student achievement, the NAPLAN national tests of literacy and numeracy. These results are available to each school and are published on a national public website. They provide general profiles of year groups, student cohorts and schools, but individual students are and will not be identified. It is possible that some data of student assessment pre and post introduction of the WLA also may be available at individual schools. The proposed ACER managed online questionnaire – measuring students' social and emotional development, by year group or cohort, will again, not identify individual students.

The research hopes to make a contribution to the WLA and to the schools, to case study methodology, and to educational discourse.

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The Importance of a Values-Based Program of Environmental Education, with Special Reference to the Three Gorges Dam Project

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Abstract

Our aim in this paper is to show that there exists a fundamental 'moral tension' between the ostensible goals of environmental education on the one hand and the traditional goals of engineering pedagogy based upon the epistemology of power on the other. This moral tension is particularly evident in the case of China's Three Gorges Project, where the unresolved collision of conflicting value presumptions has led to massive ecological disruption on the one hand and issues of social injustice associated with population dislocation on the other. Although considerable engineering planning has gone into the construction of what is claimed to be the most significant dam project in the world, the horrific decimation of its surrounding environment, and the concomitant dislocation of so huge a population of local people makes clear that environmental and humanitarian ramifications of the project were badly neglected. We argue that engineering pedagogy in China has not been sufficiently guided by a form of environmental education grounded in empathetic epistemology, thus explaining in part why the environmental decisions about the dam were covertly dependent upon presumptions of power polities which have marginalised the importance of many issues of ecological and humanitarian concern.

Key words: values, moral tension, environmental education, Three Gorges Dam, reservoir refugees

Introduction

Our aim in this paper is to show that there exists a fundamental 'moral tension' between the ostensible goals of environmental education on the one hand, and the traditional goals of engineering pedagogy based upon the epistemology of power, on the other. This moral tension is particularly evident in the case of China's Three Gorges Dam Project (the TGDP), where the unresolved collision of conflicting value presumptions has led to massive ecological disruption and issues of social injustice associated with population dislocation. Although considerable engineering planning has gone into the construction of what is claimed to be the most significant dam project in the world (Gleick, 2008), the horrific depredation of

its surrounding environment including the dislocation of a huge population of local people, in excess of one million, referred to as 'reservoir refugees'(CWRC, 1993; Tan & Yao, 2006; Bridle, 2007; Challman, 2007; Heggelund, 2007; Ponseti & López-Pujol, 2007) makes clear that environmental and humanitarian ramifications of the Project were badly neglected.

The Three Gorges Dam is politically applauded for several innovations. First, it is hailed as being the largest dam in the world, and second, it is touted as being capable of producing far more energy than any of the other major dams scattered around the globe (Allin, 2004; Gleick, 2008). Last but not least, it has unashamedly been exalted with pride as the most expensive construction project in the world (Kite, 2010; Hyde, 2012). Although the moral consequences of the TGDP have not been teased out sufficiently in the Chinese public arena, we shall argue that the harmful environmental and social impacts of the Three Gorges Project are incontestable and can better be understood as representing the inevitable outcome of an engineering pedagogy based upon a misguided epistemology of power and control. The main body of the present paper explores the educational significance of this moral tension and proposes a more comprehensive framework of pedagogic theory and praxis.

To establish this argument, our paper will be divided into three sections. The first section will provide a brief account of the massive ecological damage and serious issues of social justice which have arisen due to the construction of the Three Gorges Dam. In the second section we argue that the moral tension which exists arises partly from the epistemology of power which defines the goals of engineering pedagogy and praxis. We argue that the values which are covertly enshrined within the dominant pedagogy of engineering depend upon an epistemological framework motivated by an ideology grounded in the lust for power. Thus, the value covertly placed on 'power' fosters the illusion that our

relationship with nature is legitimated epistemologically by a right to dominate and exploit the world around us for our own purposes. The epistemic presumption is that having knowledge is tantamount to having power and that power is in essence the 'tool' by way of which we subjugate and control nature to serve our own vested interests. In turn we control the world by technologising it in ways which allow us to dominate, subjugate and expropriate it.

In the third part of our paper we will be concerned to show that the theory of 'Empathetic Epistemology' (Laura, 2010) can be utilised to reconceptualise the power-driven pedagogy of engineering. We argue that when engineering pedagogy is defined by a participatory consciousness of empathetic connectivity with nature, the mediation of engineering design and planning can be grounded in the best considered moral reflection available. Instead of recasting the face of the earth to dominate it, empathetic epistemology encourages the beneficiaries of engineering pedagogy to act in ways which respect, preserve and enhance the humanitarian and environmental concerns which still challenge us globally.

The magnitude of the Three Gorges Dam

Completed physically in 2006 (Gleick, 2008) and brought to a full completion in 2009, the Three Gorges Dam is regarded as the largest dam in the world and stands as the world's largest hydropower station. When the highest water level of 175 metres (574 feet) is achieved, the dam reservoir is on average about 663 kilometres (412 miles) long and 1.12 kilometres (0.70 miles) wide. Total reservoir capacity is 39.3 billion cubic metres (1388 billion cubic feet) and total reservoir surface area is 1,045 square kilometres (403 square miles) (CTGPC, 2002). It is also, often proudly, touted as the most expensive construction project in world history, and the total static cost of the TGDP is US$ 25 billion

(Gleick, 2008)[8]. Twenty-six hydraulic turbo generators each provide 770 Mega-Watts (MW) and in total possess sufficient potential energy to produce annual electricity output of 84.7 Terawatts-Hour (TWH) (CTGPC, 2002; Wang, 2001). To appreciate these figures in practical terms, consider that the amount of energy produced here is the equivalent of 28 large coal burning power stations, or 18 nuclear power plants of 1000 MW each (Chan & Ding, 1999; Kennedy, 1999). The energy production of the dam is truly astonishing and in this sense it represents a monumental technological achievement.

The Purported Benefits of the Dam

To date many political advocates of the TGDP have focussed on its positive environmental impacts. It is claimed, for example, that a major benefit of the TGDP is that it is capable of producing enormous power without producing greenhouse gases[9]. The other proposed primary major benefit of the Dam is believed to be its contribution to flood control, though the flood control capacity of the dam has been widely questioned among experts inside and outside of China (Dai, 1994; Challman, 2000; McCormack, 2001; Alberts et al., 2004). Sorting out the factual matters of relevance to TGDP is difficult enough, but recognising and analysing the environmental and moral issues raised remains highly problematic.

Because engineering education in China and in much of the world has been primarily utilitarian, there has to date been little or no philosophically reflective training which would

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[8] Some estimate that further unplanned displaced people and the changes of the resettlement policies may make the final cost as high as 50 billion US dollars (Buchanan et al.)

[9] Although hydro-electric power is considered as a renewable energy source, some claim that the large reservoirs themselves can generate considerable amounts of greenhouse gases due to micro-biotic activity.

help engineers and others involved in decision making understand the harmful environmental and human impacts of so intrusive a dam as represented by the TGDP. For example, to complete the TGDP, two large cities, 140 towns, 320 villages have been destroyed through inundation. This unprecedented flooding has meant that the TGDP has led to a dislocation and ongoing resettlement of more than 1.3 million people from the two provinces of Chongqing and Hubei (IRN, 2003; Heggelund, 2006). This exodus operation begun in 1994 and the evacuation of the last town to be submerged was completed in 2008. These huge populations were either simply displaced into areas above the flood line or encouraged to move out of the area entirely. Among them, 42.1% of the total 'directly affected population' is from rural areas (CWRC, 1993). Meanwhile, 115,000 acres of rich farmland along the river's banks have been flooded and the reservoir has also submerged an additional 54,000 acres of farmland and 17,000 acres of forest (CWRC, 1993; Duan & Steil, 2003). In addition to the serious devastation caused to the surrounding flora and fauna, the humanitarian issues associated with the massive dislocation of so large a population remains inadequately addressed in moral terms. A number of disturbing questions concerning social justice have been and are still being raised about this population of 'reservoir refugees', one of which relates to what we shall call 'Cultural Genocide'. The use of this admittedly evocative and morally provocative term is meant to refer to the way in which the huge dislocations of Chinese country folk have in some cases brought about the destruction and thus the death of their socially defining heritage, autonomy, and community identity.

Educational Epistemology is Value-Laden

In this second part of our paper we argue that despite the protracted debate surrounding the TGDP, there has been little chance of resolving the issues because the fundamental epistemological presumptions which give rise to the disparity in values-

orientation underpinning the debate have remained elusive. Our goal here is to make explicit the epistemological dimensions of the debate which thus far have only been implicit.

Understanding the socio-cultural evolution of technologised societies in both the East and the West involves making explicit a dominant epistemological tenet, namely, that 'Knowledge is tantamount to power'. From this it follows that the dominant conceptual approach to the technoligisation of nature and thus to dam construction is motivated by a particular theory of knowledge which is characterised by mankind's obsession with power, dominance and control. It is this obsession with power, dominance and control, which gives rise to a covert moral tension between the political objectives of engineering pedagogy and the moral purposeness of empathetically-grounded environmental education on the other. The reliance on 'power epistemology' as the dominant model for technologisation has created a scientific discourse for engineering pedagogy which has subjugated the importance of the ethical issues surrounding the building of the dam and its long term utilisation. Appreciation of this point makes it easier to discern why the noble efforts of environmental educators to redefine the parameters for the debate in qualitative value terms about the Project have been severely marginalised and eventually superseded by the technologically disposed instrumentalism of power epistemology.

According to the dominant epistemological paradigm, both knowledge and the technology which derives from it are value-free or neutral. The idea here is that technology, for example, is neither 'good' nor 'bad'; it is how people use technology which determines its moral status. This point is usually put euphemistically when it is said, 'Guns don't kill people-people kill people.' It is to be conceded that there is a truth in this way of looking at the

matter, but our reluctance to accept the dominant paradigm unreservedly betrays a deep intuition that what is said it is not the whole truth.

To understand the relevance of this discussion for engineering pedagogy, it will be helpful to broaden the scope of the argument to include more than technology. After all, technology is essentially applied knowledge; so let us endeavour first to get a better sense of the relationship between knowledge and technology before passing a final judgement on the pros and cons of technologisation. According to the dominant engineering paradigm, knowledge is in essence the parent of technology and both are what philosophers call value-neutral. Both knowledge and technology, so the argument goes, are value-free in the sense that neither of them is good nor bad in itself; it is the use of knowledge that is good or bad. Despite much intellectual propaganda designed to instil this view, there is an epistemological dimension to the problem that contradicts the conventional view that knowledge is value free.

Part of the problem is that the epistemology of power has encouraged the presumption that the empirical model of scientific knowledge has a monopoly on knowledge. Upon reflection, however, it is clear that there are many ways of 'knowing' which are not captured by the highly empiricist cannons of science. Environmental educators who are often regarded as impeding technological progress precisely because power-epistemology has been given a priority in the West which has led to its establishment institutionally as the ultimate or only truly objective form of knowledge. Power epistemology has itself become the arbiter of all knowledge, and engineering pedagogy, especially in China, has entrenched itself in power-epistemology. The intellectual imperialism of the West has in fact influenced the whole of the developed world to adopt the ideology of power-driven empiricism. Virtually all technologised cultures have become mesmerized by the potential for dominance and control

which defines this one particular form of knowledge, as if it were the only form. Several assumptions are presupposed by this dominant epistemological framework, but to keep the paper within manageable bounds we shall focus on two.

Outside of its institutional monopoly and the vested structural interests which have been fostered to protect it, scientific knowledge is just one possible form of knowledge amongst many. Some philosophers would argue, for example, that moral sensibility – knowing what is right or wrong – cannot be generated from an epistemology of science which is determinately empiricist, being rigidly delimited by its quantitative calculus of testability. Whatever the outcome of the debate on such matters, it is clear that the priority given to scientific knowledge is more a cultural phenomenon than a philosophically legislated truth. In eastern cultures different concepts of knowledge, for example, have been, and in some cases still are given a cultural priority akin to the status accorded to scientific knowledge in the West.

The epistemology of power ensures that control and dominance over our world and over each other has become an elemental facet of our socio-cultural existence. This being so, it has come to shape the dominant modality of knowledge which we have chosen to embrace educationally. Our drive for power and control, that is to say, engenders a competitive mode of interaction which impacts upon every aspect of our lives. Not only has it led to the desanctification of our natural world through the mindless expropriation of the earth's resources, but it serves to undermine and depersonalise our human relationships on many levels. For example, the human predisposition for power and control may impact adversely upon the harmony of relationships between two 'superpower' nations, or between classes, races, and sexes. Similarly, it may impact upon the intimacy between a married couple,

between co-workers, between brother and sister, or amongst friends. Put simply, power for the sake of dominance and control disrupts the natural patterns of human interaction which would otherwise be defined in terms of empathy, care and love. As Gary Zukav so insightfully attests,

> *The same energy that sent warships to the Persian Gulf sent soldiers to Vietnam and Crusaders to Palestine. The energy that separated the family of Romeo from the family of Juliet is the same energy that separates the racial family of the black husband from the racial family of the white wife. The energy that set Lee Harvey Oswald against John Kennedy is the same energy that set Cain against Abel. Brothers and sisters quarrel for the same reason that corporations quarrel – they seek power over one another (Zukav, 1999:23).*

If the knowledge we transmit in our schools and by way of our institutions is conditioned and shaped by our obsession with power, both its form and application will reflect that obsession. If what we claim to know is defined covertly by the capacity of what is known to secure us the power to control and dominate, then the orthodox view that knowledge is neither good nor band in itself can be exposed for the illusion it is. Far from being neutral, every piece of information which is accepted as knowledge is designed covertly to provide some advantage of control over everything that might affect our lives. In the light of the power presumption as a primary motivating factor in determining what we accept as knowledge, it is the contention of this paper that there is already a built-in or conceptually endogenous bias within education in favour of an epistemology of control and subjugation. This being so, the philosophical idea that what makes knowledge 'good' or 'bad' depends simply on how one uses it, betrays a conceptual distortion of a far subtler truth. Deeper reflection reveals that when knowledge is itself substantively defined by the preoccupation with power, the obsession with power and control which motivates it is the very values which the concept of knowledge itself covertly propagates. This being so, every application of that

form of knowledge will serve the aim of knowing, only in so far as it guarantees some measure of control. The price we pay for this measure of control is alienation, dehumanisation, depersonalisation and the ecological sacrilege of nature. For whenever we apply this power-motivated theory of knowledge as a traditional innovation, the technology will transform the things to which it is applied into other things which are more readily controlled by virtue of the nature of the transformation. The direction of technological transformation in the name of predictability as the measure of power and control will involve reconstruction living or dynamic systems into chemicalised highly inert, lifelessly regimented ones. The impact of such transformations upon our world, upon our health and our spiritual and mental well-being has yet to be fully appreciated. The argument of this paper stands as a salutary reminder that we have as a culture inadvertently let our schools and many of our institutions become the state-sanctioned vehicles for the cultural transportation of an ideology of power and control enshrined as a fundamental value presupposed by the kind of knowledge we both seek and teach.

Empathetic Epistemology and New Directions in Environmental Education

We have been arguing that progress is not merely a matter of looking ahead to capture through our technological innovations some idyllic world of success. We propose that progress entails also being able to look back at what we may have lost that was actually worth preserving. Once we know what in our livers is worth keeping, then we also know what is certainly worth restoring; and we also know what is worth living for.

Given the epistemology of power presumption, ethical consideration of the impacts of the Three Gorges Project will lamentably be cosmetically utilitarian and an after-thought, to be judged against the entrenched values hidden within the theory of knowledge on which it is

built conceptually. This being so, the ethical issues never get a full hearing. As Ronald Laura reminds us in his book *Empathetic Education*, 'Moral sensibility requires affective empathy, and empathy is not a value enshrined within the epistemology of power because all values are inevitably subservient to the ultimate value of power, as the medium of control' (Laura, 1998, 206-207).

To address these issues more effectively, and with a greater degree of moral sensitivity, we shall in this final section of our paper elaborate and extend Laura's theory of 'Empathetic Epistemology' as a new foundation for a form of engineering pedagogy capable of incorporating the empathetic values of environmental education. The deeper question which emerges from this perspective is whether our technological interactions, be they massive or small, preserve the balance between progress on the one hand and moral sensibility on the other. In planning our technological goals, that is to say, to what extent do these plans reflect a deeper global consciousness of our responsibility to delimit the parameters of engineering feasibility not so much by the measure of what is technologically possible, as by the measure of what is morally responsible. The question can now be asked, to what extent does the way in which we think about the world technologically presuppose the profound humanitarian significance of honouring it morally? This is what we call here, 'ecological honouring'.

Reflection upon this new way of construing the world of nature may serve to provide an epistemic heuristic, a way, that is, of proposing hypotheses about the nature of knowledge which are much richer and more comprehensive than the traditional ones. In recognition that there may yet be better models for understanding nature, we can at least now see that the universe in which we live is one which depends upon its integrated unity for its cohesiveness.

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What the epistemology of connectivity requires, we urge, is the recognition that some types of technology are so potentially disruptive of the established harmony of nature that they should never be used. The issue for empathetic ecology then becomes a matter of developing forms of connectivity with maximize our participation in nature in ways that assist, not diminish our stewardship of it. Questions of the level of technological interaction with nature as balanced against the capacity of nature to replenish itself in the face of expropriation will still be critical, but there will also be a difference. Underpinning our unbridled commitment to the technologisation of nature is an attitude of dominance and control many people find difficult to relinquish. The educational concept of knowledge as power carries with it the idea that through technology we can avoid having to confront the realization that it is the way we have chosen to live that needs changing even more than our technologies. We are obsessed with our technologies because they provide the promise that we can live lives of excess and indulgence without penalty as long as we have technologies which compensate for our own shortcomings. In this regard our faith in technology is a faith in technology as a form of social salvation, and from a theological perspective, perhaps even personal salvation.

Empathetic epistemology, on the other hand, fosters a way of interacting with nature that reflects the deeper truth that the things of nature are here to be responsibly borrowed, so to say, but never owned and exploited in ways which contradict the principle of ecological honouring. With this new vision of empathetic epistemology as a guiding principle of environmental education, the deeper moral issues associated with the Three Gorges Project can no longer easily be marginalised, and certainly not eschewed.

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The idea of having a right to help ourselves to the resources of nature, an idea which is resolutely reinforced by a society committed to continued growth and expansion, grounded in and epistemology of power. Empathetic education which is an epistemology of empathy postulates that the resources of nature have an intrinsic value in themselves and thus that the "rightness' of whatever we take needs to be balanced against cost inflicted upon the independencies of the form of nature we preserve.

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