Contents

Editorial ................................................................................................................................. 4
Carol Mutch, Education Review Office, Wellington, New Zealand

Tribute to Art King ............................................................................................................ 6
Donald B. Young, University of Hawaii at Manoa, USA

Articles

Olympism, China and the call for an Olympic pedagogy .............................................. 7
Ian Culpan, College of Education, University of Canterbury, New Zealand

Learning in the museum: A case study ............................................................... 17
Joe Tin-yau Lo, The Hong Kong Institute of Education, Hong Kong

Exploring Fijian high school students’ conceptions of averages .......................... 29
Sashi Sharma, School of Education, University of Waikato, New Zealand

To what degree do immigrant entrepreneurs need formal education? The influence of formal and informal learning on entrepreneurial behaviour among Chinese, Dutch, Indian and Pacific Peoples in New Zealand ....................... 46
Huibert (Herb) de Vries, Department of Management, University of Canterbury, New Zealand

Ongoing challenges with language curriculum innovations in Asia: A South Korean case study ................................................................. 59
Jocelyn Howard, College of Education, and Susan Millar, Bridging Programmes, University of Canterbury, New Zealand

The application of games in teaching and learning volleyball in physical education lessons ........................................................... 76
Alberto Cruz, The Hong Kong Institute of Education, Hong Kong

About the Authors .............................................................................................................. 92

The Pacific Circle Consortium for Education ............................................................... 95
Members of the Consortium ....................................................................................... 95
Officers of the Consortium ......................................................................................... 95
Subscription for Hard Copy ......................................................................................... 96
Notes for Contributors ............................................................................................... 96
Guidelines for Submitting Manuscripts ..................................................................... 96
Editorial

Carol Mutch, PhD, Education Review Office, New Zealand

Education is a context-bound enterprise. These contextual influences can be historical, geographical, political, social, cultural, economic and/or religious. Global and local contextual influences come together in the many schools and classrooms in the Pacific-Asian region. This issue of Pacific-Asian Education reflects the contextual influences and tensions faced by educators at all levels of the system across a range of Asian and Pacific countries.

The first article by Ian Culpan draws together history, politics, sport and education as he discusses Olympic pedagogy in the light of the most recent Olympic Games in Beijing. Culpan declares his interest in Olympism as the possibilities it offers to educate youth – through sport – to contribute to a better, less divisive world. Such a philosophy, grounded in social justice, “critical in nature; emancipatory in action” can too frequently be sidelined by national and global politics. Culpan challenges the International Olympic Committee to take a leadership role in establishing an Olympic pedagogy that will “address, expose, and work towards transforming the issues associated with nationalism, industrialisation, sustainability, social justice, equity and internationalism”. This article gets to the heart of the purpose of education – what kind of young people do we want to prepare for the world of the future? Readers unfamiliar with Olympism as a pedagogy will find this article informative and those already aware of its aims will find it illuminating as it challenges some of Olympism’s underpinning assumptions.

The second article focuses more on the ‘how’ of education but is no less challenging as it holds common teaching practices up to scrutiny. Many education curricula encourage teachers to find authentic contexts and to make use of opportunities for education outside the classroom. Joe Tin-yau Lo wanted to explore the congruence between Hong Kong teachers’ aims for using the museum as an authentic context (the planned curriculum) and what students gained from the visit (the experienced curriculum). Through a five-phase multi-method study, he moved from lofty teacher aims to student learning and perceptions. The vivid descriptions of the museum visit will strike a chord with many of us. His conclusion was that, despite the best intentions of teachers, the strategies they used meant that student learning was “flimsy, inadequate and incidental”. Lo offers a range of solutions from the literature and his own findings to improve this situation.

Sashi Sharma’s article also explores curriculum and pedagogy at the level of what is experienced, through the teaching and learning of statistics within the mathematics curriculum. Because of its relevance to everyday life, statistics has become a more significant aspect of mathematics curricula. Sharma’s study explored the statistical understanding and processing of form five Fijian high school students through the lens of their concepts of the ‘mean’ or ‘average’. This research showed that most students had only ‘procedural’ understanding of the mean and related concepts such as the median. The concern is raised that although most teachers try to relate mathematics to the real world, students fail to connect the concepts and procedures they learn at school with real-life situations as they encounter them. Sharma raises the implications of these findings for mathematics teachers and provides some strategies for them in order to enhance student understanding of this fundamental concept.

The fourth article, from Huibert (Herb) de Vries takes us into a wider world of education – the importance of formal and informal learning to different groups of immigrant entrepreneurs in the multi-cultural context of New Zealand. Many immigrants tend to take up entrepreneurial activities in their new countries, and this is also the case in New Zealand. In order to know
what the educational needs and interests of this group are, it is important to understand their varying backgrounds, experiences and aspirations. In his study, de Vries interviewed immigrants from Chinese, Dutch, Indian and Pacific Island backgrounds. His study broke down the stereotype of immigrants as “under-resourced and uneducated”. The participants in this study, in general, came with higher qualifications and levels of experience than their respective populations within New Zealand. They highly valued both formal and informal learning and saw this learning process as on-going.

Jocelyn Howard and Susan Millar were interested in whether the findings of a study conducted by in Canada by Li (1998), which looked at the difficulties in implementing communicative language teaching (CLT) in situations where English was taught as a foreign language, still held true after intensive education reforms in many Asian countries. CLT is a more learner-centred and experience-based pedagogy which can be seen at odds with teaching and learning practices in non-Western countries, for example, those with a strong Confucian base. Howard and Millar drew their sample from a recent group of Korean teachers studying in New Zealand and yet found many parallels with Li’s earlier study. Teachers still face personal, ideological, institutional and classroom barriers in implementing CLT. Howard and Millar’s study will resonate with many readers of this journal as they recognise the contextually-situated difficulties these teachers face and how they struggle with the lack of alignment between educational and societal goals and the reality of the situations in which they find themselves teaching.

The final article examines in depth learning strategies to improve student motivation, interest and skill in physical education through the game of volleyball. Alberto Cruz from the Hong Kong Institute of Education worked with two experienced secondary PE teachers and using an action research methodology they continually refined the teaching strategies that would best meet their aims. As well as providing a comprehensive overview of the literature, this article provides a detailed description of how the teachers and their mentors used a variety of research techniques to gather data, feed it back into their teaching design, and continually monitor the changes taking place. This makes this article of interest to teachers outside the physical education context, who might wish to work collaboratively to improve their teaching practices and, ultimately, students’ engagement and learning.

Carol Mutch
General Editor
2009

A Tribute to Art King

Arthur R. King Jr.
1921–2009
Emeritus professor Dr. Arthur R. King, Jr., visionary founder and long-time director of the Curriculum Research & Development Group (CRDG) at the University of Hawai‘i, and founder member of the Pacific Circle Consortium, died February 2, 2009 in Honolulu. He was 87.

King was born and raised in Portland, Oregon. His grandparents were among the wave of pioneers who travelled there from Kansas across the Oregon Trail in a covered wagon. He was the first member of his family to attend college, and he lived his life as a spirited and joyful champion of the best college-preparation, liberal arts education for all students.

King was a veteran of World War II in the Pacific where he served aboard the USS Guam as a naval officer. Following the war, he remained active in the US Naval Reserve until his retirement in 1981 at the rank of Captain after 37 years of service.

Having earned his BA from the University of Washington in 1943, King returned after the war to his formal education, studying at University of Hawai‘i’s Teacher’s College and teaching at Punahou School from 1946 through 1949. He completed an MA and EdD at Stanford University and then served as Director of Curricular Services for the Sonoma County Schools. In 1955, he joined Claremont Graduate School as an associate professor of education where he remained until 1965.

King returned to the University of Hawai‘i in 1965 as a member of the research faculty in the College of Education. In 1966, he and John A. Brownell produced their ground-breaking book *The Curriculum and the Disciplines of Knowledge: A Theory of Curriculum Practice*, articulating the theory that each of the disciplines of knowledge had its own mode of inquiry, specialized language, heritage of literature and artifacts, and traditions, and that the community of scholars these domains created should be the basis for liberal and general education. King was able to put his theory into practice when Dean Hu Everly charged him with reorganizing and repurposing the University Laboratory School to create a center for curriculum development. The center he created and directed for nearly forty years was based on the notion of the classroom as a community of scholars and cast each student into the role of authentic practitioner. The work that he led, and that CRDG continues to do, has resulted in cutting edge research, curricula based on inquiry within the disciplines of knowledge, and professional development programs that have impacted generations of educators in Hawai‘i and around the world.

Following his retirement in 2003, King remained active in the CRDG family, writing a history of the unique experiment that became CRDG and University Laboratory School and developing a thesis on schools as systems. His belief in and commitment to a quality liberal arts education for all sustained him through political and economic challenges and is the foundation of CRDG’s enduring success. The depth and breadth of his knowledge and leadership, along with his vision for creating and sustaining a university-based R&D center with a real-time school as a laboratory remain the foundations of the internationally recognized organization he created and led for so many years.

His visionary work also inspired many of his international colleagues in the Pacific Circle Consortium and his legacy will live on in the hearts of many and through the numerous projects that aim to meet the ideals of education as expressed in King’s philosophy and life’s work.

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Olympism, China and the Need for an Olympic Pedagogy

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Abstract

The International Olympic Committee’s (IOC) quest to contribute to building a more peaceful and better world by educating youth through sport, clearly locates Olympic education in a central position. The Beijing Olympic Games have identified three major themes which the organizing committee anticipates will be significant Games legacies and these have been discussed in light of issues and concerns around Olympism, the Games and sport. While these legacies might be problematic on a global scale, the themes that the organizing committee identified have been supported by a massive Olympic education programme which this article suggests may not be maximized because of the lack of an appropriate Olympic pedagogy. Drawing on the work of a number of scholars, this article calls for the IOC to take a significant leadership position in Olympic education by adopting an Olympic pedagogy that is critical in nature and emancipatory in action.

Introduction

The promotion of Olympism, by educating youth - through sport - to contribute to a peaceful and better world, provides the fundamental mission of the Olympic Movement (International Olympic Committee, 2007) (IOC). The Olympic Charter (IOC, 2007) clearly outlines the IOC’s education mission through fundamental principles that provide a most idealistic, noble and potentially uplifting view of Olympism and the place of sport within that framework. This education mission is the IOC’s greatest challenge.

This article sets out to fill a specific gap in Olympic education literature by discussing three variables (the philosophy of Olympism, possible Games legacies relating to this philosophy and education) and arguing for a specific pedagogy in order to make Olympic education more effective in schools and universities. In particular the purpose of this article is to briefly explore, define and contextualise Olympism and its relevance to today’s contemporary world and identify and to critically discuss the possible legacies of the “humanistic Olympics” of the Beijing Games. The article will then argue that, for the legacies of Olympic Games to be enduring, the IOC needs to provide leadership around Olympic education by adopting an Olympic pedagogy that is critical in nature and emancipatory in action.

As Bale and Christensen (2004) record: “Olympism has been a proletyzing religion, a movement that the modern founder (de Coubertin) wished to diffuse to all parts of the world” (p. 20). De Coubertin wished to create a new “human springtime” by ensuring that the Olympic Movement could rise above the mundane day-to-day drudgery and establish a calling for the youth of the world to participate in the revitalization and re-nourishment of the human spirit (Muller, 2000). While de Coubertin envisaged such lofty and noble outcomes in the late 19th and early 20th centuries, Culpan (2006, 2007) argues that the Olympic Movement has lost sight both of de Coubertin’s vision and of its mission and role, despite its Olympic Charter (IOC, 2007). Culpan (2006, 2007) has identified, from the Olympic Charter (IOC, 2007), key statements about the role of the IOC that are educationally relevant to contemporary times. The key statements relevant to this article assert that the IOC’s role is to encourage and support the promotion of ethics in sport as well as education of youth through sport, and to dedicate its efforts to ensuring that, in sport, the spirit of fair play prevails and
violence is banned. In effect, the IOC endeavours to place sport at the service of humanity and thereby promote peace (IOC, 2007).

While Culpan (2006, 2007) questions the effectiveness of the Movement in achieving its goals through the promotion of Olympism, other scholars (e.g. Damkjaer, 2004; Simonovic, 2004; Wamsley, 2004) question the relevance of Olympism in contemporary times. Central to their critique is that Olympism is a universal concept whose conceptualisation and philosophical underpinnings are rooted in modernity. Such scholars argue that contemporary thinking is characterised by a plethora of ephemeral arrangements (Damkjaer, 2004) and that due to this diversity “there is no immutable code of Olympism – what is acceptable has been modified over time and is interpreted differently from place to place” (Bale and Christensen, 2004. p.3).

Parry (2006) argues that Olympism is a universal concept but the interpretation of the concept is culturally located as the meanings generate their own understanding, language and practice. DaCosta (2006) supports this by suggesting that Olympism is manifested through contextual expressions located in culturally specific environments. Notwithstanding these arguments, the Olympic Charter (IOC, 2007) provides a very clear and concise definition of Olympism.

Defining Olympism

Olympism can be defined as learning a particular set of life principles through the ethical practice of sport. The IOC claims that Olympism is a way of life that blends sport with culture and education. It promotes that way of life through the balanced development of body, will and mind; the joy found in effort; the educational value of being a good role model and observing the universal ethics of: tolerance, friendship, unity, non-discrimination, generosity, and respect for others (IOC, 2007).

The literature records the contradictory tendencies of Olympism, the Olympic Movement, and the Games. Some scholars, (e.g. Simonovic, 2004; Walmsley, 2004) argue that Olympism was the double speak of the late 20th century. It was complicit in the colonisation process, used explicitly to promote Eurocentric values and as a legitimating commercial tool to shift vast sums of money to capitalist societies - all in the name of competitive sport. Walmsley (2004) further argues that in the 21st century, Olympism, and the Olympic Games cannot achieve what they set out to do. Firstly he claims that there is no responsibility in the process of achieving the goals that Olympism, the Games or the Movement has. Walmsely (2004) argues that the promotion of Olympism is unregulated by the IOC and unaccountable to it. For instance he maintains that:

The kind of ideals that Olympism lays claim to cannot be engaged at the level of spectacle, performance ceremony – or at the level of the national, religious, the legal. Peace, equality and human rights are far too important to be relegated to the abstract or the institutional and must be inherently embraced at the level of the personal….Standing shoulder to shoulder in a stadium is exciting, perhaps uplifting for some, but has nothing to do with addressing social issues and other people directly and it says nothing about the problems endemic to sport itself. (p.241)

Secondly, Walmsely (2004) argues that the IOC neglects opportunities to examine and lead the sportive process. The IOC fails to act reflectively or proactively but reacts to the ‘visible symptoms of a crisis’ in politically expedient ways and blames participants of sport for what are endemic problems. Examples of such actions are the apologetic nature of charters, lists of ethics, organisations established to confront problems and the plethora of Olympic education programmes with negligible worth. Walmsely (2004) suggests the contradictions inherent in 20th century Olympism cannot be resolved while the Games continue to exist. He concludes
that the philosophy and intent of Olympism could well triumph without the contradictory practices of the Games.

Despite the many critical analyses, the IOC continues to be extraordinarily popular. Its brand, the Rings, is arguably one of the most recognisable symbols in the world today. In recognising the power of the ‘brand’, China, in organising Beijing 2008, consistently and systematically set out to achieve outcomes designed to leave a number of significant legacies.

**The Intended Legacy of the Beijing Games**

The hosting of the Olympic Games in Beijing in August 2008 came at a critically interesting time in global and national politics. The Games occurred at a time when China was emerging as a powerful economic, geo-political force, keen to realign its national identity. Furthermore the Games came at a time when China’s human rights record in Tibet, in particular, was under scrutiny and its involvement in propping up North African political regimes was drawing criticism from the West. Xu (2006) suggests that China was determined to show the world, through the Games, a celebration of a renaissance of Chinese culture and the harmonisation of world civilisations (p.90). This was exemplified through the *One World One Dream* slogan that gave rise to the over-arching theme of the Games. According to Jin (2007), “the world gave China 16 days but in return China gave the world 5000 years” (p.1).

The overall theme of the Beijing Games indicated some sort of global harmony and a convergence of East /West ideologies rather than just a Western interpretation. This was China’s stated goal, although the Eastern conceptualisation was in fact Chinese. Ren (2002) records that harmony is central to Chinese philosophy and culture and this humanistic position is often referred to in Confucian doctrine as the ‘universal path’. Here the virtue of harmony is the rule of propriety, where the collective spirit is more important than individualism and the natural environment must be integrated with all human endeavours. Ren (2002) argues that these harmonising characteristics would compensate, and indeed rectify, Western conceptualisation of the sport culture.

Ren (2002) provides four examples of how these compensations and rectifications were to be addressed through Chinese culture. Firstly, he asserts that Chinese culture, with its emphasis on the mental and moral aspect in comparison with the physical, would strengthen the Olympic ideal. Secondly, he suggests that Chinese culture, with its emphasis on internal body training, would counterbalance the external body training stressed in Western sport. Thirdly, that the emphasis on the process of sport games would help to set up a healthy relationship between the outcome and process of sport and make people more reasonable towards winning and losing. Finally, he asserts that the Chinese emphasis on harmonious relationships with the natural world would help the Olympic host cities to take greater care over the ecological problems generated when planning and building sport facilities (p.12). Exactly how these rectifications would occur was very unclear and as Ren declared, “it will be fascinating to see how the practice and theories of Chinese sport could contribute to the Olympic Movement” (p.12).

On the other hand Huntington (1993) suggests the West is presently at its most politically powerful and, as a result, it is tending to use international institutions to “run the world in ways that will maintain Western pre-dominance, protect Western interests and promote Western political and economic values” (p.40). This raises an interesting question around the Beijing Games in terms of their legacy. Did, for instance, Western capitalism make use of the IOC to manipulate China into embracing Western thought, economics and cultural practices? Or did China, in its quest to become a more contemporary civilisation, attempt to accommodate such contemporary practices and harmonise them with their own culture and values. In other words, did China use the Games for its own political and socio-cultural advantage?
Brownell (2004) alluded to similar questions: „Will Olympism change China?’ and „Will China change Olympism?’ Brownell (2004) argues that „will Olympism change China?” is a Eurocentric, colonising question that locates the Western values of Olympism, sport and the Games as some sort of superior practice philosophy which will serve to rectify deficiencies that might exist in China (e.g. human rights issues). Brownell (2004) pointed out that “the changes that the West hopes will be brought to China by the Games are not exactly the same changes that the Chinese themselves hope for” (p.60). Conversely, Jin (2005) suggested, prior to the Games, that the Beijing Games would serve to reignite and reactivate the Chinese concept of humanism. Indeed the concepts of „humanistic Olympics”, along with „hi tech Olympics” and „green Olympics” served as the three major themes of the Beijing Games.

For the Chinese, humanism has been a core historical, socio-cultural construct. Xu (2006) reports, that by hosting the Games, China had the opportunity, in the face of vast and rapid industrialisation, to reconstruct the value system of Chinese civilisation. There were three thrusts to this reconstruction. Firstly, it was to reconstruct China’s value system in order to address the latent tendency to individualism (a result of China’s massive drive to industrialisation) as opposed to the traditional emphasis on collectivism. The aim was to present a Chinese culture to the world that was harmonised and enduring. Secondly, it was to present China to the world as a country that could mobilise its vast resources in a most scientific manner, characterised by well-developed, well-balanced and well co-ordinated systems. Thirdly, the Humanistic Olympics would allow China to be perceived as a democratic country emphasising individual and collective wellbeing. The three thrusts would serve to foster and redefine China’s political and national identity so as to be aligned with traditional and universal values that would have synergy with the quest to achieve economic sustainability (Xu, 2006).

However this harmonising quest, through humanism, was considered to be problematic. There were significant challenges involved in presenting a unified China with civilised nationalism that contributed to China’s continued economic development, and at the same time demonstrating to the West how the East/West divide could be bridged. Indeed, the real danger was for China to regress to the 1980’s strategy of Deng Xiaoping whose ambition was to accelerate China’s development by emulating the West in a controlled manner. Part of this strategy was to use sport, and its inherent competition, as a vehicle of activism which would motivate people to achieve and excel. As Hong (1998) argued back then:

The spirit of the Olympics injects a new energy to our nation…. It not only has actual significance in stimulating the national spirit but also has a deep value in shaping the character of a new generation of the people. (p.157)

The energy that Hong (1998) talked about was the energy of nationalism (Jin, 2007; Ren, 2002; Xu, 2006). But what of the internationalism that de Coubertin dreamed of and promoted through Olympism and the Games? Carrington (2004) argues that internationalism is a doctrine that promotes co-operation and harmony amongst nation states, allowing each particular state to maintain its own cultural identity but in the absence of real understanding that addresses the injustices associated with colonialism, imperialism, racism and bigotry. If this was China’s quest in staging the Games, then there seems little hope of the East/West or the West/Rest divide being bridged. What may well eventuate, in time, is simply a manifestation of Olympic humanism that has shifted from a Eurocentric view to a Chinese interpretation, which highlights and celebrates cultural difference through individual achievement and greatness, while at the same time promoting the importance of national allegiances. The effect of this will be an absence of deep, underlying socio-cultural meaning (and the acceptance of the diversity inherent within it), all in the name of economic development and the absence of global harmony and true universalism. As Davies (1997) cited in Carrington (2004) argues:
Like Olympism, and often for very similar reasons, humanism itself has been dismissed as an ideological smokescreen for the oppressive mystifications of modern society and culture as well as causing the marginalisation and oppression of the multitudes of human beings in whose name it pretends to speak. (p. 83)

Carrington (2004) argues that new and fresh thinking needs to be given to Olympic humanism. He argues that, given Western society’s quest for globalisation, Western interpretations of Olympic humanism are no longer appropriate. He suggests that, instead of promoting the virtues of internationalism, the Olympic Movement would be better suited to promoting cosmopolitanism which addresses the global civil society where individuals within are world citizens, united by the common trait of simply being human. In effect, cosmopolitanism sees nationhood as “an enabler for people, communities and organisations to develop transnational global institutions” (Carrington, 2004, p.86).

What Carrington argues is that the focus on internationalism, with strong ties to nation states, is exclusive. It excludes the “otherness of the other”, whereas the cosmopolitan perspective includes the “otherness of the other” (p.86). Applying this concept to humanism and Olympism, Carrington proposes that the Olympic Movement could adopt ‘Cosmopolitan Olympism’ which challenges the importance of national teams, nationalistic symbolism, emblems and allegiances, and decentralises the nation-state. He argues for a better sporting democracy where individual and collective achievements are celebrated, social justices are sought and deficits in the promotion and upholding of human rights are addressed. This could be a much more evident role of the Olympic Movement. China was well placed to shift the Olympic Movement from Eurocentric Olympism humanism which privileges the West over the Rest to a more Cosmopolitan Olympism. That is to an Olympism that is not dependent on displays of nationalism or of racism but an Olympism that vigorously pursues social justice through sport and addresses human rights issues through practical investigations of the ethical underpinnings of global citizenship. By pursuing these goals the humanitarianism that the Olympic Movement claims to promote maybe well be realised and may be China’s greatest lasting legacy. Idealistic as this is, China did have the opportunity to bring the West/Rest together. However the fear remains that the legacy, in time, will be simply an emulation of the commodification of sport and the further de-humanisation of the athlete.

Brownwell (2007) points out that, while scholars argue about the possible legacies that the Beijing Games might leave China and the world, the effect is influenced by long-term processes. For instance, Brownwell (2007) reported that at the 2002 Symposium on the Legacy of the Olympic Games it was pointed out that culture is the ultimate source of other legacies. That symposium also pointed out, in relation to the value of Olympic education, that:

Many of the interventions, from references to sustainability, to those relating to politics and culture or the social benefits of the Games, have advocated the necessity for Olympic policy to focus maximum on education. These education projects should be connected to Olympic legacy projects, for example Olympic education’s role in achieving a model of sustainable development. (IOC, 2002. p.2)

**Olympic Education and the Need for a Critical Pedagogy**

What has been discussed earlier can be located as socially constructed, contestable education issues. With a coherent, systematic and pedagogically driven Olympic education programme, many of the issues and much of the criticism levelled at the Olympic Movement, Olympism, sport and the host city’s agenda for the Games could be addressed. For instance Walmsely’s
(2004) argument of the IOC not acting in a reflective or proactive manner, China’s attempts to reconstruct its values system and mobilise its vast resources as a result of the Games, Hong’s (1998) analysis that the Games would inject and stimulate a new national spirit in China and Carrington’s (2004) call for a „Cosmopolitan Olympism”, strongly suggest that fresh thinking, with regards to what the Olympic Movement is actually achieving through the Games, is needed.

Given these concerns, it is argued here that there is now an urgent need for an Olympic pedagogy to be consistently applied to Olympic education programmes across the world. These programmes would focus on and address issues of social justice, equity, nationalism and cosmopolitanism in relation to the Olympic Movement and Olympism. Using Walmsley’s (2004) criticism relating to the apparent inertia of the IOC and its need to be more reflective and proactive, it is argued here that in the post China Olympic Games period the IOC would be well advised to provide strong leadership in Olympic education to ensure that the legacies that result from future Games actually address many of the issues identified in my earlier discussion. The Olympic pedagogy that is suggested would need to be critical in nature and emancipatory in action. At present Olympic education has no discernible pedagogy despite the philosophical positioning of Olympism in a humanist paradigm. The opportunity for Olympic education to develop a humanist pedagogy, a „pedagogy of reasonableness” (Bain, 1997) is yet to be addressed by the IOC. Instead present Olympic pedagogy is given no particular direction and as a result floats and stutters between common sense technocratic discourses and the scientific functionalism of behaviourist pedagogy. This floating and stuttering arrangement is neither coherent nor pedagogically enhancing. What is being promoted in this article is the need for a humanist-critical pedagogy which draws significantly from the critical paradigm while at the same time adhering to the humanist ideals contained within Olympism.

Contemporary Olympic education programmes are dominated by two popular models (Binder, 2005, 2001 and Culpan, 2001, 2007, 2008) neither of which focus on content associated with some of the pressing issues discussed above. Instead the first model positions itself within a very descriptive and theoretical framework, lacks an identifiable pedagogy and holds little relevance for learners and the community within which they operate. The other popular Olympic education model is characterised by mass-produced Olympic Kits focused on across-the-curricula aspects of the Olympic Games. The second option tends to be a programme re-visited every four years to coincide with the Olympic Games. As both Binder (2005) and Culpan (2008) argue this is not the Olympic education philosophy and values driven programmes that are going to provide enduring educative and cultural meaning for learners. Nor are they programmes that will address problems associated with nationalism, social justice, equity and cosmopolitanism as discussed earlier. Instead, these programmes are selected history and science based content and happenings, facts and figures about the Olympic Games with most content heavily laced with nationalism and fleeting reference to the benefits of internationalism. In some instances, of course, these types of programmes might have Olympians telling children their stories. Whilst these programmes may contain some merit (although this is doubted by Hindson et al. (1994) and Hogan and Norton (2000)) they are, generally, not driven by Olympism, contain negligible relevance and meaning, have no discernable pedagogy and are almost certainly not manifested through physical education and sports’ programmes. In fact, as Culpan (2008) argues, both alternatives lack on-going coherence and sustained educational benefits. In many cases this sort of Olympic education is "ideological inscription" and almost certainly lacking a critical pedagogical base.

Indeed, if the Olympic education programmes are to focus on Olympism as its founder, de Coubertin argued, then the case for Olympic education to be predominately delivered through physical education and sports’ programmes is strengthened. The logic of this argument is found in the belief that Olympism is manifested through the ethical practice of sport. Mere „classroom talk” is at variance with Binder’s (2005) position that for Olympic education to be
meaningful, it needs to be seen as values education where the imagination, emotions and inclusive possibilities are encouraged so that a more equitable world might result. Culpan (2008) argues that what Binder (2005) is attempting to foster is the development of a consciousness around the Olympic Movement, the Olympic Games, Olympism and its values and sport. As McLaren (2003), Apple (2003) and Brookfield (1995) argue, it is the concept of conscientisation with a requirement for justice, equity and action through social transformation that will, as Green (1995) states, “open our eyes to worlds beyond our experience – enabling us to create care for others and envisage social change” (p.13).

For Olympic education, Culpan (2007, 2008) has taken the lessons from pedagogy and more specifically physical education pedagogy and argues for an Olympic pedagogy that is critical in nature and emancipatory in action. His argument is that the implementation of a pedagogy associated with critical humanism and drawing significantly from the critical paradigm gives Olympic education a tighter and more relevant focus.

The pedagogy promotes critical thinking and questioning about sport and the role of the Olympic Games within society. It also, can lead to informed actions regarding issues in sport and the Olympic Movement that affect individuals personally and the social communities in which they live. (Culpan, 2007. p.147)

While it is important to acknowledge the comprehensive Olympic education programme that China/Beijing 2008 mounted through the Beijing Organising Committee, in partnership with the Beijing City Commission, the programmes fell into the trap of their predecessors by reproducing an extensive Olympic education programme based on ineffective models outlined above. The programmes neither addressed issues inherent in the Olympic Movement, Olympism, the Games or sport, as discussed earlier, nor were they soundly located within a pedagogical base. Hence, it is likely (although it maybe too soon to judge) that the Olympic education programmes of Beijing will, over time, fail to address issues of concern that the Olympic Movement so desperately needs to have addressed. For there to be any lasting legacy from the Beijing Games, education needed to be critical in nature and politicised accordingly.

For Beijing, the Olympic education programme could have become more political in addressing issues around sport, issues around economic growth, sustainability, global humanism and cultural interdependence through the promotion of cosmopolitanism as opposed to an East/West divide. It could have achieved this through relying on education as being a critically processed product upon which much of the rest of the world is becoming increasingly socio-culturally dependent and inter-dependent. Failure to achieve such an outcome rests with the IOC who seem to display „wilful blindness“ by refusing to lead the promotion of Olympism, refusing to take social and critical action on issues that have become systemic to the Movement and by refusing to lead in developing and guiding the direction, content and pedagogy of Olympic education programmes. This leadership would be, of course, political in nature, but as Houlihan (2003) argues, the involvement of government in sport policy development is no longer feared and the IOC, with a mandate to govern the Movement, has an opportunity to ensure such future practice. This practice would be characterised by promoting an Olympic pedagogy for Olympic education programmes and ensuring that programmes developed actually focus on, and address, issues that education can legitimately address. This practice could be a condition of winning the bid to host the Games.

It is only through promoting a more political view of Olympic education, characterised by critical pedagogy, that Olympic education can become effective in addressing the issues of nationalism, social justice, equity, cosmopolitanism and, of course, the use of the Games as a commodified resource to promote industrialisation, capitalism, and globalisation. Olympic education could use the medium of the Games to better locate sport as a vehicle for “the
harmonious development of people with a view to promoting a peaceful society concerned with the preservation of human dignity” (International Olympic Committee, 2004, p.9).

This argument provides a significant leadership challenge to the IOC. The introduction of an Olympic education programme, with an appropriate critical–humanist pedagogy, across the world, necessitates a departure from existing practice. It necessitates confronting the issues outlined above and acknowledging that if the Charter is to become a ‘lived experience’ then a serious overhaul of present practice is required. The IOC would need to actively promote the philosophy of Olympism rather than keep it as its ‘best kept secret’. It would need to seek ways in which it could more carefully balance the economic imperatives associated with the contemporary Games era and systematically promote a range of education programmes that are culturally relative, culturally responsive and more pedagogically sound. This could be initiated through meaningful physical education and sports based programmes in schools. By working alongside educators in order to promote the true value and meaning of physical education and sport, rather than be seen to subscribe to an elitist reinforcement of existing problems associated with justice, equity and internationalism, the IOC would significantly remove many of the barriers associated with the public perception of what they are attempting to achieve. If this was to be worked towards - the virtuous person and community through sport - it is envisaged that educators would be quick to endorse this positive IOC initiative.

Conclusion

This article has briefly defined and outlined Olympism and its relevance to the contemporary world, particularly as an educative philosophy. In doing this, the original intentions of de Coubertin and the problems associated with claiming Olympism as a universal, unproblematic philosophy have been discussed. The article asserts that while scholars debate issues around Olympism, Olympism can be seen as a universal concept but the interpretation of such is culturally located. In culturally locating Olympism the article has highlighted how China, through the Beijing Games, has taken the Olympic philosophy and used the Games as a resource in an attempt to leave an enduring legacy. The Beijing Games set out to showcase China to the world, particularly in terms of its culture, humanism, and its democratic quest for industrialisation and the reinforcement of its own nationalism. While these have been discussed and highlighted as problematic, it is too soon, particularly for the Beijing Olympic education, to assess China’s success in achieving the intended legacy. Recent events around the global economic crisis have shifted attention away from the ‘Beijing legacy’. However, on a global scale, China’s push to develop an Olympic humanism may have been lost in the euphoria of its ‘technological showcase’ and demonstration of a massive mobility. The legacy may also have been lost in the euphoria of excellence in sporting performance obtained by Chinese athletes. Certainly this performance fuelled the nationalism that Carrington argues is problematic but which China aspired to. It would seem that China’s Olympic success has done little to confront the problems that Walmsley (2004) and Carrington (2004) identify. It seems, at this point, that China did achieve many of its goals but it is debatable as to whether the much needed ‘global legacies’ have been achieved.

It is apparent education, as a political tool, is crucially important in the legacy process and ongoing Olympism development. The major argument presented in this article is that for Olympic education to be effective it needs to move away from ideological inscription and adopt an Olympic pedagogy critical in nature and emancipatory in action. It needs to really address, expose and work towards transforming the issues associated with nationalism, industrialisation, sustainability, social justice, equity and internationalism. Instead though, China adopted a restricted Olympic education programme which, grand as it is, will probably miss the opportunity to leave an enduring legacy around such issues. This is most regrettable and the article concludes by arguing that if the true potential of Olympic education is to be maximised then the IOC must take leadership in promoting and implementing an Olympic pedagogy that is emancipatory in nature and characterised by social action.
Note
This article builds on the academic arguments presented at two international, peer reviewed conferences in Beijing relating specifically to Olympic education. Reference to these two presentations appears in the reference list below under Culpan (2007) and Culpan (2008).

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Learning in the Museum: A Case Study

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Abstract

This paper aims to analyse the curricular connectivity between formal learning in the classroom and informal learning experiences in the museum, and to explore the perceptions of the teacher and students on learning in the museum. It is expected that the findings could shed light on how the linkage between formal classroom learning and informal learning experiences in the museum could be strengthened so that life-wide learning could be more effectively implemented.

Background

A majority of researchers have found that learning in the field generally deepens students’ understanding, stimulates their interest in learning, engages them in active and meaningful learning, and provides a platform to link or integrate various disciplines in the learning process. In addition, learning in the field promotes learning in the cognitive, affective, psycho-motor and inter-personal domains, and ultimately aids in connecting classroom learning with real objects or contexts (Allen, 2002; Barnett et al., 2006; Boyle et al., 2007; Cunniff & McMillen 1996; Falk & Dierking, 2000; Hamilton-Ekeke, 2007; Kent, Gilbertson & Hunt, 1997; Kisiel, 2006; Knapp & Barrie, 2001; Manning et al., 1998). These distinctive features will be used as conceptual resources and lenses for the study on museum learning that follows.

In recent times, some researchers have focused on the study of museums as a channel of informal learning and their increasingly important role in education. These researchers have focused on: the characteristics and nature of museum learning (Rennie & Johnson, 2004); worksheets and museum learning (Kisiel, 2003); educational values and learning outcomes of museum education (Bamberger & Tal, 2008); mediation of chaperones (Sedzielarz, 2003); and teachers’ use of site-based materials (Noel & Colopy, 2006).

Concurrently, some scholars and educators have also deliberated on the inter-relationship or linkage between informal, enacted and learned curriculum, in connection with the formal, planned and taught curriculum as prescribed by the central/national curriculum and implemented by teachers (Anderson & Zhang, 2003; Darling-Hammond et al., 2005; Lave & Wenger, 1991; Morris, 1995). Nonetheless, the curriculum fit and connectivity between informal museum learning and formal classroom learning has been under-researched (Kisiel, 2003; Metz, 2005). This paper is an in-depth case study that aims to analyse the curriculum fit and connectivity between museum and school learning, while at the same time exploring the perceptions of teachers and students on teaching and learning in the field of museums.

Context

The concept of learning in a museum or field-based context has received increasing attention in many countries (Falk & Dierking, 2000; Hooper-Greenhill, 2007; Kisiel, 2003; Leinhardt et al., 2002). In Hong Kong, the reform proposals for the education system and the Personal, Social and Humanities Education Key Learning Area (PSHEKLA), advocate that learning should transcend the constraints of subjects and examinations. It is expected that the integration of various forms of formal, non-formal and informal learning activities within and outside the classroom will progressively enable students to have an interesting and diversified
learning life, help them cultivate an interest in learning positive values and attitudes, and develop their analytical and independent thinking, analytical skills, creativity, and communication skills as well as their commitment to society and to the nation. To go beyond the confines of their classrooms in designing learning activities, teachers are encouraged to make use of libraries, museums, resource centres, public and private institutions and the countryside, as favourable venues for learning to learn (Curriculum Development Council, 2002; Education Commission, 2000). To address such particular concerns in educational reform, this paper specifically focuses on two major questions:

1. How do teachers and students perceive learning in the museum? Is there any difference in their perceptions on the subject?

2. What is the linkage or the gap between the planned and taught curriculum on the one hand and the learned curriculum on the other in the context of museum learning?

**Method of Study**

This case study adopts a multi-method approach for the purposes of data collection and analysis: questionnaire survey, interview, participant observation and documentary analysis. This multi-method approach enables the researcher to make use of data from various sources to cross check and validate the findings (Patton, 1990). In essence, this study aims to catch the complexity of a single case with thick descriptions rather than looking for generalisations (Stake, 1995; Stanley, 1986; Yin, 1994). The case itself cannot be a strong representation of all other cases with a similar nature. While this case study is “a-theoretical” (i.e. it does not cumulate or contribute directly to theory-building) (George & Bennett, 2004), it is illuminative in examining critically teachers’ and students’ perceptions of museum learning and the connectivity between formal and informal learning experiences.

The research for this study was conducted in five phases. The first phase of the research was a questionnaire survey, conducted in 2007-2008, among a group of twenty-eight in-service teachers. They were participants in the Post-Graduate Diploma of Education Programme, at The Hong Kong Institute of Education (HKIEd), Hong Kong, taking a module on “Society and Culture” that embodied field-based learning as a pedagogical device. The survey generated data on the general perceptions and common practices of in-service teachers in field-based learning, which in turn, informed the researcher of the focus for the case study that followed. Having identified museum learning as the backdrop for the research, the researcher commenced the second phase with data collection, through personal communication, with an Assistant Curator of the Leisure and Cultural Services Department, on the general features and approaches through which teachers take advantage of, and utilize, museums as a conduit for informal learning.

To follow up with an in-depth case study on museum learning, the researcher identified an experienced teacher from the group as a subject. This teacher had five years’ experience in employing the resources of the Hong Kong Museum of History as a means for informal learning. Phases three and four consisted of participant observations of the pre-trip briefing and learning activities during the museum visit. Phase five was accomplished through participant observations of post-trip activities, followed by an interview with the teacher and a group interview with the six students recommended by him (based on diverse student learning abilities). Subsequently, the interviewees received the transcribed interview data for member-checks – sessions in which they reflected upon and discussed raw data and tentative findings (Merryfield, 1993). Finally, the various sources of data were cross-referenced and substantiated by relevant documents and literature in the analysis.
The Study

Phase 1: Background Study – Teachers’ Perceptions and Practices

Before planning for an in-depth case study, it was essential to explore the commonly prevalent perceptions and widespread practices amongst secondary school teachers in the broader area of field-based education, of which museum learning has been a major component. A questionnaire survey was conducted among a group of twenty-eight in-service teachers, who were attending the Post-Graduate Diploma of Education Programme at The Hong Kong Institute of Education, (HKIEd), Hong Kong, in 2007-2008. The module, studied by these teachers, was “Society and Culture”, which placed emphasis on the pedagogy of learning in the field. The return rate for the questionnaires was 100%, as the class size was not too large.

A majority of the respondents (60.2%) defined field-based learning as a way of collecting data or information from out-of-school venues, in order to widen the learning scope of students. In other words, they merely identified it as a channel to learn outside the classroom. Only 10.5% of the respondents perceived field-based learning as a means for students to apply the skills and concepts that they have learned in classrooms to real-life contexts. More than half (56.8%) of the respondents indicated that they had organised field-based learning trips in the past academic year. Among the respondents who had organised field-based learning trips, it was found that 38% had chosen to visit the Hong Kong Museum of History, 22% had selected the Science Museum as the venue for their field trip, while the rest had visited the countryside, parks, community centres, and government or non-government institutions.

In regard to the rationale or justification for organizing field-based learning trips, 32.4% of the respondents perceived that such activities could motivate students’ interest in learning, while 28.5% thought that students could learn more effectively by utilising community and field-based resources in authentic contexts and settings. Twenty-four percent of the respondents agreed that field-based learning trips could broaden student learning experiences, yet only 16.3% of them understood clearly that the trips could, in actuality, provide a platform for students to connect what they have learned inside the classroom (the formal curriculum) with learning outside the classroom (the informal curriculum). Hence, the connectivity between these two learning components was to a certain extent contingent, but not necessary.

The survey results elicited three major issues that deserve further study: 1) A majority of teachers prefer to make use of the Hong Kong Museum of History as a channel for field-based learning. But how do they utilise it for inquiry learning as advocated by the curriculum documents? 2) The respondents who had conducted field-based learning thought that it could arouse interest and awareness among students, and enable them to learn in real contexts and authentic settings. But in fact, what do students feel and what do they actually learn in such contexts? 3) The curriculum documents assume and take for granted that life-wide learning would enrich students’ holistic learning experiences through learning beyond the confines of the classroom. Life-wide learning is one of the foci of the education reforms in Hong Kong, as it can better equip students for attaining whole person development and developing life-long learning skills. But where is the „holistic“ linkage between the formal and informal curricula in the context of museum education?

Phase 2: Background Study - Making Use of the Hong Kong Museum of History

In order to gather background data and information on museum education as a channel for field-based learning, the researcher conducted a personal inquiry, through email communication, with an Assistant Curator of the Leisure and Cultural Services Department.
The inquiry revealed that the Hong Kong Museum of History was one of the most popular venues for site and object-based learning. On average, there were around 1300 school visits to the museum in the past academic year (2006-2007), with a marginal majority of them (50.2%) coming from the secondary school sector. The duration of these school visits usually ranged from two to three hours.

More than 60 per cent of the school visits requested guided tours by docents to lead the teachers and students through the different themes of exhibition. More often than not, the teachers relied on these docents to explain the exhibits to student visitors. The rationale behind this was that teachers did not always have the expertise or knowledge required to explain all the exhibits, although the museum staff did have organised workshops and seminars in collaboration with the Education Bureau and/or professionals. Moreover, according to the informant (the Assistant Curator), most of the teachers found the instructional resources (e.g. pamphlets, worksheets and resources package) designed by the museum expedient and beneficial for teaching and assessment purposes. It was, however, pointed out that the worksheets could hardly be revised from time to time, although they could be modified or updated in accordance with the new themes of exhibitions. The data, thus collated, provided the backdrop and “feed-forward” for the observations and interviews that followed. In particular, it was plausible that the means by which teachers used museum resources as a medium of teaching, learning and assessment would have a direct bearing and impact on the issues generated from the survey results mentioned above.

Phase 3: Learning Activities before the Trip

Having selected an experienced teacher as a case-study subject, the researcher made a decision to attend and observe his teaching activities before, during and after the trip. The focus of the trip was the permanent exhibition titled, “Hong Kong Story”, in the Hong Kong Museum of History. This focus was related to the theme of Hong Kong’s development, which was a part of the subject of Integrated Humanities at Secondary 3 level. Before the trip, the teacher spent one 35-minute lesson on planning and organization for the trip. Firstly, the teacher distributed a field-trip guide and explained the details to his class of thirty-seven students. The objectives of the trip were to: 1) deepen students’ understanding of Hong Kong through visiting the permanent exhibition; 2) develop their learning skills in data collection and interpretation; 3) foster love and an enhanced understanding of local and national communities; and 4) promote collaborative learning in the field. To a great degree, these objectives also tallied with the learning objectives of the Personal, Social, and Humanities Education Key Learning Area in Hong Kong (Curriculum Development Council, 2002) and the cognitive, psychomotor, affective and inter-personal dimensions of field-based learning as put forward by scholars in other parts of the world (Allen, 2002; Blais, 1999; Bloom et al., 1956; Boyle et al., 2007). Yet, the extent to which the planned and taught curriculum of the teacher could be reified in, and connected with, the learned curriculum of the students would need further investigation and exploration (Kisiel, 2003; Griffin & Symington, 1997).

After elaborating on the objectives of the trip, the teacher spent some time instructing the students on how to prepare for the museum learning activities. He instructed the students to visit the museum’s website (http://www.lcsd.gov.hk/CE/Museum/History/index.php) in order to familiarise themselves with the background and context. With reference to learning tasks, he instructed them to download the worksheets from the Museum website for inquiry learning during the trip. In addition, he distributed a set of learning-task assignments to each student, which were copied from the resources package developed by the Hong Kong Museum of History. The students were then divided into groups of five or six, with the intention of promoting collaborative learning during the trip. Students were expected to find out answers, complete the learning tasks, and get prepared for sharing and reporting during
the post-trip de-briefing session. Throughout this session, the teacher devoted a large amount of time to elaborating on the rules and regulations of the museum visit, logistics and arrangements for the trip, as well as appropriate standards relating to students’ conduct and behaviour during the museum visit. The teacher considered safety or risk management issues to be of prime concern and accordingly addressed these topics with more focused attention.

Phase 4: Learning Activities during the Trip

On the day of the trip, the teacher and his teaching assistant led a group of thirty-seven students to the Hong Kong Museum of History. The museum visit was divided into two sessions. In the first session, the students walked through and had a comprehensive overview of various exhibition areas, led by the docent of the museum. While guiding the students from one area to another, the docent proffered detailed explanations regarding the features and meanings of each of the exhibits. Owing to time constraints, deficiency of equipment, and the presence of other visitors, students who were not in close proximity to the docent were unable to focus their attention and concentrate on his explanations of the exhibits, and therefore could not glean all the information imparted by the docent. As the docent’s explanations were, by and large, exhibit-based or object-based, there was not much concern about inter-exhibit relationship and flow (Sedzielarz, 2003) vital for students to analyse issues related to continuity and change in the phylogeny of Hong Kong. Occasionally, some students did question the docent and teacher about the exhibits and pictures, but in most cases, almost a majority of them were actively engaged in copying the captions or descriptions alongside the exhibits and identifying answers for their worksheets. In general, students found the interactive and hands-on activities in some exhibition areas interesting and engrossing. However, they were unable to linger because the docent and teacher were both concerned about the limitation of time in conducting museum learning.

In the second session, the teacher and the teaching consultant instructed the students to work in groups, concentrate on all features and aspects of the exhibits, and gather data and information for questions on their worksheets. But it was noticed that students spent most of their time looking for answers through individual search and re-search. Even when they were working in groups, they did not have focused questions for discussion, apart from sharing and cross-checking the answers. It must be noted that the worksheets, which have been prepared by the Hong Kong Museum of History, are meant to be generic learning or assessment tasks designed for students of all grades. Teachers may often consider it necessary to modify them in order to fit the interests and abilities of students at different age-grades. About ninety percent of the questions were based on facts and data that could be found in the exhibits and on the captions. The questions were rarely designed to engage students in historical or issue-based inquiry, relating to the exhibits and relevant resources. As a result, the skills development component of the learning tasks was reduced to one of mere fact-seeking and data-collection. Little or nothing was done to develop students’ higher-order thinking skills through engaging them in extension activities for social or historical inquiry.

Since the learning tasks were site-based and object-based rather than student-centred and curriculum-based, what students could learn was often determined by the availability of resources set up in the museum. Intentionally or unintentionally, the exhibits tended to focus more on the past, than on contemporary periods. They placed more emphasis on cultural and socio-economic aspects, rather than on politically sensitive or controversial issues. For instance, the historical episodes associated with the Great Proletarian Cultural Revolution in the late 1960s and the Tiananmen Incident in 1989 in Mainland China, and their negative impacts on the local context, have been glossed over. The story lines appeared to lay emphasis on Hong Kong’s inter-relationship with China, both in culture and tradition, as well as its reintegration with China under the principle of „One Country, Two Systems’ after 1997. The exhibitions would definitely serve to strengthen students’ social awareness and cultural identity in the local context. Yet a firm and strong demonstration of that distinct brand of
political literacy required for re-vitalizing national consciousness, in the post-reunification period, was, without doubt, missing from the exhibition. It was noticed that throughout all exhibition areas, the attributes of multicultural sensitivity and cross-cultural awareness necessary for promoting students’ global identity, were also very insubstantial (Merryfield, 1998), with the exception of incidental reference to western cultural and economic impacts. It remained a distinctly dubious and debatable proposition, whether commitments to and concerns about the society, the nation and the world at large, could be strengthened through such a museum visit.

Phase 5: Post-Trip Activities and Interviews

Post-trip De-briefing

As mentioned above, the teacher had scheduled a lesson for the post-trip debriefing. According to personal observation, he spent a large part of the time (about twenty minutes), checking students’ answers to the questions set on the worksheets, and he also clarified the reasons why some of their answers were wrong. He then collected the worksheets for marking and grading. In the remaining fifteen minutes, the teacher randomly invited some of the group leaders to share their experiences. However, this sharing session was, by and large, focused on personal feelings and encounters, with little relevance to learning experiences and outcomes. For example, some students complained about the ‘free-riders’ in the group, their inability to listen to the teacher’s or docent’s explanations, and the lack of time to play interactive games and complete their worksheets. No evidence of reflective learning or learning in context could be identified from this sharing session. Finally, the teacher reprimanded some students for the improper conduct or behavior that they had shown during the trip. Thus far, no extension activities based on the museum visit were assigned to the students in order to align and connect their informal learning experiences with those being promoted in the formal curriculum and taught in the classroom.

Teacher’s Interview

After the debriefing session, the researcher arranged an interview with the teacher and a focus group interview with the students. The interview results were rather revelatory in illuminating the linkage or the gap, between the informal and formal curricula, as well as the similarities and differences between the teacher’s and students’ perceptions of learning in the museum.

With regard to the cognitive domain, the teacher interviewee perceived that the museum visit could “deepen students’ understanding of the history of Hong Kong through out-of-class learning experiences that are object-based and authentic.” When asked how and whether such experiences could be linked with the formal curriculum, as advocated in the Personal, Social and Humanities Education Key Learning Area, he merely commented that students could learn more about “the culture and tradition as bequeathed from the past” and that “the volume and breadth of knowledge could be expanded to areas that have not been covered by the textbook.” He blatantly admitted that he had not taken into consideration the concepts and themes related to „time, continuity and change‘, „culture and heritage‘ and „social systems and citizenship‘, as embodied in the PSHEKLA Curriculum Guide (Curriculum Development Council, 2002).

To the teacher interviewee, the coverage of the textbook seemed to be a more vital concern for analysing the key issues involved in the development of Hong Kong than the build-up of conceptual lenses or mental schema. This is totally understandable, as the fundamental concern for teachers, who teach different classes at the same grade-level, is consistency and uniformity in instructional progress, and therefore they try their best to ensure that students of the same grade are adequately prepared for exams or quizzes. Accountability and standardization tend to weaken the flexibility of curriculum adaptation at the junior secondary level, which is supposedly less bound by public exams (Po & Lo, 2008).
In terms of the psycho-motor aspect, the teacher interviewee held the view that students could be “exposed to a wide range of exhibits, specimens, multi-media resources and interactive games, through which they could gather data and information that might not be provided by their texts.” He also reiterated the fact that “the worksheets help to guide students through the history gallery, and engage them in fact-seeking and data collection activities.” His overriding concern was to make museum learning more task-based and to conduct formal assessments through worksheets that were tailor-made to fit the exhibits. Yet, he appeared unaware of the problem of extending formal but de-contextualized teaching and assessment practices to informal learning contexts (Metz, 2005).

As for the affective and inter-personal dimensions of informal learning, the teacher interviewee pointed out several key features pertaining to the museum visit:

1) Students could be made more conscious about the development of local and national history, culture and identity.
2) They could learn from the past and attempt to trace the historical roots of some contemporary issues (for instance, the tensions prevalent in the principle of „One Country, Two Systems”).
3) It was perceived that students could have developed social competencies and skills, for they were given the opportunity to work in groups and discuss or interact with their group-mates, during the process of learning in the museum.

Students’ Interviews

After interviewing the teacher, a group interview was conducted with the students, who had a mix of abilities (as selected by the teacher). Interestingly, students’ responses were, in some cases, different from the perceptions of the teacher and sometimes rather diverse among the student interviewees themselves.

In respect of cognitive domains, students seemed to have personal variations in their responses:

Student 1: It was fascinating to look at the exhibits. I could learn more than in the class.
Student 2: I have got a stronger impression about Hong Kong’s culture through the (interactive) games that were really fun.
Student 3: It was fun. It was more real than learning through textbooks.
Student 4: I could learn more in a relaxed and free environment….not being under the strict supervision of the teacher.
Student 5: I did not have sufficient time to view all the exhibits and videos, because there were many worksheets for me to complete. It was kind of boring….not very much different from classroom learning.
Student 6: I could not listen carefully to the explanations of the docent for there were always some groups competing for „advantageous” positions and clustering around the docent…. Learning was directed by and confined to the worksheets that were based on the exhibits.

Judging from these responses, it is obvious that most of their learning experiences were more sensory than cognitive. Some of the students indicated that they had learned „something” about Hong Kong. Yet with the exception of the specimens, video, games and exhibits, they could barely tell the researcher about what that „something” was. Hence, it was the exhibition, not the idea or the concept behind it, which still lingered in the students’ mental schema after the visit. This revealed that there was little evidence of learning orientation if the field study was too museum-centered and task-oriented (Griffin & Symington, 1997). Obviously, those who had a lower motivation to learn would simply consider the museum visit as a day off from school, without perceiving any connectivity between the learning experiences, in both formal and informal contexts (Gottfried, 1980).
When asked about the psychomotor (skill) spectrum in their learning experiences, students did not seem to be aware of the instructional design of the teacher in this aspect. Students 1 and 2 responded that they could learn how to find information from the exhibits to complete the worksheets. Students 3 and 6 merely complained about the gallery walk that rushed through different exhibition areas without allowing them sufficient time to explore and find out information or data required for completing the worksheets. Student 4 informed the interviewer that she did not have the time or the opportunity to discuss with her group-mates or the teacher when she had problems in identifying or interpreting the information and data. Student 5 very candidly admitted that he had only copied and pasted the answers from the captions and descriptions alongside the exhibits to the worksheets. Overall, it appeared that the development of the students’ learning skills had been hampered by the site-based and object-based worksheets that encouraged learning of factual accounts and recitations. The lack of time and space, for inquiry learning that stimulated students’ interest and participation, had merely made the field trip a passive and unresponsive experience.

When it came to learning experiences related to affective and interpersonal domains, students held different views from those of their teacher. Students 1, 4 and 5 considered that they felt more conscious about the meaning of being Hong Kongers because of past events and circumstances. Yet they were unable to fully comprehend how some contemporary issues were related to the historical roots of the past (Whelan, 1997). This was perfectly explicable, as their learning tasks had not been designed to guide them to inquire into the contemporary issues in relation to the development of culture and identity, in the light of the past experiences. Students 2, 3 and 6 remarked that the exhibits did not aid them by any means, to gain additional knowledge about the relationships between Hong Kong, China and Britain, until the recent event of the transfer of sovereignty in 1997. Almost all of the students remarked that they did benefit, by learning further and acquiring deeper understanding about the Chinese culture in Hong Kong, but that they were unable to analyse Hong Kong’s past, both from national and global perspectives. With such a curriculum deficit in multiple citizenships, the concepts related to the conflict and complementarity of local, national and global identities, were still alien and incomprehensible to them (Cogan, 2000; Lo, 2005).

As for the inter-personal domain of museum learning, Students 1 and 2 felt that they enjoyed having greater freedom to discuss and interact with their group-mates, than in a classroom context. Student 6 perceived that learning through sharing ideas with others was relatively more interesting than merely reading books. However, Student 4 complained about the “free-riders” in his group, as some of them simply copied answers from other active learners. Student 5, however, told the interviewer that most of his group-mates were only busy discovering and collating information and data, filling out the answer sheets, without having either the time or the opportunity to work with their peers, with the exception of playing interactive games and discussing the video contents. For Student 5, learning in the museum was more personal than inter-personal, as he found that he could work completely on his own.

Discussion and implications

Taking into consideration all of the above, it becomes apparent from the observation and interview data that the connectivity between the formal and informal curricula, as well as the linkage between the planned and taught curriculum of the teacher and the learned curriculum of the students, has been very flimsy, inadequate, and incidental. What the teacher had expected from the learning activities in the museum did not appear to be congruent with what the students experienced and/or perceived in the same context. To maximize the effectiveness of museum learning and integrate it more organically with the learning objectives of the formal curriculum in different domains, the following pedagogical devices and issues could be considered:
1) In devising the objectives and activities of a museum visit, the teacher concerned could focus on what subjects are worth learning about, and how effectively these topics can be integrated with those embodied in the formal curriculum. A curricular connectivity and fit of this nature cannot be achieved without intentional adaptations in pedagogy. The assumption that the relevancy and/or homogeneity between the contents of the informal and formal learning contexts could enable learners to relate or connect them in their mental schema, is something contingent, not absolute.

2) To strengthen the curricular connectivity and educational value(s) of museum learning, the teacher would have to make learning activities more student-centred, not purely task- and exhibit-centered. In so doing, the teacher would have to channel students’ sensational responses or experiences into learning through a multi-sensory approach (e.g. role play and empathy), so that a sense of participation and ownership in the process could be significantly enhanced (Cunniff & McMillen, 1996; Metz, 2005; Hammerman, et al., 2001).

3) As mentioned above, the worksheets designed by the museum staff are not tailor-made to fit certain school curricula. Nor is it always possible to adapt the worksheets to suit the diverse abilities, interests and needs of the vast student community. The teacher should actively work with museum staff and educational professionals to modify the worksheets and make the learning or assessment tasks more pedagogically meaningful, curriculum-connected and inquiry–oriented (Bamberger & Tal, 2008; Krishnaswami, 2002; Noel & Colopy, 2006). Instead of encouraging students to copy and paste from the captions and descriptions of the exhibits, the teacher should set more problem and issue-based questions, with the purpose of motivating students to apply the concepts and higher-order thinking skills that they have acquired from the formal curriculum. The concept and skill-based agenda, which is significant in developing students’ abilities in learning to learn, should not be neglected (Kisiel, 2003; Lim, 2004).

4) For the purposes of arousing students’ interests and enabling them to make sense of the present from the past, learning activities should utilise contemporary issues as inroads for inquiry and stimulate students to trace their historical roots in particular temporal and spatial contexts (Whelan, 1997). On-site activities should be complemented by extension activities that allow students to make use of other community and textual resources to cross-reference and triangulate with resources presented in the museum (Bamberger & Tal, 2008; Hooper-Greenfield, 2007).

5) Museum learning could be very personalized and contextualized, since it involves a dialogue or interaction between the viewer and the objects (Rennie & Johnston, 2004). Learning about museum objects through worksheets might even serve to further strengthen personalised knowledge construction in the process. If a teacher wishes to make museum learning more socialised and inter-personal, there is much that can be done in devising learning activities that involve social interaction amongst the docent(s), students and teacher(s) (Sedzielarz, 2003). The gallery walk in the museum could be further enriched with more inquiry questions based on, but extended beyond, the objects or exhibits. More importantly, after the comprehensive overview of the exhibition areas in the museum, students could be divided into groups and engaged in different inquiry projects that might take the mode of ‘one site, multiple tasks,’ or ‘one task, multiple sites,’ both within and outside the museum (Manning et al., 1998). Different groups could then be invited to present their findings during the post-trip de-briefing session. Finally, the teacher could help them piece together the different inquiry tasks into a jigsaw in order to enable them to view the complete picture in connection with a particular theme or issue related to Hong Kong’s development.
6) Although it is not an effortless and simple task to nurture students’ identities and values through a one-off museum visit, the teacher could make an attempt by connecting them with the various themes and issues in the inquiry learning tasks in the museum. For instance, students could be led to discuss what it means to them to be „Hongkongers“ in various historical episodes and contexts, to analyse the impact of Chinese and/or global cultures on the development of local identity, and eventually, to explore the tensions inherent in the multiple identities in Hong Kong (Lo, 2005). Identity and other core values, as advocated in the curriculum documents, cannot be merely analysed or clarified by worksheets or a gallery walk. This is better accomplished, through issue-based or problem-based inquiry, which is related to the authentic and lived experiences of students.

To conclude, teachers should be better equipped with professional literacy and competency in utilising field-based learning to help students construct knowledge and concepts, develop higher-order thinking skills, nurture positive values, and foster interpersonal and social competency. In fact, teachers should collaborate with educational professionals to conduct research to determine how efficiently and successfully learning can be enhanced in object-based and field-based contexts. This would, in turn, help them determine how informal learning could better fit or connect with the formal curriculum, to the extent that the development of students’ learning experiences could be made more integrated and holistic.

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Exploring Fijian High School Students’ Conceptions of Averages

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Abstract

This paper focuses on part of a much larger study that explored form five (14 to 16 year-old) students’ ideas in statistics. A range of ideas was explored, including the students’ ideas about measures of centre and graphical representations. Students’ ideas about measures of centre were analysed and categories of responses identified. While students could compute mean and median, they were less competent with tasks that involved constructing meanings for averages. This could be due to an emphasis in the classroom on developing procedural knowledge or to linguistic and contextual problems. Some students used strategies based on prior school and everyday experiences. The paper concludes by suggesting some implications for mathematics education.

Introduction

Despite statistics being a relatively new discipline (Shaughnessy & Pfannkuch (2004), it has gained increased attention in our society in the last 15 years. Many everyday activities often require an understanding of statistics to make intelligent decisions. Decisions concerning business, industry, employment, sports, health, law and opinion polling are made using an understanding of statistical information and technique (Wallman, 1993). However, often the data that people see is tainted (Scheaffer, Watkins, & Landwehr, 1998). So what can be done? In response to this question, there has been a movement in many countries to include statistics at every level in the mathematics curricula. In western countries such as Australia (Australian Education Council, 1991), New Zealand (Ministry of Education, 1992, 2007) and the United Kingdom (Holmes, 1994) these developments are reflected in official documents and in materials produced for teachers. In line with these moves, Fiji has also produced a new mathematics prescription at the primary level that gives more emphasis to statistics (Fijian Ministry of Education, 1994). As statistics education continues to mature as a discipline, statistics educators are paying more attention to developing statistical thinking. This shift in statistics education means emphasis on teaching from statistical techniques, formulas and procedures to developing statistical reasoning and thinking (Bakker, 2004, Gal, 1998).

Many statistics educators (Cai, 1998; Gal, 1995; Konold & Pollatsek, 2002; Mokros & Russell, 1995; Shaughnessy, 2006; Watson & Moritz, 2000) claim that averages play a central role in statistics. For instance, Cai (1998) and Gal (1995) believe that the arithmetic average is not only a core concept in statistics but also an important concept for making informed decisions. Cai adds that statistical analysis and inferences are conducted almost exclusively through the determination of measures of centres, such as the mean. According to Mokros and Russell (1995), one goal of statistics is “to reduce large unmanageable and disordered quantities of information to summary representations” (p. 20). They believe that averages are tools that can be used to make sense of a data set and, in conjunction with the standard deviation, could be used to summarise and compare data sets. Shaughnessy (2006) accentuates that summary representations of centres play a descriptive role or an inferential role in statistics. He concurs with Mokros and Russell (1995) that ’means’ and other measures of centres can help summarise information about a data set or an entire sample. Additionally, he explains that if the data has been appropriately collected from a parent population, the sample mean might provide some useful information about the population mean.
Watson and Moritz (2000) reported that for a long time, the term average has been synonymous with the arithmetic mean in the school curriculum, and that until the middle of last century the mean was still the measure of centre discussed in mathematics books. They claim that only in the last decade have the three measures of averages (mean, median and mode) been acknowledged in the school curriculum in a definitive way. In New Zealand (Ministry of Education, 2007), the new curriculum document stresses the importance of statistical investigations and statistical literacy in relation to using measures of centre and evaluating choice of measures respectively. Research (Cai, 1998; Konold & Pollatsek, 2002; Mokros & Russell, 1995; Watson & Moritz, 2000) shows that many students find averages difficult to learn and understand in both formal and everyday contexts and that learning and understanding may be influenced by ideas developed in early years. Konold and Pollatsek (2002) express the view that current teaching is not helping students to develop measures of centre. They claim that although many students know how to compute means or medians, they do not know how to apply or interpret these ideas. These views are consistent with the findings of other researchers (Bakker, 2004; Bright & Hoeffner, 1993; Cai, 1998; Cobb, 2002; Gal, Rothchild & Wagner, 1990; Hughes, 1998; Mokros & Russell, 1995; Shaughnessy, 2006, 1992).

Most of the research in statistics education has been done with primary school children or with university students, resulting in a gap in our knowledge about students’ conceptions of averages at the secondary level. According to Begg, Pfannkuch, Camden, Hughes, Noble, & Wild, (2004), for many teachers statistics continues to be a content area in which they have little experience since it has only recently become a core area in some curricula. Perhaps more traditional mathematics teaching skills do not transfer into this new domain. This may be due in part to the fact that mathematics is so often taught as a subject focused on procedures. In statistics, surely it is more helpful to place the emphasis on helping students learn to formulate questions, gather data, and use data wisely in solving real problems.

Concerns about the importance of statistics in everyday life and in schools, the lack of research in this area and students' difficulties in statistical reasoning, determined the focus of the larger study (Sharma, 1997). The study investigated the question: What ideas do (Fijian) form five students have about statistics (measures of centre, graphical representations and probability), and how do they construct these? This paper explores student ideas related to averages, just one of the areas explored in the study.

**Literature Review**

Although the most common statistical idea encountered in everyday life and school contexts is the average value of a set of data, studies of students' understanding of average show that students lack the full range of meanings that “average” is used to convey. This section first draws attention to conceptual and procedural understanding. Then previous research on students’ notions of averages is discussed.

**Conceptual and Procedural knowledge**

Several studies on methods of improving students' general competence appear in reviews by Romberg and Carpenter (1986) and Silver (1990). One of the relevant findings from these studies which helps to extend research on statistical teaching and learning, is the value of connecting concepts and procedures. More time spent on developing understanding leads to increased student performance on problem-solving tasks. This emphasis on understanding is supported by Hawkins, Jolliffe and Glickman, (1992, p. 9) who write that it is “no longer acceptable for students to be taught to perform calculations without understanding what they are doing.”
Hiebert and Lindquist (1990, p. 19) define conceptual knowledge as knowledge which “is rich in relationships. It can be thought of as a connected web, where every piece of information is related or connected to other pieces of information.” In contrast, procedural knowledge is made up of rules, procedures or computations for performing mathematical tasks. The researchers assert that instruction should be designed to help students acquire both concepts and procedures.

From another perspective, Rittle-Johnson, Siegler and Alibali’s (2001) teaching experiment about development of conceptual and procedural knowledge of decimal fractions demonstrated that children’s conceptual and procedural knowledge develop iteratively. They defined procedural knowledge as “the ability to execute action sequences to solve problems” and conceptual knowledge as “the implicit or explicit understanding of the principles that govern a domain and of the interrelations between units of knowledge in a domain” (pp. 346-347). Their experiment identified that competence in mathematics requires both conceptual and procedural knowledge. They argue that there is a bi-directional relationship between conceptual understanding and procedural skills. Conceptual understanding is the basis for acquiring procedural skills. Procedural operation can facilitate deeper understanding of concepts. It appears that both conceptual and procedural knowledge are important, so teaching should be designed to help students see connections between them. For instance, if teachers were asked what they would really like students to know one year after completing a topic in statistics, most would respond that they want their students to understand some basic concepts and to be able to apply procedures in meaningful situations. The desirability of making connections between concepts and procedures is not helped by research which deals with them separately. Mokros and Russell (1995) explored mostly students' notions of averages, whereas, the National Assessment of Educational Progress (NAEP) (Brown, Carpenter, Kouba, Lindquist, Silver & Swafford, 1988; Cai, 1998) items primarily dealt with computations in statistics rather than with concepts and understanding. In the present project students’ conceptual and procedural knowledge about averages were both explored.

Previous Research on Students’ Understanding of Averages

A number of items on the NAEP (Brown et al., 1988) assessment dealt with students' ability to find and use measures of central tendency and variability for given sets of data. Brown et al. (1988) concluded that although many seventh-grade and eleventh-grade students seem to be able to calculate the mean when asked to do so, the children have a very shallow understanding of the concept of averages. For instance, when asked about the size of the mean of two given numbers relative to those two numbers, only about 40 per cent of the seventh-grade students and about 50% of the eleventh-grade students correctly answered that the average must be halfway between the two numbers.

Subsequent research on the NAEP studies found similar results (Shaughnessy & Zawojewsk, 1999). Six of the seven items administered to students in grades 8 and 12 in the NAEP study dealt with finding and using mean and median (Zawojewski & Heckman, 1997). There was significant growth from 1992 to 1994 in the students’ performance on the item that required them to find the mean and median of particular data sets. However, when asked to select which statistics to use when given data sets, students selected the mean over the median without considering the data distribution or context. The item below (Table 1) required students to understand the context, examine two different data sets and then select and explain their choice of the mean or median. Only 12 percent of students in grade 12 produced responses that were scored as correct or partially correct. From the explanations, it was evident that students believed that the mean was superior to the median. One explanation for this could be curriculum emphasis on the mean in earlier grades. Another contributing factor in students’ frequent selection of the mean over the median may be the design of the question. Since no reason for making the choice was given in the mean or median item, students might have assumed that the statistics were going to be used to compare the attendance figures directly between the two theatres. In fact, reporting identical statistics for each theatre would
be useful in making such direct comparisons. Scheaffer (2006) notes that the item could be
turned into a good statistics question with a little more context and leeway on the correct
answer.

Table 1. Daily attendance at two movie theatres for 5 days and the mean (average) and
the median attendance.

<table>
<thead>
<tr>
<th>Theater A</th>
<th>Theater B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day 1</strong></td>
<td>100</td>
</tr>
<tr>
<td><strong>Day 2</strong></td>
<td>87</td>
</tr>
<tr>
<td><strong>Day 3</strong></td>
<td>90</td>
</tr>
<tr>
<td><strong>Day 4</strong></td>
<td>10</td>
</tr>
<tr>
<td><strong>Day 5</strong></td>
<td>91</td>
</tr>
<tr>
<td><strong>Mean (average)</strong></td>
<td>75.6</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>90</td>
</tr>
</tbody>
</table>

(a) Which statistic, the mean or the median, would you use to describe the typical daily
attendance for the 5 days at Theater A? Justify your answer.

(b) Which statistic, the mean or the median, would you use to describe the typical daily
attendance for the 5 days at Theater B? Justify your answer.

Cai (1998) examined the relationship between the conceptual understanding of the statistical
aspects of the average and computational algorithm (add-them-all-up-and-divide) to
determine a missing data value to yield a certain average. Cai (1998) found that while the
majority of 250 sixth-grade students knew the averaging algorithm, only half could apply the
algorithm to solve contextualized average problems. Many of those who achieved success
used strategies and representations such as reversing the averaging algorithm and leveling
(pictorial and verbal), while others used guess-and-check approach. Despite the fact that the
data were presented in a pictograph, only six percent of the students used the leveling or
balancing approaches advocated by other researchers (Friel, 1998; Meyer, Browning, &
Channell, 1995). Cai suggests that the concept of average needs to be taught both as a
statistical idea for describing, comparing and making sense of data sets and as a
computational algorithm for solving contextual problems.

Strauss and Bichler (1988) identified seven properties of the mean and conducted in-depth
interviews with Israeli children aged eight to 14 years in order to assess their ability to apply
each of the seven properties to real-world problems. The different age groups demonstrated
different courses of reasoning to support their understanding of specific properties. Results
indicated that children had difficulty in understanding the impact that a zero has on the mean.
They tended to think that zero means nothing when in fact it is a legitimate piece of data
when calculating the mean. Mevarech (1983) provides evidence that college students
mistakenly attributed group structure properties like associativity and closure to the
operations of computing means and variances. In particular, the students thought that it was
possible to average averages by the add-them-up-and-divide algorithm. Mevarech's results are
quite troubling because they occurred after these students had received instruction on
descriptive statistics.

Strauss and Bichler's (1988) experiments were repeated (with modifications) in the USA by
Leon and Zawojewski (1991). In this study, seven properties of the mean were identified and
students' (42 fourth grade students, 61 eighth grade students and 42 college students)
understandings of these properties were investigated. Many of the questions were presented in story form and no technical knowledge was required to answer them. The results of this study indicated that performance improved with age and that some properties were more difficult to understand than others. In addition, items in story form were significantly easier to solve than were items presented in numerical format.

Mokros and Russell (1995) used open-ended problems to explore the developing conception of average of students from grades 4, 6 and 8. Since the researchers were interested in students’ own preferred strategies about averages, they used tasks that asked students to work backward from a mean to possibilities for a data set that could have that particular mean. In one problem (Potato Chips), students were told that the mean cost of a bag of potato chips was $1.35 and then they were asked to construct a collection of bags that had that mean of $1.35. Mokros and Russell identified and analysed five different constructs of average: average as mode, average as algorithm, average as reasonable, average as midpoint and average as point of balance. These interpretations illustrated ways in which the students were or were not developing useful constructs of averages. Students who thought of average as an algorithm could not make connections from their computational procedures to the actual contextual data. On the potato chip question, some of these students multiplied $1.35 by 9, then divided by 9 again, and every single value in the data set was $1.35.

Watson and Moritz (2000) explored the development of concepts of average in a longitudinal study for students in grades 3 to 9 using interviews. Their questions included: Have you heard of the word average before? What does it mean? They also asked students probing questions from media reports: How do you think they got this average? (three hours of TV per day). Watson and Moritz (2000) also asked their subjects to apply an understanding of the mean to determine total (reverse the averaging process) and to find the average in a weighted mean situation. Student responses were classified in a hierarchical manner that reflected the structure of the task set. They concluded that students conceptual understanding of averages follows a developmental sequence from idiosyncratic responses based on out-of-school experiences, to everyday colloquial terms such as ‘normal’, to ‘most’ and ‘middle’ and finally to the representative nature of ‘average’.

Konold and Pollatsek (2002) provide four conceptual interpretations of the mean: mean as typical score, mean as fair-share, mean as a way to reduce data and mean as a signal in noisy processes. According to these authors a signal could be true value with error as noise around it. When an object is weighed repeatedly to determine its actual weight, each observation is viewed as deviating from the actual weight by a measurement error. The average of these scores is interpreted as a close approximation to the true weight. They argue that students need to develop a conceptual understanding of signal and noise in order to understand what an average is and recommend that the mean should be initially introduced to students in relation to comparing data sets.

The research discussed in this section shows that students seem to have little understanding of statistical terms such as the mean and median. While many students could compute means or medians, performance was much lower on items that required a deeper understanding of the concept of the average. It seems that students understood the average as an abstract formula, devoid of any conceptual meaning. Konold and Pollatsek (2002) think that part of this problem is due to the interpretations teachers use to introduce data summaries. They suggest that, since thinking about averages as fair shares or typical is not very helpful in developing an aggregate view, such thinking should not be emphasized with students. However, Shaughnessy (2006) argues that mean as fair-share and mean as typical value are a better first introduction to the notions of averages because they build on students’ primary intuitions.
Overview of the Study

The larger study (Sharma, 1997) was designed to investigate the question: What ideas do form five students have about statistics (measures of centre, graphical representations and probability), and how do they construct these? The study took place in a co-educational, private secondary school in Fiji. The class consisted of 29 students aged 14 to 16 years. According to the teacher, none of the students in the sample had previously received any in-depth instruction in statistics. Fourteen students were chosen from the class, the criteria for selection including gender and achievement. While the students had been taught how to compute an average as part of their regular mathematics class, they had had no exposure to collecting data and drawing conclusions.

Tasks
To explore the full range of students’ thinking about averages, both open-ended and closed questions were selected and adapted from those used by other researchers (Watson & Callingham, 2003). The weight (Item 1A) and pocket money (Item 1B) questions were used to explore students' procedural understanding of the mean and median.

Item 1A: Weight problem

A small object was weighed on the same set of scales separately by nine students in a science class. The weights (in grams) recorded by each student were: 6.3, 6.0, 6.0, 15.3, 6.1, 6.3, 6.2, 6.15, 6.3. How can you find the mean weight? What is the mean weight? What is the median weight?

Item 1B: Pocket money problem

Five students' pocket money is: $1, $2, $2, $3, $20. What is the mean? What is the median? Which is the more appropriate measure to use in this distribution? Why?

Two questions were used to examine students' knowledge about averages beyond its algorithmic use in mathematics classes. These were about averages in the domain of weather forecasting (Item 2). It was thought that this domain exposes students to collections of events and to attempts at summarizing and making sense of information or to comparing data sets. The first question was designed to elicit the range of conceptual definitions that students have for the word 'average'. The second was designed to explore students' awareness of the use of averages and the purposes for data reduction summary representations.

Item 2: Weather problem

Sometimes on the radio the weather-person says something like the average temperature this week was 55 degrees.
(i) What does the phrase average temperature mean? How does the weather person find the average temperature?
(ii) If the weather-person knows the temperature on each of the days of the week, why does s/he want to know the average temperature for the whole week?

Two tasks were used to explore whether students could apply average ideas to more complex situations. The age problem (Item 3A) required students to work backward and find the total when given the mean and then to find the average age of 5 girls. The frequency distribution
table of marks (Item 3B) examined how students think about the relationship between measures of centres and data sets presented in tables.

**Item 3A: Age problem**

The mean age of four girls is 14 years. If a fifth girl has an age of 16, what is the total age of the five girls? What is the mean age?

**Item 3B: Mathematics marks of 15 students in a class are:**

<table>
<thead>
<tr>
<th>Mark (x)</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

How can you find the mean mark? What is the median mark?

**Interviews**

Each student was interviewed individually, by the researcher, in a room away from the rest of the class. The interviews were tape recorded for analysis, and notes were made of student non–verbal behaviours observed during the interview. Each interview lasted about 40 to 50 minutes. Paper, pencil and a calculator were provided for the student if he or she needed it.

**Analysis and coding of data**

The data revealed that many of the students applied rules and procedures inappropriately or used strategies based on prior everyday and school experiences. I created a simple four category rubric that could be helpful for describing research results relating to students’ statistical conceptions, planning instruction in statistics and dissemination of findings to mathematics educators. The four categories in the model are: non-response, non-statistical, partial-statistical and statistical. The term statistical is used in this article for the appropriate responses. However, I am aware that such a term is not an absolute one. Students possess interpretations and representations which may be situation-specific, and hence these ideas have to be considered in their own right. This category has been used mainly to discuss and present results. It would be reasonable to assume another level (advanced-statistical), equivalent to Shaughnessy's (1992) pragmatical statistical level, where students appear to have a very complete view that incorporates questioning of data, but the need for such a category did not arise in my research and any responses that could have been categorised as advanced-statistical were simply grouped with the statistical responses. The main focus in this article is on the non-statistical responses (in which students made inappropriate connections with everyday experiences) and the partial-statistical responses (in which students applied rules and procedures inappropriately). Extracts from typical individual interviews are used for illustrative purposes. Throughout the discussion, I is used for the interviewer and $S_n$ for the nth student.
Results

Procedures for finding the mean
As indicated earlier, the weight (Item 1A) and pocket money (Item 1B) tasks were used to explore students' procedural understanding of the mean. Results are summarised in Table 2.

Table 2. Response types for tasks involving procedures for finding the mean
(n = 14)

<table>
<thead>
<tr>
<th>Response type</th>
<th>Weight task (Item 1A)</th>
<th>PM task (Item 1B)</th>
<th>[Both tasks] *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-response</td>
<td>3</td>
<td>1</td>
<td>[1]</td>
</tr>
<tr>
<td>Non-statistical</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Partial-statistical</td>
<td>3</td>
<td>1</td>
<td>–</td>
</tr>
<tr>
<td>Statistical</td>
<td>8</td>
<td>12</td>
<td>[8]</td>
</tr>
</tbody>
</table>

* In this and subsequent tables, the figures in the [both tasks] column refer to the number of students whose response was the same on both tasks.

Table 2 reveals that a small minority of students had difficulty responding at all and the majority responded in a statistical fashion. To be considered statistical, students had to add the data values and divide the totals by the number of values. Students who applied the averaging algorithm but made minor calculation errors were coded as statistical. A possible explanation of why more students were statistical on the pocket money problem than on the weight problem is that the money context had been used for calculating the mean in class and students use money on a daily basis. The teacher had asked five students how much money they had in their pockets and listed the amounts on the board. The students calculated the mean from the data tabulated by the teacher. Another explanation for this could be the type of numbers and rounding involved in the two problems. Decimal numbers certainly created problems for some students although a calculator was available if they wanted to use it. It must be noted that none of the students commented on the weight of 15.3g to be investigated. Perhaps it was a mistake.

Partial statistical responses: Although only four students replied in a partial-statistical way, their responses provide an insight into the effect of relying on rules. The students remembered various rules and procedures but applied them inappropriately, working out the median or range instead of the mean.

Conceptual ideas about the mean
In contrast to the procedural responses, responses this time indicated wide differences in level of sophistication and quality of explanations for the questions: „What is an average?” and „What is it used for?” The results are summarised in Table 3.

Non-responses and statistical responses were approximately equivalent in number and comprised the minority. An additional non-response strategy emerged in relation to this weather task. Part of the question was sometimes repeated. When asked what a weather person meant by the statement „the average temperature this week was 55 degrees”, student 3 said that, „it was average for the week.” The three students whose reasoning was classified as statistical (Item 2i) could clearly explain that the average temperature was the mean.
temperature and that it was determined by adding the temperatures for the seven days and dividing by the number of days (7). In two cases (Item 2ii), student responses were coded as statistical. The responses suggest a data reduction and summary representation view of averages. For instance, one student said that the weather person needs the mean so that he does not have to go over all the temperatures.

**Table 3. Response types for tasks involving mean concepts (n = 14)**

<table>
<thead>
<tr>
<th>Response type</th>
<th>Number of students using it</th>
<th>Weather item (2i)</th>
<th>Weather item (2ii)</th>
<th>[Both tasks]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-response</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>[2]</td>
</tr>
<tr>
<td>Non-statistical</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>[3]</td>
</tr>
<tr>
<td>Partial-statistical</td>
<td>5</td>
<td>3</td>
<td>8</td>
<td>[3]</td>
</tr>
<tr>
<td>Statistical</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>[2]</td>
</tr>
</tbody>
</table>

**Non-statistical responses:** Three students used non-statistical responses for the first task and six for the second. Their responses were based upon everyday (cultural) and school experiences which often involve the use of language in non-mathematical ways. The students referred to average temperature as the usual, or ordinary temperature recorded each week. Student 21 based his reasoning on his prior school experiences, referring to average temperature as border-line temperature, possibly because at times teachers refer to students sitting on the average mark in test results as borderline cases.

Similarly, in response to the question of why the weather person would want to find the average temperature, these students did not mention the summary statistics aspect but drew upon their cultural experiences, talked about the announcer's job, or how people benefit from weather reports, or how to decide which day is cloudy or rainy. Further probing of these students' ideas failed to elicit any deeper reasoning. Watson and Moritz (2000) chose to categorise such responses at the pre-average level.

**Partial-statistical responses:** The students whose responses were classified as partial-statistical on both the tasks had only a procedural understanding of the mean. This is illustrated by student 6 who, when asked what a weather person meant by the statement “the average temperature this week was 55 degrees”, responded:

S6: 7.85.  
I: How did you work it out?  
S6: 55 degrees divide by 7.  
I: Why did you divide by 7?  
S6: For the week. Each day the temperature was 55 degrees. For the week it was 7.85.

The other students, whose responses were in the partial-statistical category, mentioned partial properties of average. They explained that the average was the mean temperature and asserted that it was determined by the sum of scores divided by the number of scores. When asked what was added and divided in the weather problem, the students could go no further.
Applications of the mean
Two questions were used to explore whether students could apply mean ideas. One was an age problem (Item 3A), and the other a frequency distribution table of marks (Item 3B). Results are summarised in Table 4.

Table 4. Response types for tasks involving age problem and frequency tables (n = 14)

<table>
<thead>
<tr>
<th>Response type</th>
<th>Number of students using it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age task (Item 3A)</td>
</tr>
<tr>
<td>Non-response</td>
<td>1</td>
</tr>
<tr>
<td>Non-statistical</td>
<td>–</td>
</tr>
<tr>
<td>Partial-statistical</td>
<td>6</td>
</tr>
<tr>
<td>Statistical</td>
<td>7</td>
</tr>
</tbody>
</table>

The results in Table 4 bear a resemblance to those in Table 2. There were very few non-responses and a substantial number of statistical replies. The latter group did not rely completely on the add-them-and-divide algorithm. They saw the need for the average to be weighted by sample size.

Partial-statistical responses: Five students applied the mean formula inappropriately to both questions. When asked for the total age and mean age of five girls, given that the mean age of 4 girls is 14 years and a 5th girl has an age of 16, all five students said that the total age was 30 (14 + 16) and the mean age was 6 (30/5). The task, on the other hand, required them to compute 4 times 14, plus 16, divided by 5.

When asked to consider the mean from the frequency table (Item 7.4), the students either adapted or applied the mean rules inappropriately. Three of these students simply added the marks column and divided the result by the total frequency (30/15) to get a mean of 2. Two students divided the total mark (30) by the highest frequency (5) and obtained a result of 6.

Procedures for finding the median
The median, as a measure of central tendency of data, is the number which has half the values above it and half below it when the values are arranged in order of size. It may be the central value or it may be the average of the middle two. The weight (Item 1A) and the pocket money tasks (Item 1B) were also used to explore students' procedural understanding about the median. The students' responses to the two questions are summarised in Table 5.

Table 5. Response types for tasks involving procedures for finding the median (n = 14)

<table>
<thead>
<tr>
<th>Response type</th>
<th>Number of students using it</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Weight task (Item 1A)</td>
</tr>
<tr>
<td>Non-response</td>
<td>3</td>
</tr>
<tr>
<td>Non-statistical</td>
<td>1</td>
</tr>
<tr>
<td>Partial-statistical</td>
<td>5</td>
</tr>
<tr>
<td>Statistical</td>
<td>5</td>
</tr>
</tbody>
</table>
The results on these median tasks are similar to those on the same tasks involving the mean (Table 1). A minority of replies were considered non-responses, while a majority represented statistical thinking. The finding that just over twice as many statistical responses occurred on the pocket money problem than on the weight problem may have resulted from a difference in the arrangement of the data. Since the weight data were not given in any order, the students had to first arrange the data in order, which caused difficulty for some. The money problem data did not require any re-arrangement and hence caused less difficulty.

Non-statistical responses: Only one student response was classified as non-statistical but the response was interesting because the student (Student 22) seemed to make inappropriate use of previous learning about sets.

I: What is the median value of this set [weight] of data?
S22: Middle score. Arrange in ascending order and then find the middle.
I: How did you get 6?
S22: There are six scores.
I: But I think there are nine scores.
S22: But when we arrange in order, we should not repeat an element.

This knowledge about sets was most likely gained from studying Book 3A (Fijian Ministry of Education, 1977a) in which there is a unit on Sets. In this unit students learn that one does not repeat the elements when listing a set.

Partial-statistical responses: Responses classified as partial-statistical employed two strategies that teachers need to be aware of. Three of the five students who gave partial-statistical responses on the weight problem, applied mean, mode and range rules inappropriately to the median task. Even when questioned as to whether the same procedures were appropriate for finding both the mean and median, the students who had applied the mean procedures for this task did not change their answer. The other student and the student who gave partial-statistical response on both the tasks adapted the median rule. They did not arrange the weights in order but simply found the middle weight.

Conceptual ideas about the median
Two tasks were used to explore students' conceptual understanding of median, namely providing a definition of median and the pocket money problem (Item 1B). Their responses are summarised in Table 6.

Table 6. Response types for tasks involving median concepts (n = 14)

<table>
<thead>
<tr>
<th>Response type</th>
<th>Number of students using it</th>
<th>Definition task</th>
<th>PM task (Item 1B)</th>
<th>[Both questions]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-response</td>
<td></td>
<td>1</td>
<td>4</td>
<td>[1]</td>
</tr>
<tr>
<td>Non-statistical</td>
<td></td>
<td>1</td>
<td>6</td>
<td>–</td>
</tr>
<tr>
<td>Partial-statistical</td>
<td></td>
<td>9</td>
<td>2</td>
<td>[2]</td>
</tr>
<tr>
<td>Statistical</td>
<td></td>
<td>3</td>
<td>2</td>
<td>[2]</td>
</tr>
</tbody>
</table>

Table 6 data reveal that a minority of students displayed non-response or statistical reasoning with respect to the two tasks. The students whose thinking was classified as statistical not
only knew how to calculate the median, but could also provide appropriate meanings for the term median and state the disadvantages of using the mean. Further the students gave a reason to explain, although with something of a struggle, when it is appropriate to use the mean and when it is appropriate to use the median. That is, the median is used mainly when extreme values will unduly affect the mean, making the mean less representative of the data set as a whole. The majority of student responses (18 out of 28) fell into the middle two categories of non-statistical and partial-statistical, the two which are most revealing of students' unusual ideas.

Non-statistical responses: Prior school experiences and knowledge seemed to lie behind several of the non-statistical responses. For example, in constructing a meaning for median, one student referred to the median as the middle or the centre. When asked to explain middle or centre of what, the student talked about numbers and circles. The student appeared to relate his geometry knowledge to this statistics question.

When asked to choose the more appropriate measure to use, the mean or the median, the students believed that mean was the more appropriate to use because everyone will get equal amounts. They did not realise that in this particular example the mean was affected by the extreme value ($20) and hence did not give a good picture of the distribution. Student 5 was typical of this group.

I: Which one do you think is a more appropriate measure to use?
S5: Mean.
I: Why?
S5: If we find the mean, the person with $20 will get equal amount.

Partial-statistical responses: The students who gave partial-statistical responses had only procedural understanding about median, or understood the median was somehow connected with middle value but could not explain middle of what. Student 17 was one of these.

S17: Arrange the numbers in order and then find the median value.

On the pocket money item, these students said that the median was the more appropriate measure to use. However, when asked to explain their reasoning they said that it was the middle value. Even further probing did not elicit any idea about the mean being affected by the extreme value.

Discussion

Overall, the results show that most students in the study had only a procedural understanding of mean and median. While students could work out the summary statistics involved in simple data sets (Items 1A, 1B), they applied the mean and median algorithmic procedures inappropriately to the questions which involved frequency table (Item 3B). Although the teacher had taught ‘finding the averages’ in a number of ways, including from a frequency distribution table, the students appeared to have muddled views as to how to apply these procedures. When applying the median concept to a frequency distribution (Item 3B), students chose the middle frequency or the largest frequency instead of the appropriate observation. Additionally, it was difficult for students to remember which rules went with which problem. Only a very small number of students knew how to calculate averages, provide appropriate meanings for the terms, and state the advantages and disadvantages of using the measure.

Some students even thought that it is possible to average averages by the add-them-up-and-divide algorithm. It appears that the limited nature of school instruction in statistics did not provide them with opportunities to refine their concepts and resolve ambiguities. The finding
that most students have only a procedural understanding of summary statistics, is consistent with the results of American studies discussed earlier (Brown et al., 1988; Gal et al., 1990; Konold & Pollatsek, 2002; Pollatsek et al., 1981; Russell and Mokros, 1995; Shaughnessy & Zawojewsk, 1999). Pollatsek et al. reported that even college students understood the average as an abstract formula, devoid of any conceptual meaning. It appears that most Fijian students lacked a general understanding of the concepts involved, although some constructed an understanding of the concepts from the context.

The results show that students entertained several ideas about the concepts of mean and median, some of which were based on what they had absorbed formally or informally from their everyday environments. The finding that students base their thinking in statistics on their prior experiences is not new. Watson and Moritz (2000) report that the thinking of many students in their study was dominated by past experience and this prevented them developing statistical ideas, despite being aware of notions of averages. In some respects, the findings of the present investigation go beyond those discussed in research literature. The findings demonstrate how students' other school experiences also influence their construction of statistical ideas. At times the in-school experiences appear to have had a negative effect on the students. An example of negative effect that arose from other school experiences were the students who were deeply convinced that one cannot repeat elements in a data set. On the other hand, if meanings and understandings associated with averages are tied to the specific situations (Lave, 1991), and structured by social situations, student opinions cannot be judged as incorrect (Gal, 1998). Perhaps, it is important to point out to students that there are alternative points of view.

The results of the interviews show that although contexts may help students use prior knowledge, such situational knowledge is diverse and can also cause misinterpretations of the information in the data display. Student 21’s personalisation of the context brought in various interpretations of the task (Item 2) and inconsistency in his explanations. Probably, the student’s lack of understanding of the constraints imposed by the context distracted him from making a sensible interpretation. Given that statistics is often taught through examples drawn from “real life”, teachers need to exercise care in ensuring that the intended support apparatus is not counterproductive. This is particularly important in light of current curricula calls for pervasive use of contexts (Ministry of Education, 2007; Rossman, Chance and Medina, 2006; Scheaffer, 2006; Watson, 2004) and research showing the effects of contexts on students’ ability to solve open-ended tasks (Cooper and Dunne, 1997; Lubienski, 2007; Meyer, Dekker, & Querelle, 2001; Sullivan, Zevenbergen & Mousley, 2002). The study by Cooper and Dunne showed that realistic problems disadvantaged working class children since middle class children had greater linguistic facility.

Conversely, in spite of the importance of relating classroom mathematics to the real world, the results of my research indicate that students frequently fail to connect the mathematics they learn at school with situations in which it is needed. While students could calculate summary statistics from simple data sets (Item 1B), they had difficulty explaining why the weather person needs to know the average temperature (Item 2). Clearly, the results support claims made by other researchers (Gal et al., 1990; Konold, & Pollatsek, 2002; Mokros & Russell, 1995). Konold and Pollatsek claim that students rarely use the mean in the context of comparing data sets. Mokros and Russell state that the type of conceptions that emerge may depend on tasks used. It appears that learning for these students is situation specific and that connecting students’ everyday contexts to academic mathematics in a way that enhances meaning, is not easy.

Konold, and Pollatsek (2002) suggest that viewing averages as fair share may not provide an appropriate conceptual basis for representing an entire group. The findings of my study seem to support this claim. Some students viewed averages as fair shares. Student 5 used the mean rather than the median (Item 1B) because “everyone will get equal amount.” The student did
not think of the computed value in relation to other individual values or whether there was an outlier.

Students’ overall reluctance to use the median is consistent with the findings of (Zawojewski & Heckman, 1997). From students’ explanations, it was evident that students believed that the mean was superior to the median. Another contributing factor in students’ frequent selection of the mean over the median may be the design of the question. Since no reason for making the choice was given in Item 1B, students might have assumed that the statistics was going to be used to compare the pocket money figures directly, so they chose the mean.

Implications for Teaching and Research

This paper has focused on students' responses to mean and median tasks. The non-statistical responses point to some inappropriate connections being made with other parts of mathematics. The partial-statistical responses point to some misconceptions and alternative ideas which led students to using rules, but often inappropriately. These issues need to be addressed in high school mathematics courses to ensure that students develop both the conceptual and procedural understanding of the concept of average.

One implication for further research could be to replicate the present study and include a larger sample of students from different ethnic and educational backgrounds to claim generality. Since interviewing can be time consuming, probably there is a need to conduct a survey with these different groups. A sample of these students could be interviewed in order to probe their conceptions of averages at a greater depth.

Another implication relates to meaningful contexts. The picture of students’ thinking in regards to averages is somehow limited because students responded to few items. There is a need to include more items using different contexts such as comparing data sets presented in tables and graphs, and applications to problem-solving settings, in order to explore students’ conceptions of averages and related contexts in much more depth. Extending the question to include the reversing of the averaging process (Cai, 1998) and Watson and Moritz’s (1999) graphical representation tasks might also be used.

Research (Russell & Mokros, 1995) shows that task context can bring in multiple interpretations and possibly different kinds of abstractions. While 12 students managed to respond in a statistical way on Item 1B (Table 2), only eight responses were considered appropriate on Item 1A (Table 2). At this point it is not clear how a learner’s understanding of the context contributes to his/her interpretation of data. Research on what makes this connection difficult for students is needed.

Fourth, this small scale investigation into identifying and describing students’ reasoning in regards to the concept of averages has opened up possibilities for further research at a macro-level on students’ thinking and to develop more explicit categories for each level of Shaughnessy’s (1992) framework. Such research would validate the framework of response levels described in the current study and raise more awareness of the levels of thinking that need to be considered when planning instruction and developing students’ statistical thinking.

Many students were part-way to providing a complete explanation, but needed more detail or precision. Teachers need to assist students to express what they already know about averages with more precise statistical language. In the course of discussions, comparison of several interpretations of the word average may be made. This may lead to judgments about what might constitute a good explanation, draw attention to missing details and help students develop written and oral communication skills.
Teachers need to explicitly include activities that promote conceptual understanding in statistical analyses in statistics education. While it is common practice in classrooms to show students how to compute mean and median from supplied data, students are seldom asked to collect data and then choose an appropriate measure which is part of a meaningful context. Using manipulative tools such as cuisenaire rods (Hollingsworth, 1995), can offer a path for connecting conceptual and procedural understanding about averages.

Like the students, teachers may resort to partial-statistical or non-statistical explanations. Research efforts at the in-service and pre-service levels are crucial in order to better understand how teachers view measures of central tendency and to inform teacher educators and curriculum writers. Responses to average tasks, such as those used in research (Watson & Callingham, 2003; Watson & Moritz, 1999), could provide starting points for exploring the concepts of averages.

Ideally, it would be good to make links between students’ responses and what happens in classrooms. This could be achieved by doing classroom observations, as well as by collecting data from teachers. This could enable researchers to gain insights into why the students applied rules and procedures inappropriately. From lesson observations, researchers could collect examples of best practice for dissemination amongst the wider mathematics education community.

References


To what degree do immigrant entrepreneurs need formal education? The influence of formal education and informal learning on entrepreneurial behaviour among Chinese, Dutch, Indian and Pacific Peoples in New Zealand

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Abstract

The ability and desire to be entrepreneurial is evident among members of all ethnic immigrant groups throughout the world. A challenge for receiving countries is to determine how government, ethnic, and business agencies can support their immigrants’ entrepreneurial behaviour through the establishment of appropriate formal learning structures. The difficulty in answering this question lies in the road being travelled differently by immigrants from dissimilar backgrounds, value systems, education systems and cultural heritages. Therefore learning patterns present themselves in a multitude of different forms.

In an attempt to bring new understanding to the influence of education on the phenomenon of immigrant entrepreneurship, this study employed grounded theory to discover the multidimensional nature of immigrant entrepreneurs’ engagement with formal education, and their overall learning needs and patterns. The results identified the importance of both formal and informal learning, and a pattern of constant learning as part of the immigrant entrepreneurship phenomenon for the Chinese, Dutch, Indian and Pacific Peoples in New Zealand. It also highlighted inter-group and intra-group learning differences as impacting on entrepreneurial behaviour with respect to their business confidence and capability.

Introduction

The significance of understanding the linkages between education and immigrant entrepreneurship is tied to the rise in ethnic entrepreneurship internationally. Ethnic entrepreneurship is defined as “business activities in a certain area driven or undertaken by people of a different ethnic or cultural origin than the indigenous population” (Masurel, Nijkamp & Vindigni, 2004, p. 78), and increasingly, foreign migrants from different academic and trades backgrounds choose self-employment in both the urban and rural environments of the receiving countries they chose to make their home.

On any given working day throughout immigrant receiving countries such as New Zealand, immigrants and their siblings are likely to be making decisions regarding the employment opportunities that are available to them. A major element of immigrants’ societal and economic integration is tied to the status achieved through the type of employment they attain – as opposed to their social or academic status prior to immigration. Their employment status impacts on their family viability, social acceptance and personal esteem. Yet Dunstan, Boyd & Crichton (2004) observed that immigrants - particularly from “ethnic minority backgrounds” - face formidable barriers to employment opportunities in New Zealand, while Mace, Atkins, Fletcher & Carr (2005), in identifying the barriers of prejudice and discrimination, stated that globally, under-employment of immigrants was relatively common. One approach to managing this disparity is for immigrants to engage in entrepreneurial activity, although different
immigrant ethnic groups approach this prospect quite differently. For example, Krueger and Brazeal pointed out that “we fully recognise that entrepreneurial activity does not occur in a vacuum. Instead it is deeply embedded in a cultural and social context, often amid a web of human networks that are both social and economic” (1994, p. 230). A major conclusion of the international literature is that immigrant entrepreneurial self employment is a promising springboard for immigrant social integration, and reinforces their economic position and social status (e.g. Hunter, 2007; Masurel et al., 2004). The proliferation of immigrant entrepreneurship has lead researchers to conclude that, over the last 100 years, foreign born had been more likely to be self-employed than native born (Fernandez & Kim, 1998). Another example of the proliferation of immigrant entrepreneurship is offered by Rath and Kloosterman’s (2003) finding that, between 1986 and 2000, entrepreneurial activity amongst immigrants in the Netherlands increased threefold, and they argued that this reflected similar patterns to that found in the USA and Britain. These entrepreneurial decisions are influenced by individual, educational, cultural and societal factors, and can include immigrants aspiring to be self employed or those forced to engage in self employment due to a lack of employment opportunities – despite, in many cases, holding high academic qualifications. For example, North and Trln (2004) found that highly qualified immigrants have difficulty securing satisfactory employment in New Zealand. They identified that being skilled does not necessarily guarantee successful settlement, as immigrants face greater barriers to employment than New Zealanders. Furthermore, Benson-Rea and Rawlinson (2003) argued that the special skills exhibited by immigrants, such as application of language and cultural resources, were under-utilised in New Zealand organisations. In dealing with these challenges and inequities, the rationale underpinning entrepreneurial choices is often dynamic and complex, as decisional and behavioural patterns may be unique to specific ethnic groups.

In response to the question of unique behaviours within different ethnic groups, social anthropology has developed the conviction that all societies, modern or traditional, face the same basic problems, only the answers are different (Hofstede, 1991). There is no arguing that immigrants in New Zealand, and other receiving countries, come from different cultural, educational and personal histories, and all face similar settlement problems such as adoption of a new language, starting a new life, developing sustainable relationships, attaining employment, and facing inequities in society. But for each distinct immigrant group (reflecting ethnic and national differences) the answers to these settlement problems may differ, as every migrant group comes from patterns of thinking, feeling, and acting that have been learned through their lifetimes and which are grounded in historical events, homeland education, personal recollections and cultural values. Thus a philosophical position of attempting to solve settlement problems for new immigrants by general solutions (as in generic policy implemented by governments or community service and business groups) decries the unique nature of each ethnic group, let alone individual differences. As an example, Hofstede’s (1991) writing on cultural differences exemplifies one element of the dynamism and complexity of immigrant entrepreneurial behaviour. He quoted Rose from the 1955 play ‘Twelve Angry Men’ based in a jury room of a New York court room, in which there was a confrontation between a garage owner and a European-born watchmaker.

11th Juror: (rising) ,I beg pardon, in discussing.’
10th Juror (interrupting and mimicking) ,I beg pardon. What are you so polite about?’
11th Juror: (looking straight at the 10th juror) ,For the same reason you’re not. It’s the way I was brought up.’
(Extract from ,Twelve Angry Men’ in Hofstede, 1991, p. 3)

Hofstede argued that we behave in the way we are raised. He surmised that the world is full of people who feel, act and think in different ways depending on their national and cultural background, as “it is the collective programming of the mind which distinguishes the members of one group or category of people from another” (1991, p. 5). Such cultural characteristic
programming influences employment decisions in a similar way as educational grounding and individual personality traits can have a profound influence. Therefore, any development of theory or extension of knowledge on immigrant entrepreneurship requires a multi-ethnic perspective.

Studies of Immigrant Entrepreneurship

This research reflects New Zealand’s strong history of immigration (Frederick, 2004) and the unique contributions made by these immigrants, who through their business activities enrich New Zealand’s society with new products or services and export potential (North & Trlin, 2004). The study built on other New Zealand research which is related to general immigration issues (Chapple, Gorbey & Yeabsley, 1994; Department of Labour, 2003; Elliot & Gray, 2000; MacPherson, Spoonley & Anae, 2001, Yusuf, 1998), but does not specifically deal with entrepreneurial behaviour. Furthermore, entrepreneurial behaviour of immigrant groups is of ongoing international interest (e.g. Aldrich, Jones & McEvoy, 1984). Such interest does not stem solely from academics quarters, but also from business bodies, financial institutions and the public service. The international literature has focused on the significance of entrepreneurial behaviour in the economic and social development of nations (e.g. Kuratko & Hodgetts, 2004; Timmons & Spinelli, 2004). For example, existing international studies have identified both factors internal to migrant groups (e.g. personal characteristics, family, cultural factors, values) and factors external to migrant groups (social-cultural, legal and political issues in the receiving country and homeland environments), as influencing the level of entrepreneurial behaviour (e.g. Masurel et al., 2004). Internationally, research has been undertaken into immigrant and ethnic minority business development (e.g. Baldock & Smallbone, 2003), and the cultural/social influences on such activities (e.g. Kloosterman, Van der Leun & Rath, 1999).

However, internationally comparative studies of the educational factors that underpin entrepreneurial activity among different ethnic groups are limited, and consequentially there is inadequate development of theory in this area. Certainly, no research has been undertaken in New Zealand with respect to the combination of: (1) the influence of formal education (such as tertiary and vocational qualifications) and informal learning (such as learning-on-the-job, mentoring and role models) on immigrant business development, and (2) the differing ethnic context of entrepreneurial behaviour. In this country, research has been undertaken with regard to the social and fiscal impact of immigrants on New Zealand society (e.g. Nana, Sanderson & Goodchild, 2003); and indigenous and ethnic entrepreneurs have been studied in isolation (e.g. North & Trlin, 2004). Much of this research, however, has focused on segregated analysis and has therefore disaggregated entrepreneurship and immigration. As a consequence the understanding of formal education and informal learning in the context of the New Zealand social and political environment, and how this impacts on entrepreneurial behaviour (i.e. establishment of small and medium-sized enterprises (SMEs)) among different immigrant groups, has not been effectively established through existing research. Therefore, this research offers a conceptualisation of immigrant entrepreneurship learning within the context of commonalities and variances among four different ethnic groups in New Zealand.

Method

This paper is taken from a broader study which posed the question: What factors can help explain the phenomenon of immigrant entrepreneurship within the diverse and complex socio-cultural and environmental context in which it exists? To better understand the phenomenon, research was undertaken that explored how immigrants in New Zealand - from different ethnic backgrounds - dealt with immigrant entrepreneurship (i.e. understanding entrepreneurial decisions and patterns in the establishment and operation of their small and medium sized enterprises). To achieve this objective, this research attempted to bring insights into the embedded internal and external factors that have a multi-dimensional influence on
entrepreneurial behaviour among ethnic immigrant groups from geographically and culturally diverse backgrounds.

**Ethnic immigrant groups**

The four groups chosen were Chinese, Dutch, Indian and Pacific Peoples. The reasons for this mix of ethnic origins are outlined below.

- **Chinese and Indian**: Asia now houses three of the world’s top five economies - China, Japan and India. Asia will increasingly impact on the lives of all New Zealanders, and its growing economic dominance will determine patterns of investment and business activity in this country in the future. Furthermore between 1991 and 2001, the number of New Zealanders of Asian descent doubled from 99,000 to 237,000 and by 2021 the numbers are predicted to double again to 670,000, which will then represent 15 percent of the total New Zealand population (Steeds, 2006). The level of connection to the New Zealand-Asian community will impact on New Zealand’s ability to participate in this new economic powerhouse and therefore two groups, Chinese and Indian, were represented in this study.

- **Dutch**: New Zealand’s earliest recorded European contact was by the Dutch explorer Abel Tasman, followed by the English explorer James Cook. The country was then taken under colonial rule, and European immigration became an integral part of New Zealand’s development and the backbone of its population base – surpassing the indigenous Maori. Although in the later 20th century European immigration has been surpassed by Asian and Pacific immigration, the historical context and sheer numbers that identify themselves as European/Pakeha make them the dominant population base in New Zealand. Therefore, to include a group in this study representing New Zealand’s European links was considered essential.

- **Pacific Peoples**: New Zealand has had strong historical, geographical and economic ties to the Pacific Islands. Overall, one in sixteen people in New Zealand are of Pacific ethnicity (Statistics New Zealand, 2001a). Furthermore, New Zealand has played a significant economic and social role in the development of Pacific Rim countries. Notwithstanding Niue and Cook Islanders having New Zealand citizenship, many Samoan and Tongan Islanders have also made New Zealand their home. Because of the strategic impact of Pacific Peoples on New Zealand’s ethnic mix, and this country’s political mandates within the Pacific Rim, they were the fourth sample group identified for this study.

The broader study, on which this paper is based, sought to understand multiple factors influencing the entrepreneurial behaviour among distinct ethnic immigrant groups residing in New Zealand, and outlined how this phenomenon can be explained through a normative model. The research was based on the four ethnic groups and consisted of 42 semi-structured interviews and 35 follow-up interviews, over an eighteen month period. The purposeful sampling was based on: (1) criteria sampling, in that participants met the definition of what constitutes an immigrant entrepreneur; and (2) theoretical sample which met the grounded theory expectation for data saturation. The final sample consisted of ten Chinese, eleven Dutch, ten Indian, and eleven Pacific immigrant entrepreneurs who operated SMEs in New Zealand. A grounded theory (Glaser & Strauss, 1967) methodology was adopted to give a fresh slant to this topic (Goulding 2002) through its inductive process of ‘discovering’ theory from data, and to construct a profile of the ‘New Zealand Immigrant Entrepreneur’ from the perspective of viewpoints, opinions and experiences of the immigrant entrepreneurs themselves. NVivo data analysis software was employed as a coding, retrieval, and analysis tool during the theoretical development stage. Finally individual ethnic case studies of immigrant entrepreneurship were written for each of the four ethnic groups under study. These were based on: the data collected through grounded theory; additional structured interviews with two commentators (i.e.
community leaders) from each ethnic group; and a review of the New Zealand literature on each group.

The influence of formal education and informal learning as an entrepreneurial determinate was a major finding in the broader study and this paper reports these findings in the following section.

Findings

The analysis identified both formal education and informal learning as factors that shaped the behaviour of immigrant entrepreneurs, and detected specific learning differences between each of the four groups under study. These findings have been categorised as: academic education, practical learning, external support, role modelling and language.

Academic education

The majority of immigrant entrepreneurs had completed some form of university or polytechnic study (n=29). Predominantly this higher education was of a non-business nature, but three immigrant entrepreneurs had both, as in: “Actually I was trained as a bio-chemist, so I ended up with an MChem in bio-chemistry and then I did a bachelor degree in commerce as well.” The Indian (n=10) and Chinese (n=7) immigrant entrepreneurs were most likely to have tertiary qualifications, whereas the Dutch (n=5) had a prominence of trades qualification, as in: “About four years in school, a butcher school, and one of those years was also practical,” and the Pacific (n=3) had the least tertiary qualifications. All four groups in the study had overall higher levels of tertiary qualifications than their general New Zealand ethnic population. Notably, the ethnic groups in this study – except for the Pacific Peoples - already had significantly higher levels of qualifications than the general New Zealand population, although the Chinese, Indian and Pacific People’s vocational qualifications were lower than the New Zealand average (Table 1).

Tertiary education was more prominent among recent immigrants (i.e. post-1990), which reflected New Zealand’s 1987 Immigration Act which introduced a points system (Pio, 2007) that had a stricter “skilled and business” immigration criteria than earlier legislation (Dunstan et al., 2004). Commentators also agreed that the new wave of Chinese immigrants to New Zealand were highly educated, while Schouten (1992) quotes van der Ree of the Wellington Dutch Embassy as saying that recent Dutch immigrants tend to be more educated and skilled than those who arrived earlier.

<table>
<thead>
<tr>
<th>Table 1: Education Levels by Ethnic Group</th>
<th>Chinese</th>
<th>Dutch</th>
<th>Indian</th>
<th>Pacific Peoples</th>
<th>New Zealand Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Qualification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>20.2 %</td>
<td>11.1 %</td>
<td>21.4 %</td>
<td>3.2 %</td>
<td>10.9 %</td>
</tr>
<tr>
<td>Vocational</td>
<td>9.5 %</td>
<td>20.9 %</td>
<td>13.4 %</td>
<td>10.8 %</td>
<td>18.3 %</td>
</tr>
<tr>
<td>School</td>
<td>47.5 %</td>
<td>48.3 %</td>
<td>40.5 %</td>
<td>39.0 %</td>
<td>35.7 %</td>
</tr>
<tr>
<td>None</td>
<td>13.7 %</td>
<td>11.8 %</td>
<td>13.0 %</td>
<td>29.3 %</td>
<td>24.6 %</td>
</tr>
<tr>
<td>Not stated</td>
<td>9.1 %</td>
<td>7.9 %</td>
<td>11.7 %</td>
<td>17.7 %</td>
<td>10.9 %</td>
</tr>
</tbody>
</table>

This analysis suggests that there is a link between the level of education and immigrant entrepreneurial activity. Basu (1998) also agreed that there is “strong evidence of an association between the level of educational qualifications and business success” (p. 325). Basu, who studied Asian business owners in Britain, suggested one reason for this may be that education contributes towards lifting the entrepreneur’s internal resource constraint by improving the communication skills required to negotiate with bankers, which in turn, may help remove external financial constraints. A further possibility is that education may also enhance the entrepreneur’s analytical capabilities, which are needed to establish and manage expanding businesses. A Pacific commentator affirmed the importance of qualifications, in stating that Tongans and Samoans are probably the best in terms of leading the way for other Islanders in the business sense in that, for example, Tongans have the greatest education and the most business people. However, there were some comments by immigrant entrepreneurs of discrimination, as their homeland qualifications were viewed as incompatible or irrelevant with respect to New Zealand employment and business opportunities. Consequently half of the Indian, Chinese and Dutch, and all the Pacific immigrant entrepreneurs in this study had been, or were, involved with some form of education in New Zealand post starting up their businesses.

Practical Learning
The majority of immigrant entrepreneurs had a background of significant practical experience, in that they came from positions of previous employment in the industry of their entrepreneurial activity, or had some other in-depth industry knowledge (n=29). They saw this experience as vital to their success, as in a Dutch immigrant entrepreneur’s statement on reputation: “It was basically the quality and the name you created as a tool maker before you started for yourself;” and a Pacific immigrant entrepreneur’s comments about understanding the business environment: “I don’t think the boss was the fairest person but I did definitely learn a lot – took a lot on board,” and networks: “With my connection I had built up in the timber industry. I didn’t have any problems getting accounts with a number of small suppliers.” The literature also suggested that networks were important, for example Schouten (1992, p. 250) quoted van der Wal saying “knowing people is more important than having the right papers.” Immigrant entrepreneurs were unanimous in the view that there was a need for considerable “learning on the job” once they engaged in self employment (n=38), as in a Dutch immigrant entrepreneur’s comment: “I just had to learn it like „off the hip‟ if you can call it that – you are chucked into it and you have got to go.” This learning had been vital to their success, as an Indian immigrant entrepreneur stated: “Academic helps when you get into the workforce, but then you go along and find that it is the day-to-day practical experience, customer focus and interaction with people - that’s what makes a successful business,” and a Pacific immigrant entrepreneur said: “You make the wrong decisions - I mean - just as long as you learn from it, that’s the key.”

The perception of immigrant entrepreneurs was that practical experience exceeded the importance of formal business education as a prerequisite for their entrepreneurial activity, as in a Chinese immigrant entrepreneur’s comment: “I think I am probably using only 20 percent of my studies on my work now, so 80 percent is from my work experience. I mean theory is theory – you have to see some reality.” A Dutch immigrant entrepreneur said: “I think it is life experiences more than the academic experiences that moulds you,” and an Indian immigrant entrepreneur concurred: “Academic learning is OK but practical business experience is essential.” The Dunstan et al. (2004) study also raised the importance of business experience, while the Indian commentators spoke of Indians taking the initiative themselves in seeking knowledge – whether that be from conferences, workshops, universities, peers, practical experience etc. They argued that Indian immigrant entrepreneurs sought out the knowledge they felt was necessary to achieve business success.
Immigrant entrepreneurs did, however, rate formal education highly – as already identified in the academic education section by their high level of formal qualifications and on-going formal education. A Pacific commentator reflected on the need for applied education in suggesting that the Pacific People understood their trades well, but needed management skills, to pay taxes and keep their books, rather than academic qualifications. Another commentator summed up the position of the Pacific People in saying: “Pacific Islanders are practical people, very much hands-on, as opposed to being academically successful. However, you need both, you need the academic background to succeed, but you need practical sense as well.” The Pacific immigrant entrepreneurs in this case analysis were effectively managing both needs in that they had gained practical experience and had or were complementing this with education.

External support

In addressing the academic and practical needs of setting up and running their businesses, immigrant entrepreneurs generally used some form of professional support. Accountants (n=29) were highlighted as the most prominent professional, as in Dutch immigrant entrepreneurs’ comments: “I think choosing a good accountant is a big thing when you start a business - who will give you the right advice,” and “I ask him frequently on things that we do.” Accountants were used in varying degrees - from advisors on purely functional tasks, for example: “We just use an accountant purely for filing GST returns and end of year accounts.” Other business professionals such as lawyers and consultants were also used in an ad-hoc fashion. “We have used consultants to help set up our quality programme.” Some reference was also made to a mistrust of professionals. According to a Chinese commentator they do recognise the value of professional help but it is a matter of trust: “It goes back to how do you develop the trust to take on board the advice you have been given. So there may be an element of natural suspicion – I take your advice with a grain of salt.” Some Dutch immigrant entrepreneurs spoke of having difficulties working with their peers (n=4) as well as a mistrust of professionals (n=3), although one Dutch commentator put this trait in a broader perspective by saying:

When I say they are stubborn, if they have a point or an idea which they feel strongly about - they will stand by it. But they are professional enough to take advice when they need it. They see their weak points if they have any and they are prepared to get other advice for it.

A second Dutch commentator was more critical of their frugal approach to business advice in saying: “As long as it doesn’t cost them too much Dutch will come [to professionals] for advice as long as it is free. If they have to pay for it they will probably do it themselves.” Among Indian immigrant entrepreneurs (n=7) there was a reluctance to take professional advice because they did not see the value, as in: “The accountant is the last one I get advice from,” or were suspicious of professional advice: “Mentors are very dangerous.” An Indian commentator affirmed that “to a very large extent Indians don’t depend on others.” The study did, however, identify that the Indian immigrant entrepreneurs were inclined to talk with, and seek advice from, their peers (n=7), as in other business people and community members whom they respected:

My two best friends, one guy is the head of finance at a charter bank in Hong Kong and my best mate a CEO in Tokyo. So those two guys have always done well and generally making sure I’m on the right side of the fence.

I will ask 20 people about it and I will take all their 20 opinions and then I will make a decision. So I take advice from people all the time who I think will probably know what I am looking for and then I will make a decision based on their advice. So I wouldn't just go on a whim, I would take advice.

Pacific immigrant entrepreneurs (n=9) were also inclined to talk with and seek advice from their peers, although commentators did suggest less successful Pacific immigrant entrepreneurs
failed to ask for help out of pride. For example, a commentator said that Samoan business people would ask for help

...only as a last resort. Samoans are always too humble to ask for help even if they know their business is going under or failing. That is largely due to pride: ‘No I’m fine, I’ll get myself out of this scrape.’ They keep going and going until they find they can’t go any further.

Another commentator also suggested that the Pacific People have difficulty accessing appropriate advice before entering into business because of the lack of business networks in their community.

They don’t know any accountants or anyone who owns a business. So we are still trying to develop that connectedness. So those are the kind of barriers we need to work our way through – actually knowing the people who are in business or knowing something about business.

Whilst the Pacific immigrant entrepreneurs in this study have displayed an ability to overcome these issues, they do have a far reaching impact on the business capability for the broader Pacific community.

Spouse input was also rated highly by some immigrant entrepreneurs. They valued spouse support and skill (n=24), as in a Dutch immigrant entrepreneur’s statement: “My weakness is bookwork, which my husband does,” and Indian immigrant entrepreneur’s comment: “My wife and I are totally involved in the business,” and a Pacific immigrant entrepreneur’s admission: “If I didn’t have her there just answering the phones and helping with the paperwork ... I don’t think the business would be here if we didn’t do this together.” Often the immigrant entrepreneur and their spouse brought complementary skills or differing perspectives to business issues.

Role Models
There were mixed views on the importance of role models. Few Chinese or Dutch immigrant entrepreneurs (n=5) spoke of role models being influential in their lives – with the exception of the Dutch highlighting the influence of their parents (n=4). Most Indian (n=9) and Pacific (n=10) immigrant entrepreneurs spoke of being inspired by others. Indian immigrant entrepreneurs referred to family members and colleagues, and to national figures such as Mahatma Gandhi (n=3). Palakshappa (1980) confirmed that the Gujarati homes are decorated with photos of Mahatma Gandhi. A commentator also spoke of Gandhi’s importance to Indian social and business behaviours, although he did caution that such influences were waning within the younger generation. A second Indian commentator spoke of the importance of examples of rags-to-riches stories in India, as inspiring entrepreneurial activity. For Pacific immigrant entrepreneurs parents rated highest as role models (n=6) as in comments such as: “definitely my parents” and “She [mother] always inspired us to be the best that we can be.... Yeah a very strong woman, and never settled for less. I guess I’ve got a lot of her in me.”

Pacific immigrant entrepreneurs (n=6) were the only group which placed an emphasis on acting as role models for others in their ethnic community, as in “Collectively become role models for each other,” and “So it is nice when people come up to me and say „You have done really well, can you come and talk to our group of women‘ and I say yeah, sure, not a problem.” The study also identified that some Pacific immigrant entrepreneurs who did not view themselves as role models were often unknowingly a visible face in their community.
I’m on the board of trustees for three charitable trusts for youth in West Auckland. I’m rebuilding a Christian camp in Rotorua and Habitat for Humanity building house for people who otherwise wouldn’t have a home. And so it keeps me humble.

Acting as a role model was not considered by many Chinese, Dutch and Indian immigrant entrepreneurs as an obvious outcome of their business profile.

Language
Language barriers were not a large issue as immigrant entrepreneurs generally spoke fluent English. The only problem was with interpretation or understanding of Kiwi-isms, for example: “Language was an issue to some extent because the way we do, I learn English, it’s one of the languages in India but we still have huge differences in terms of pronunciation.” Many immigrant entrepreneurs expressed the view that New Zealand was a country that currently embraced biculturalism (i.e. English and Maori), but which was critical of those who could not effectively conform to those language norms. As a consequence, the importance and relevance placed on retaining their native language varied significantly between the study groups.

All Dutch immigrant entrepreneurs were proficient in English but only two Dutch immigrant entrepreneurs reflected on the importance of retaining their native language. Hartog and Winkelmann (2003) agree that only a small minority of second generation speak Dutch. But offsetting the loss of their traditional language, the Dutch claim to be very proficient in English. New Zealand-born Dutch immigrant entrepreneurs confirmed that generally they had not retained the language: “When they come up and talk to me in Dutch I can’t talk back to them.” Schouten (1992) argued that the Dutch felt that there was no compelling reason for the children to learn their mother tongue and most parents accepted the loss of the language as part of the process of adjusting to their adopted land. “They were asked to fully assimilate and they did” (p. 135).

Indian immigrant entrepreneurs were also fluent in English but half believed that retaining their native language was important within their family. For example, in discussing what language was spoken in their home, one immigrant entrepreneur stated “Generally I would say half and half. One is Gujarattee and the other one is English.” However a social commentator believed that a lot of lip-service was paid to the importance of maintaining the homeland language, because, for Indians in New Zealand, native language is a dividing factor as there is no common language among Indians in New Zealand except English.

Despite New Zealand being a strongly bilingual country, the Chinese immigrant entrepreneurs considered that the retention of their native language was still very important. Even though the Chinese entrepreneurs were proficient in English, they stated that for many Chinese immigrants a poor command of English hindered the formation of new social networks and hindered the full utilisation of high technical or academic skills. As one Chinese immigrant entrepreneur stated: “Chinese people have some ability and they have some knowledge, very good knowledge and high qualifications, high skills but very hard to find a job with their language skills.”

Pacific immigrant entrepreneurs (n=8) remarked that they or their families (in the case of second generation immigrant entrepreneurs) had experienced some difficulty with social integration in New Zealand, with respect to language: “My English and my knowledge is not good enough to achieve a better wages or another standard of living,” and “OK the first aspiration was to learn how to speak English a lot better.” Generally the Pacific immigrant entrepreneurs spoke of the emphasis on the English language in business and at home in New Zealand, while only some commented on the importance of speaking their native tongue within the family environment (n=4). One commentator suggested that more emphasis is now being placed on mother tongues at the Pacific community development level – as opposed to the
family level. Another commentator argued that language is one of the pillars of cultural retention and must be preserved and taught to other generations, but confessed that; “The problem is that business talks in the language of the dollar and that is not an ethnic concept.”

**Discussion**

Anecdotal tales depicting immigrant entrepreneurs as under-resourced and uneducated individuals, who through sheer hard work and natural skill became successful, were not borne out by this study. The research highlighted the importance of learning with respect to formal education, as well as the gaining of industry and societal knowledge.

Immigrant entrepreneurs from all groups had completed some form of post-school formal education ranging from university study to targeted business seminars. The types of formal learning undertaken by immigrant entrepreneurs prior to going into business included a diverse range of formal education and industry training. University and polytechnic learning was most prominent amongst Indian and Chinese immigrant entrepreneurs, trade qualifications were prominent amongst Dutch immigrant entrepreneurs, while Pacific immigrant entrepreneurs were the least likely to hold any form of tertiary qualification. Overall, immigrant entrepreneurs in all four groups were more likely to have some form of formal qualification than their general ethnic population, although the types of qualification varied significantly between ethnic groups and individual immigrant entrepreneurs.

Immigrant entrepreneurs in all four groups had a strong belief in the value of practical experience, as they predominantly came from positions of previous industry knowledge and employment. Experience preceding education was generally accepted as a prerequisite for their entrepreneurial activity. Immigrant entrepreneurs were often conscious of their own academic limitations or the non-acceptance of their homeland qualifications. They filled this void by utilising external support networks such as professional services, peers, family and role models; although how these resources were accessed and utilised varied significantly between the four groups under study. Support from an accountant and/or spouse was commonly used to supplement their own deficiencies. Pacific and Indian immigrant entrepreneurs were more inclined to seek advice from their peers than Dutch or Chinese immigrant entrepreneurs. Pacific immigrant entrepreneurs were also more likely to act as role models for their community than the other ethnic groups.

With respect to language skills, nearly all immigrant entrepreneurs in this study were proficient in English. This was considered critical as they viewed New Zealand as a country that only embraced English and Maori languages, although they lamented the lack of acceptance of immigrants’ native languages and qualifications in the New Zealand business and societal context. In giving credence to these findings, this study accepted that it is important for newly arriving immigrants with business aspirations to be, or become proficient in, the English language. However, a broader range of language skills and an international qualification are useful to a country such as New Zealand which relies on international trade for its economic wellbeing. The almost exclusive status of English in this country’s society does restrict its ability to expand trading networks. Generally immigrant entrepreneurs who migrated to New Zealand (or were raised in New Zealand) had a range of language skills. Around two-thirds of immigrant entrepreneurs in this study could speak more than one language well. Establishing trading networks is an area where immigrants, especially immigrant entrepreneurs, can add significant value to New Zealand society. Within this study, Chinese, Indian and Pacific businesses were open to broadening their business networking internationally, and to taking advantage of their multiple language skills and homeland qualifications.
Conclusion

The importance of formal education was reflected in this study insofar as the immigrant entrepreneurs were generally educated people, with varying levels of school, vocational and tertiary qualifications – attained either in New Zealand or their homelands. Furthermore, all four immigrant entrepreneur groups, on average, had higher qualifications than their general ethnic population in New Zealand, and were extremely likely to be involved with ongoing formal education and informal learning. Immigrant entrepreneurs also identified the importance of the practical experience gained from an employment history in New Zealand, as the majority went into entrepreneurial activity in the sector of their previous employment. Immigrant entrepreneurs affirmed the importance of business experience, as overwhelmingly they saw ‘learning by doing’ as a vital ingredient to business success. This did not, however, preclude the relevance of academic learning to immigrant entrepreneurship, because the high level of formal education they had undertaken (or were undertaking) reinforced their belief in the value of all forms of learning.

This study therefore contends that there is a positive relationship between formal education and immigrant entrepreneurship, but that this does not necessarily imply solely the need for higher education. Vocational and informal industry learning may be equally responsible for increasing the propensity for entrepreneurial activity. The best example supporting this accretion is that of the Dutch community, who had the highest vocational learning and also the highest entrepreneurial activity of the four groups under study. In direct contrast, a lack of formal education can reduce entrepreneurial propensity. This is a critical factor for the Pacific Peoples in New Zealand, as they have the lowest levels of higher education and the highest level of unqualified people, of the four groups studied, and the lowest level of self-employment. Therefore this study suggests that maintaining an immigrant community’s access to, and involvement in, education in its various forms (i.e. tertiary education, trades qualifications, on-the-job learning, or role modelling), acknowledgement of homeland qualifications, and an embracing of their native languages, will enhance entrepreneurial propensity of immigrant communities in New Zealand.

Notes

1. In the context of this study immigrant entrepreneurship has been defined as: immigrants or their immediate offspring, who have a specific ethnic identity, and who create workplace settings for themselves and others, within their receiving country. Whilst the term immigrant implies ‘migrating peoples’ it is noted that the definition has been extended to include New Zealand-born second generation for a number of reasons. Firstly, because the grounded theory approach to theoretical sampling drew on second generation entrepreneurs. Secondly, the extended definition takes into account the ‘immigrant factor’ and cultural influence that are often very strong across generations within ethnic minority groups, and that impact on the entrepreneurial behaviours of their community (e.g. Butterfield, 2004; Dhaliwal and Kangins, 2006; Peters, 2002). Thirdly, it gives a stronger longitudinal perspective of immigrant adaptation and their entrepreneurial participation in New Zealand.

2. The following criteria were established: (1) the business had at least two annual cycles (financial years) of current business activity, to ensure currency and substance in the entrepreneur’s business activity; (2) that the entrepreneur had over 50% ownership in the business; and (3) businesses of less than 100 FTE.
References


Ongoing Challenges with Language Curriculum Innovations in Asia: A South Korean Case Study

Jocelyn Howard and Susan Millar, University of Canterbury, New Zealand

Abstract

In response to increasing globalization, recent government-initiated education policies in several Asian countries have included the adoption of communicative language teaching (CLT) to help develop learners’ communicative competence in English. However, researchers report constraints on the success of such initiatives. One study, conducted by Li (1998), identifies multiple constraints perceived by teachers to impede the implementation of a communicative curriculum in South Korea. The present study investigates whether developments in South Korea in the decade since Li’s study have resulted in any changes in the challenges reported by English as a Foreign Language (EFL) teachers. The results indicate that despite ongoing educational reforms, teachers still perceive the same challenges in attempting to meet curriculum goals and wider societal expectations. Additional challenges were also reported in the current study. The authors identify key issues that must be addressed to minimize constraints that impact on ongoing language curricular innovations in the Asian region.

Introduction

Recent government-initiated educational reforms in many countries where English is taught as a foreign language (EFL) have included the adoption of communicative language teaching (CLT) to help develop learners’ communicative competence in English. However, researchers report constraints on the success of such initiatives in several Asian countries including Vietnam, India, Malaysia, Japan, China, Taiwan and South Korea (Canh, 1999; Chowdhury, 2003; Hasegawa, 2005; Hato, 2005; Hu, 2002; Lamie, 2004; Liao, 2000; Pandian, 2002; Reed, 2002; Savignon, 2002; Sun & Cheng, 2000; Wu & Fang, 2002). As a result, the appropriateness of implementing CLT in EFL contexts has been widely debated (Anderson, 1993; Andrewes, 2005; Bax, 2003; Brown, 2002; Kumaravadivelu, 2001, 2006; Richards, 2001).

Some constraints are reported in terms of a lack of alignment between the characteristics of CLT and the Confucian-influenced educational practices of some of the countries studied (Biggs, 1996; Butler, 2005; Campbell & Zhao, 1993; Hui, 1997; Rao, 2002; Stapleton, 1995). Other challenges reportedly derive from institutional and classroom demands (Cahn, 1999; Hu, 2002; Hui, 1997; Littlewood, 2007; Nishino, 2008; Pham, 1995; Wu & Fang, 2002). In one study, conducted by Li (1998) in 1995, South Korean EFL teachers reported no fewer than 15 difficulties perceived to constrain their efforts to implement a communicative approach. Despite the reported challenges, however, countries including South Korea, Thailand, China, and Taiwan have strengthened their commitment to implementing communicative approaches in English language education (Adamson, 2001; Dash, 2002; Kumaravadivelu, 2006; Savignon & Wang, 2003).

The present study was motivated by repeated feedback from Chinese, Japanese, Taiwanese and South Korean EFL teachers undertaking professional development programs in New Zealand, who were finding it difficult to implement CLT in their own institutions. The challenges expressed by many of these teachers appeared similar to those reported in Li’s (1998) case study findings on the difficulties perceived by South Korean teachers. This
follow-up from Li’s study aims to investigate whether ongoing educational reform and expenditure in South Korea in the decade since Li’s study have impacted on EFL teachers’ perceptions of issues and challenges in implementing a communicative curriculum.

Background

Communicative Language Teaching

While it is difficult to find consensus on exactly what concepts and practices the umbrella term CLT encompasses, several themes recur in the many explanations. These include the concept of communicative competence, the primacy of meaning, and language as communication (Canale & Swain, 1980; Richards, 2006; Richards & Rodgers, 1986; Savignon, 2002). One of CLT’s major points of departure from earlier behaviorist-based teaching approaches is its more learner-centered, experience-based pedagogy, aimed at helping learners create meaning rather than merely memorize and manipulate structures. The approach requires that classroom dynamics (including teacher and learner roles), the syllabus, materials and activities be “based on and respond to the learners’ communicative needs” (Canale & Swain, 1980, p. 27). To maximize the amount of time learners have to interact in a range of contexts, many activities in CLT classrooms are conducted in pairs and small groups, with a focus on authenticity of both input and purpose.

Different CLT approaches have been described (according to their content and methodology) as “strong” or “weak” (Howatt, 1984) and as “classic” or “current” (Richards, 2006). The weak approach integrates communicative activities into a wider program, allowing the prior selection of targeted functional and structural aspects of the language. Howatt (1984) summarizes the strong version of CLT as “using English to learn it”, and the weak version as “learning to use English” (p. 297). The present study uses the term CLT to refer to the weak, classic version, which is the form participants in the present study reported they were attempting to implement.

Differences between ESL and EFL

EFL usually refers to contexts where English is not an official language but is part of the school curriculum. In such settings, English often performs a gate-keeping role for advancement within educational careers (Richards, 1985). Most EFL students do not require English outside their classrooms, and the learners’ shared language is frequently the medium of instruction in EFL lessons. In contrast, English as a Second Language (ESL) is generally used to refer to the study of English as a second or additional language in an English-speaking country, where English is the medium of instruction, and is used by learners both inside and outside the classroom. In an ESL situation, the teachers are often native speakers of English, and learners commonly have different first languages.

Li’s (1998) Study

Li (1998) investigated the difficulties associated with the implementation of CLT in South Korea from the perspectives of 18 secondary school English teachers who were undertaking a professional development program together at a Canadian university. All participants completed a questionnaire, indicating which of nine suggested difficulties they perceived to be problematic in adopting CLT in their own classrooms. Ten participants were then selected for follow-up semi-structured interviews. The fifteen difficulties reported by the South Korean teachers in the questionnaires and interviews are categorized by Li into those caused (a) by the teachers, (b) by the students, (c) by the education system, and (d) by CLT itself (p. 686).

Li (1998) recommends that English classes include listening and speaking activities, as well as extensive reading and reading for meaning, and that grammar should be taught as a tool for language learning, rather than as an end in itself. Further recommendations in Li’s report include the provision of more training in CLT, language improvement programs for teachers,
and more emphasis on developing teachers’ decision-making and reflective skills. Li (1998) endorses Tomlinson’s recommendation that teachers “develop their own locally appropriate version of the communicative approach” (cited in Li, 1998, p. 697). He concludes by emphasizing the critical role of teachers’ perceptions in determining the success or failure of a curriculum innovation.

Recent Educational Changes in South Korea
As in many other Asian countries, ongoing educational reforms in South Korea have continued to endorse CLT. This has resulted in the merging of functional and grammatical syllabi, the mandated use of English-only for some English lessons, and the introduction of English as a compulsory academic subject from elementary Grade 3 (Dash, 2002; Kim, 2002; Ministry of Education, 1992; Ministry of Education and Human Resource Development [MOEHRD], 1997, 1999). To support these initiatives, South Korea’s MOEHRD has allowed level-differentiated classes and increased in-service professional development programs to improve the present cohort of EFL teachers’ English language proficiency and understanding of CLT.

Since Li (1998) conducted his study in 1995, a number of other educational changes have occurred in South Korea. In 1997, the government reduced the compulsory retirement age for teachers from 65 to 62, and by 1999, 14% of teachers (almost 50,000) had been replaced by younger colleagues (Kim, 2002). New textbooks and supplementary resources have been produced, and the listening sections of the high school and university entrance examinations have been expanded (Dash, 2002). Government expenditure on education in proportion to the overall budget has continued to increase, the student–teacher ratio has fallen, and numbers graduating from higher-level education have increased to place South Korea third in the world for the proportion of university-educated adults (Organisation for Economic Co-operation and Development, 2006; Seth, 2005). However, researchers continue to question whether the current syllabus and methods can develop learners’ communicative competence sufficiently, and express ongoing reservations regarding the overall applicability and feasibility of CLT in South Korean and other EFL contexts (Ahn, 2003; Butler, 2005; Kumaravadivelu, 2006; Nunn, 2007; Savignon, 2002; Yoon, 2004).

The current study aims to determine whether the educational changes in South Korea over the decade since Li’s study have impacted on the difficulties perceived by teachers to influence the adoption and implementation of a communicative curriculum in South Korean schools.

The Study
This study takes its research design largely from the study undertaken by Li (1998), employing a self-completion questionnaire and individual semi-structured interviews. However, the study is expanded in the interview stage by requesting participants to identify and rank the constraints they consider the most important to be addressed in order for them to be able to implement CLT.

Participants
The participants were a convenience sample, comprising an intact class of 15 South Korean English language teachers (seven male, eight female) undertaking a four-week professional development program in New Zealand (see Table 1). Participants ranged from 25 to 52 years in age (M = 40.5), and their teaching experience ranged from 2.5 to 27 years (M = 12.8). All participants were teaching in urban middle or high schools in South Korea at the time of the study.
Table 1.

Background of study participants

<table>
<thead>
<tr>
<th>Participants (Pseudonyms)</th>
<th>Age</th>
<th>Gender</th>
<th>Years teaching</th>
<th>School type</th>
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<td>Sun Hwa</td>
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</tbody>
</table>

Notes: * Participant completed questionnaire and chose not to be interviewed.

Questionnaire
Li’s questionnaire (1998, pp. 702–703) investigated teachers’ experiences with CLT and the difficulties they associated with adopting this approach in South Korea. Nine potential difficulties were listed, one of which (12.6) was not in the final list of 15 constraints reported by participants (p. 687). The corresponding question in the present study contains 16 items, developed by merging the nine constraints in Li’s questionnaire with the 15 constraints reported in his findings. The questionnaire was administered and completed in English, with an academic interpreter present.

Semi-structured Interviews
Whereas in Li’s (1998) study maximum variation sampling was used to select the ten interviewees, in the present study interviews were conducted with all 14 of the 15 questionnaire respondents who indicated they were willing to take part, in order to get maximum breadth and depth in the data (Burns, 2000). An interview schedule was developed following guidelines proposed by Kvale (1996) to ensure consistency and minimize limitations associated with using two interviewers. The semi-structured nature of the
interviews gave the interviewers flexibility to probe further for a better understanding of the reasoning behind participants’ responses (Burns, 2000). All participants declined the use of a translator. The recorded interviews (from 40 to 53 minutes’ duration) were transcribed, and later verified by the participants.

Data Analysis
A constant comparative analysis of the qualitative data from the questionnaires and interviews was undertaken to identify recurring ideas (Merriam, 1998). Themes reported by Li were noted, where appropriate, and additional themes were added as they emerged.

Results
Participants indicated in the questionnaire which of the 16 difficulties taken from Li’s (1998) study they had experienced or thought they might experience in adopting CLT in their classrooms. Analysis of responses to the open questions in the questionnaire revealed three further difficulties associated with the implementation of CLT: increased noise level, lack of time for teaching English, and fear of complaints from students and parents when using CLT. A further three constraints emerged during analysis of the full interview data: teachers’ anxiety about student criticism, teachers’ reluctance to attend training programs, and multi-level classes. The reported constraints are presented in Table 2 in the four categories proposed by Li.

<table>
<thead>
<tr>
<th>Source and difficulty</th>
<th>No. of mentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
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</tr>
<tr>
<td>Deficiency in spoken English</td>
<td>15</td>
</tr>
<tr>
<td>Deficiency in strategic and sociolinguistic competence</td>
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</tr>
<tr>
<td>Anxiety about students’ criticism</td>
<td>12</td>
</tr>
<tr>
<td>Lack of training in CLT</td>
<td>13</td>
</tr>
<tr>
<td>Few opportunities for retraining in CLT</td>
<td>10</td>
</tr>
<tr>
<td>Reluctance to attend training programs</td>
<td>9</td>
</tr>
<tr>
<td>Misconceptions about CLT</td>
<td>11</td>
</tr>
<tr>
<td>Lack of time and expertise to develop communicative materials</td>
<td>15</td>
</tr>
<tr>
<td>Students</td>
<td></td>
</tr>
<tr>
<td>Low English proficiency</td>
<td>14</td>
</tr>
<tr>
<td>Lack of motivation for developing communicative competence</td>
<td>15</td>
</tr>
<tr>
<td>Resistance to class participation</td>
<td>13</td>
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<tr>
<td>Educational system</td>
<td></td>
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<tr>
<td>Large classes</td>
<td>15</td>
</tr>
<tr>
<td>Multi-level classes</td>
<td>12</td>
</tr>
<tr>
<td>Grammar-based examinations</td>
<td>15</td>
</tr>
<tr>
<td>Lack of support from principal and parents when CLT is used</td>
<td>13</td>
</tr>
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</table>
Fear of complaints 13
Insufficient funding 8
Lack of authentic teaching materials c 11
Lack of time for teaching English 13

CLT 42
Increased noise level 13
The difference between ESL and EFL 15
Lack of effective and efficient assessment instruments 14

Notes: aConstraints which emerged in the present study and were not reported by Li (1998) are italicized.
bThe number of participants who referred to a theme in either the questionnaire or the interview as a constraint in using CLT in their own context. The maximum possible number of mentions for each theme within each of the four major categories is 15.
cThis constraint was included in Li’s (1998) questionnaire (p. 703), but was not recorded in his findings as a constraint reported by participants (p. 687).

At the end of the interview, in order to elicit teachers’ perceptions of the relative importance of the reported constraints, participants were asked to identify and rank the three most important difficulties to overcome for teachers to be able to successfully implement CLT. Each participant’s top ranking was assigned a value of 3, their second a value of 2, and their third a value of 1. Table 3 shows the aggregated results. These item rankings are discussed in the relevant sections below.

Table 3
Aggregated rankings of the most important difficulties to overcome a

<table>
<thead>
<tr>
<th>Source and difficulty</th>
<th>Aggregate score</th>
<th>Total mentions b</th>
</tr>
</thead>
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<tr>
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<tr>
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<td>1</td>
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<td>3</td>
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<tr>
<td>Few opportunities for retraining in CLT</td>
<td>3</td>
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</tr>
<tr>
<td>Misconceptions about CLT</td>
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<td>1</td>
</tr>
<tr>
<td>Lack of time and expertise to develop communicative materials</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Students</td>
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<td></td>
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<tr>
<td>Low English proficiency</td>
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<tr>
<td>Lack of motivation for developing communicative competence</td>
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<td>0</td>
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<tr>
<td>Resistance to class participation</td>
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<td>Educational system</td>
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<td>Large classes</td>
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<td>5</td>
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<tr>
<td>Grammar-based examinations</td>
<td>21</td>
<td>9</td>
</tr>
</tbody>
</table>
Lack of support from principal and parents when CLT is used 4 2
Fear of complaints from students and parents when CLT is used 0 0
Insufficient funding 0 0
Lack of authentic teaching materials 0 0
Lack of time for teaching English 8 4

CLT
Increased noise level 0 0
The difference between ESL and EFL 0 0
Lack of effective and efficient assessment instruments 2 1

**Notes:** a Three constraints (teachers’ anxiety about student criticism, teachers’ reluctance to attend training programs, and multi-level classes) were not ranked by participants, as they were identified during analysis of the full interview data.
b The number of participants who ranked this difficulty as one of the three most important to overcome to be able to implement CLT. The maximum possible number of mentions for each difficulty is 14.

**Difficulties Related to the Teacher**
In addition to confirming the six challenges that Li (1998) identified as relating to the teacher (see Table 2), two further constraints were revealed in the present study: teachers’ anxiety about students’ criticism, and teachers’ reluctance to attend training programs.

**Deficiency in spoken English.** Teachers’ deficiency in spoken English had the second highest aggregated ranking and the highest overall number of mentions in the ranking of difficulties to overcome in order to implement CLT (see Table 3). Younger teachers were generally perceived as more fluent, due, in part, to being encouraged to spend time in an English-speaking country before commencing teaching.

**Deficiency in strategic and sociolinguistic competence.** Twelve teachers said their lack of strategic and sociolinguistic competence impacted adversely on their classroom English use, but to a lesser degree than their lack of oral fluency. Some teachers considered inadequate information about Western history, culture, and practices during their teacher training contributed to this deficiency. Again, younger teachers were perceived as better prepared because of time spent overseas.

**Anxiety about students’ criticism.** Twelve participants, including some with a high level of oral competence, reported a lack of confidence in speaking English in the classroom due to anxiety about criticism from more fluent students who had experienced a period of English-medium education: “When [teachers] speak in English and make a mistake, then students laugh at the teacher. I feel scared” (Jeong Hee, 2006). The participants reported rates of English use from 5% to 30%, and reported fear as the main reason for these low levels.

**Lack of training in CLT.** Thirteen participants perceived lack of training in CLT as a difficulty, particularly for older teachers. With reference to inadequate information about CLT during their pre-service teacher education, eight participants reported that insufficient training means “it is easier to choose [to teach] the way we were taught” (Seo Yun, 2006).
Lack of opportunities for retraining in CLT. Two thirds of the participants found this an obstacle, with six expressing frustration at the lack of specific intensive opportunities to retrain. In contrast, four participants stated that sufficient opportunities existed for interested teachers to learn about CLT: “In fact, there are a lot of chances and materials in Korea for teachers to get the training, and many chances are provided by government authorities” (Mi Sun, 2006).

Reluctance to attend training programs. Nine participants reported reluctance to attend training programs as a constraint. Four participants believed a contributing factor was that these take place after school and during vacations, while others commented on the lack of financial reward for those who upskill: “We just get paid the same, even though I learn to use CLT and they just stick to grammar-translation method” (Myung Hee, 2006). Some teachers, however, focused on concerns about their own or others’ apprehension and potential humiliation: “We used to take part in a program, but one older woman teacher, whenever we had to go there, she felt she had a headache. Stress. So it was very uncomfortable for us to see that” (Mi Sun, 2006). Younger participants expressed impatience with older colleagues’ unwillingness to adopt new ideas, with some believing that “actually . . . they don’t really want to change [their] teaching method” (Kyung Min, 2006).

Misconceptions about CLT. Eleven participants perceived misconceptions about CLT as a barrier to applying it in their classes, and some maintained that the grammatical and vocabulary knowledge their students required for examination success cannot be taught using communicative strategies. Ten reported uncertainty about how to convert their theoretical knowledge of CLT into classroom practice.

Lack of time and expertise to develop communicative materials. All of the participants said more release time or fewer non-instructional responsibilities were required to provide time for preparation of communicative resources to supplement the supplied textbooks. However, two thirds also reported that their lack of experience in developing materials for communicative activities presented a further constraint.

Difficulties Related to Students
The difficulties attributed to students in the present study align with those reported in Li’s (1998) study.

Low level of English proficiency. Fourteen participants reported problems giving instructions or explanations in English to students with low levels of proficiency, with four expressing frustration about the lack of progress some students make in English throughout elementary school: “Even in the first graders’ class [at middle school], I found students who would not be able to write the alphabet. This is at the start, and as time goes by it gets more serious” (Kyung Min, 2006). Students’ reluctance to participate in communicative activities was also linked to low levels of proficiency.

Lack of motivation for developing communicative competence. All of the participants believed that although oral English competency could be useful to their students in the future, high school and university entrance examinations took immediate priority. Participants reported that because many examinations do not assess speaking ability, students lack extrinsic motivation to develop oral communicative competence. Many added that the situation is compounded by the lack of need or opportunity for students to use English outside the classroom.

Resistance to class participation. Thirteen teachers commented on students’ resistance to active class participation. They attributed this partly to students’ preference for the traditional student–teacher relationship experienced in their other classes. The teachers indicated that students often equate CLT with activities where they have to express personal thoughts and
opinions, something they “are reluctant [to do] not only in English, but in Korean” (Mi Sun, 2006). Other reported causes of resistance included fatigue due to extra examination preparation at cram schools and private tutoring, which, according to the teachers, many students regard as more important than their school classes. Teachers reported that many students exploit communicative activity times to catch up (in Korean) with their friends.

Difficulties Related to the Education System

The present study identified eight major constraints related to the education system. These included the four difficulties reported by Li (1998, p. 687) and four others: multi-level classes, fear of complaints if CLT is used, lack of authentic teaching materials, and lack of time for teaching English.

Large classes. Large classes was mentioned by all participants as a constraint, and ranked as the third most important difficulty to overcome in order to implement CLT successfully (see Table 3). Some older participants said there had been progress since the classes of up to 70 students they had experienced during their own schooling. However, they shared the younger teachers’ frustration at being unable to give the individual attention they believed necessary to develop their students’ communicative skills. Participants also emphasized the administrative challenges associated with large classes and the difficulties involved in organizing them for communicative tasks.

Multi-level classes. Twelve participants identified the range in students’ English ability, caused partly by greater numbers of students returning from overseas study, as a bigger challenge than their students’ low level of English proficiency. Teachers reported that when they cater for mid-range students, proficient students are bored, lower proficiency students fall further behind, and both groups behave disruptively as a result. Participants indicated that the presence of fluent students can cause “some lower level students [to] feel depressed” (Jeong Hee, 2006), and that the presence of lower ability students in the class makes some higher-level students feel self-conscious and reluctant to participate. Some teachers favored differentiating students based on their English ability but also commented that this could cause new issues for students who fail to live up to rank-conscious parents’ expectations. One teacher whose school had already introduced differentiated classes reported ongoing pressure from unhappy parents who “wanted their children to move to a higher level” (Sun Hwa, 2006).

Grammar-based examinations. Ranked by participants as the number one barrier to implementing CLT, grammar-based examinations were reported as a constraint by all 15 participants. The teachers emphasized the importance of examinations in the South Korean education system, and described “kwaoe (private lessons) fever” and “examination mania” as the consequence of the key role that educational attainment plays in determining future social mobility and earning potential in South Korea.

Participants reported student and parental pressure to “teach to the test” (Jae Sung, 2006), and an expectation that classes would focus on “memorizing grammar instead of acquiring English” (Eun Ji, 2006). Three teachers reported students’ interest in speaking activities, but believed that preparation for examinations must take priority: “At first they need a good grade on the test. They need to study grammar and reading” (Hyun Soo, 2006). The perceived washback effect of the present English examinations, on both students and teachers, caused some participants to hope oral assessment would be included in all major examinations: “That would change a lot! It’s really important to get into a very good university in Korea … so if that test has English-speaking assessment, everyone will want to learn speaking” (Myung Hee, 2006).

Lack of support from principals and parents when CLT is used. Thirteen participants reported inadequate support for the implementation of CLT. Many teachers expressed concern at the
lack of support for CLT from parents: “Parents will be happier if their children get higher grades than other students, even if their children cannot speak any English at all” (Hyun Soo, 2006). Lack of support from principals was also reported: “If the students get lower grades than [students from] other schools, the principal will be unhappy, because then his school is regarded as a bad school, and even if all his students can speak English very well, the principal will think he made a mistake” (Jin Woo, 2006).

Fear of complaints from students or parents if CLT is used. Thirteen participants indicated that fear of complaints from students and parents influenced what and how they taught. They explained that such complaints have an adverse effect on their performance evaluations: “If the students memorize grammar, it shows right away in the test. But if you teach communicative skills, it doesn’t show until a long time has passed. Parents can think you are a poor teacher and complain to the principal. This is a serious risk” (Eun Ji, 2006).

Insufficient funding. Eight participants said that insufficient funding for physical resources such as dictionaries, English storybooks, and audiotapes was affecting their ability to implement a communicative approach. However, three teachers stated more funding is also needed for human resources to reduce class sizes. Some suggested that employing more native speakers to teach oral-English classes would allow less proficient Korean teachers to focus on teaching reading and grammar in preparation for examinations.

Lack of authentic teaching materials. Eleven participants reported the lack of authentic materials as a constraint, but also mentioned insufficient time and ability to source and adapt them, and a lack of instructional time to use them.

Lack of time for English teaching. Thirteen participants reported lack of time for teaching English as a constraint, and this was ranked as the fourth most important constraint to overcome (see Table 3). Most participants stated that three to five 45-minute sessions per week with each class is not enough to develop their students’ English skills. One participant summed up the sentiments of many other teachers when she stated, “I’m always out of time. I’m always busy catching up” (Eun Ji, 2006). Perceptions that communicative activities are slow to set up, to explain and to complete reinforced many participants’ belief that alternative methods are more efficient. Teachers also reported that time constraints influenced the amount of English they were using during their classes: “If I try to speak in English [the students] don’t understand very well. So I have to repeat everything in Korean. I don’t have enough time to explain everything in both languages” (Myung Hee, 2006).

Difficulties Related to CLT
As in Li’s (1998) study, two of the reported constraints relate particularly to the nature of CLT itself. Increased noise level was a further constraint revealed in the present study that could arguably be placed in this category.

Noise level. Thirteen teachers stated that communicative activities lead to increased noise due to students talking loudly and off task in Korean. However, many teachers said they were uncomfortable with the level of noise generated even when their students were on task. They expressed concerns about being reported to the principal and criticized by colleagues because of the increased noise level when students were engaged in oral tasks.

The differences between teaching EFL and ESL. All teachers in this study referred to the differences between teaching in ESL and EFL contexts, and commented that, for their students, English is just another academic subject: “This is also related to motivation, because students in ESL situations, they have to learn how to speak English” (Myung Hee, 2006). Reported differences also related to access to materials and speakers of the target language, as well as to teachers’ target language input in the classroom: “In EFL, many teachers do not
have communicative competence, so students cannot have communicative competence” (Jae Sung, 2006).

Lack of effective and efficient assessment instruments. Fourteen participants reported difficulties assessing students’ oral ability due to challenges in developing objective measures, difficulties for lower proficiency teachers in conducting oral assessments, and complaints from students and parents about criteria and results. Teachers reported that curriculum guidelines now recommend that oral ability should account for up to 30% of a student’s in-school grade, but that logistical difficulties in conducting individual oral assessments resulted in this figure being as low as 5%.

Some participants referred to difficulties developing assessment instruments that adequately measure the range of abilities in their classes. Others reported that standard speaking tests are inappropriate for higher-level students, including overseas returnees, who are sometimes more proficient than their assessor. Participants also emphasized the difficulties they were experiencing assessing students’ “free” or spontaneous speech, due not only to their own lack of oral English proficiency but also to challenges associated with achieving objectivity and consistency between markers. Lack of confidence was prompting some teachers to record students’ responses and to check their accuracy using a range of methods, including recourse to native-speaking teachers and “Googling” unknown phrases. Many teachers favored grammar and reading comprehension tests, reporting that these usually consist of multiple-choice questions because are “easier to mark and easier for the teachers to make questions” (Jeong Hee, 2006).

Discussion
The findings of this study confirm the results of Li’s (1998) study, but also indicate that seven additional challenges are perceived by EFL teachers currently attempting to implement CLT in South Korea. As in Li’s study, teachers in the present study perceived they were constrained by their own deficiencies, particularly in oral English, and that large class sizes and the washback effect of grammar-focused examinations further compounded the multiple challenges they face implementing a communicative approach. The differences between EFL and ESL teaching environments also featured prominently as a constraint in both studies, and were reported to impact on some of the other perceived constraints. Participants in the present study also reported a degree of causality or interdependency in relation to some of the additional difficulties they identified.

The continued perceptions by teachers in South Korea of multiple interrelated constraints on the implementation of the English language curriculum account for the high level of frustration reported, and also signal an ongoing lack of alignment between the goals of the English curriculum reform in South Korea and the reality of classroom practices. It is not clear whether increased levels of frustration have resulted in participants reporting difficulties in this study that may have previously been tolerated. Changes, such as increased professional development and reduced class sizes, which may have gone some way towards addressing challenges reported in Li’s (1998) study, appear to have had little impact on teachers’ overall perceptions. The ongoing lack of alignment raises a number of issues that have pertinence not just for South Korea, but for many EFL contexts engaged in similar language curricular reforms.

The Need for Communicative Competence
Central to innovations in the national English curriculum in South Korea has been the goal of developing learners’ communicative competence. However, as participants in this study reported, few South Korean learners require communicative competence to achieve examination success or for immediate use outside the classroom, so the relevance of this innovation remains an issue for many teachers and learners. This is critical, as Rogers (1995)
points out that the relative advantage of an innovation to potential adopters plays an important role in determining its uptake. The results of this study support suggestions that the rationale for the present focus on communicative competence in curricular innovations in many Asian countries, as well as the means of achieving this, must be reviewed (Acar, 2007; Celce-Murcia, Dörnyei, & Thurrell, 1995; Kumaravadivelu, 2006; Nunn, 2007; Savignon, 2002).

Compatibility with Previous Practice
Rogers (1995) describes the compatibility of an innovation with potential adopters’ past practice as another key attribute that can promote or constrain its adoption. The present study corroborates the findings of Li (1998) and other researchers that discord between traditional educational practices and those required for CLT contributes to learner and teacher resistance to communicative activities (Hui, 1997; Lamie, 2000; Rao, 2002; Savignon, 2002; Yeung, 2006). Proposed solutions have focused on the development of local approaches that align more closely to existing practices and with the needs and realities of specific EFL settings (Bjorning-Gyde, Doogan, & East, 2008; Chowdhury, 2003; Jarvis & Atsilarat, 2004; Kumaravadivelu, 2001; Wu & Fang, 2002).

Addressing Major Constraints
Whether the methodology employed in South Korea and other EFL countries to develop learners’ communicative competence involves overlaying CLT onto the traditional grammar-translation method or using post-communicative, post-method, or context-sensitive approaches (Bax, 2003; Bjorning-Gyde et al., 2008; Brown, 2002; Johnson, 2006; Kumaravadivelu, 2001, 2006; Richards, 2001), the “three big problems” (Jae Sung, 2006) reported by teachers in this study require further consideration.

The effect of current examinations. The findings of the present study confirm Li’s (1998) findings, and align with other reports that many teachers perceive the negative washback effects of grammar- and reading-focused examinations in a number of EFL contexts to overshadow efforts to implement English curricular innovations (Canh, 1999; Liao, 2000; Nishino, 2008; Reed, 2002). One teacher in the present study summed up the overwhelming impact of examinations perceived by all participants when he claimed, “If you change the examination, everything will be changed.” (Hyun Soo, 2006). However, reports by Cheng (2005) and Spratt (2005) indicate that the little empirical evidence available at this stage does not support these teachers’ perceptions or claims. The results of Cheng’s (2005) study of washback effects in Hong Kong schools indicate that “changing the examination does not change the degree of emphasis on examinations” (p. 252), and Spratt’s (2005) review of recent washback studies concludes that teachers themselves are highly instrumental in determining the extent to which examinations influence classroom content and practice.

Teachers’ deficiency in English. Teachers in the present study reported that their lack of English proficiency and confidence not only compounded the effects of many of the other constraints but also led to debilitating anxiety for some teachers. Manifestations of this included physical symptoms and avoidance of oral English, with the latter restricting a valuable source of target language input for many students (Ellis, 2005). Further training opportunities for teachers to improve their English language proficiency and confidence are required. However, on its own this measure is unlikely to be sufficient, as even teachers in this study with a high degree of communicative competence reported significant challenges in their attempts to implement CLT.

Class size and composition. Although class sizes in South Korea are now smaller than the 48 to 50 reported in Li’s (1998) study, teachers still perceive large classes as constraining the implementation of CLT. In 2005, South Korea had the highest student–teacher ratio at middle school level of all OECD countries (35:1), and the elementary school ratio was 13 students per teacher more than the OECD average (34:1) (OECD, 2006). The forecast reduction of 29% in the number of elementary and middle school students by 2015 (OECD, 2006)
provides South Korea’s MOEHRD with an opportunity to effect a significant decrease in class sizes by maintaining current teacher numbers over that period. In addition to alleviating some of the reported constraints, this could facilitate individual oral assessments, which teachers currently struggle to conduct, in part due to class sizes.

Difficulties stemming from class composition may be reduced if more schools implement English classes differentiated according to students’ oral proficiency. Consideration could then be given to assigning teachers who are still developing their own oral fluency to lower-level classes. A review of the provisions for students returning to South Korea after study in an English-speaking country may also be timely.

Teacher Beliefs and Agency
Participants’ responses in this study highlight the need to determine the areas within an educational innovation where changes are within an individual teacher’s locus of control. With this information, teacher education initiatives to support such curricular innovations can be more effective in addressing some of the perceived barriers, by emphasizing what is possible for individual teachers to achieve (Lamie, 2004). Because teachers’ self-belief in their ability to overcome challenges can significantly impact on their effectiveness (Gibbs & Holt, 2003), raising their awareness of their self-efficacy is an important element in successful curriculum reform.

However, for educational innovations to succeed, individual institutions themselves need to be open to change. Participants in this study reinforced Cheng’s (2005) assertion that “the actual teaching context (the school environment, messages from administration, expectations of other teachers, and students) also plays a key role in facilitating or detracting from the possibility of change” (p. 254). School management must ensure that institution-based constraints on teachers are minimized, and that school and classroom cultures are such that teachers can trial the “what” and the “how” of innovations without fear of humiliation or career disadvantage. Involving teachers in effecting changes at the institutional level will also increase their sense of agency in the overall innovation process (Wang & Cheng, 2005).

Conclusion
The aim of this study was to investigate whether there have been any changes in the issues and challenges perceived by EFL teachers implementing the communicative curriculum in South Korea a decade on from Li’s (1998) study. The results indicate that the difficulties reported by teachers in Li’s study all continue to constrain the implementation of CLT in South Korea, and that additional difficulties are also perceived to impede the successful implementation of this curriculum initiative.

Limitations on the findings of this study include the size and demographics of the participant group. Future studies with larger, more diverse groups, within and between countries, would allow differences in teachers’ perceptions to be further explored. Issues relating to the reliability of self-reported data also impact on the ability to generalize the findings of this study. A reluctance to report personal difficulties due to concerns related to loss of face is a recognized limitation in research of this nature (Lee & Renzetti, 1993), and may have resulted in discrepancies between participants’ reporting of perceived challenges and real problems in the classroom. Further research into specific reported constraints is necessary to gain a fuller understanding of the degree of difference between perceptions of reported constraints and school and classroom realities in relation to these.

The findings of this study further substantiate Markee’s (1997) contention that curriculum innovation is a complex and socially situated process. Participants in this study indicated that teachers in South Korea still experience considerable tension and challenges in attempting to meet curriculum goals and wider societal expectations, and expressed frustration due to
constraints they perceived to be outside their locus of control. Before deciding whether, or how, to address these individual constraints, curriculum planners in South Korea must examine a number of broader issues. Firstly, it is important that policy-makers are clear about the role and status of English in their localized setting and define communicative competence for this context. They also need to determine whether the goal of communicative competence in English is necessary for all students and, if not, what alternative language goals are appropriate. The best pedagogical framework for achieving these desired language goals then needs to be identified.

This study confirms Li’s (1998) conclusion that, as end users, teachers’ perceptions of the feasibility of an innovation are critical to its success. The increased reporting of difficulties a decade on from Li’s study, despite ongoing improvements for both learners and teachers in South Korea, has implications beyond the context of this study. The findings reinforce the need for teachers’ perceptions to be afforded greater priority in the development and implementation of language curricular innovations in Asia and other foreign language contexts.

References


The application of games in teaching and learning volleyball in physical education lessons

Alberto Cruz, Hong Kong Institute of Education, Hong Kong

Abstract

This study examined the effects of the application of games on students’ attitude and volley pass learning in volleyball lessons. Two experienced secondary physical education teachers involved in the Secondary Teaching Evaluation and Mentoring Project (STEM), and their 132 male students, were the participants in the study. The study was premised on a conceptual framework of variation theory and employed an action research methodology. The study lessons were taught in three cycles by the two teachers to three S. 2 (age 13/14) classes of students. Games were specially selected to address the students’ interests and learning in the lessons. Pre and post conferences were arranged to improve the teaching effectiveness of the lessons. The results revealed that there was an increase in the number of students showing a positive attitude towards participating in volleyball lessons as well as a significant improvement in the students’ application of volley pass. These findings have implications for the instructional practice of physical educators.

Physical education scholars have long been interested in student attitude in physical education (Ryan, Fleming, & Maina, 2003; Silverman & Subramaniam, 1999; Stewart, Green, & Huelskamp, 1991), believing that this information may influence student learning (Solmon, 2003). Research findings indicate that when teachers create a comfortable and confident learning environment for students, it will enhance their positive attitudes toward the subject matter (Chen & Darst, 2001; Mitchell, 1993; Solmon & Carter, 1995). In other words, providing a positive learning environment influences both student attitudes and student learning. There is also evidence indicating that attitude towards physical education may influence participation in physical activity outside of school (Carlson, 1995; Ennis, 1996; Portman, 1995). Physical educators also suggest that students who exhibit a more positive attitude toward physical activity in physical education are more likely to have further physical activity participation after school (Biddle & Chatzisarantis, 1999; McKenzie, 2003; Portman, 2003). Forming positive attitudes toward physical activity and physical education seems to play an important part in maintaining active lifestyle patterns outside school. Moreover, researchers have also found that being active during childhood is more likely to lead to being active during adulthood (Telama, Yang, Laakso, & Viikari, 1997). Thus, physical education can play a significant role in influencing student attitudes toward physical activity (McKenzie, 2003). Impacting student attitudes in positive ways, through physical education, may help students participate in physical activity.

Attitudes may be thought of as “a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object” (Fishbein & Ajzen, 1975, p. 6). It is generally agreed that attitudes are acquired through positive experience, negative experiences, and modelling (Williams & Smith, 1980; Woolfolk, 2007). Attitudes are closely related to beliefs. They influence our behaviour and determine involvement in activities. Ajzen and Fishbein’s (1980) theory of reasoned action posits that attitudes are derived from beliefs, direct intentions and actions. Recently, Subramaniam and Silverman (2007) argued that cognitive and affective domains are key components of the ways in which attitudes are formed. The attitudinal link between the two domains is likely to influence student learning. They suggest attitudes as a two-component construct that involves the cognitive and affective aspects (Mohsin, 1990; Oppenheim, 1992). The affective component measures the degree of emotional attraction and feeling toward an attitude object (e.g., physical education or volleyball); the cognitive component accounts for the beliefs about the characteristics of
the attitude object (e.g., participation in physical education or volleyball activities improves physical fitness). For the purpose of this study, attitude was viewed as a two-component construct.

Psychologists maintain that enjoyment is a major element of the affective component of attitude (Bagozzi & Burnkrant, 1979; Zajonc & Markus, 1982). Helping students perceive the learning environment positively will make difference to their level of enjoyment and thus enhance the affective component. Research indicates that students who view the learning environment as positive and caring are more likely to make learning fun, enjoyable and meaningful (Chen, 1998; Duda, 1996; Goldstein, 1999; Solmon & Carter, 1995). The ‘high attitude’ students viewed the learning environment differently from their ‘low attitude’ counterparts (Subramaniam & Silverman, 2002). The high attitude students enjoyed what they had done and had fun, while the low attitude students’ level of enjoyment was minimal in physical education lessons. Studies with young children also indicate that programmes with enjoyable activities, within a flexible structure, have a positive influence on student attitudes (Sanders & Graham, 1995; Solmon & Carter, 1995). This implies that enjoyment of physical education may influence student attitude toward the subject content (Portman, 1995). Luke and Sinclair (1991) found that curriculum content was the most influential factor in determining the development of positive and negative attitudes toward physical education, regardless of gender or choice in selecting physical education. For example, secondary school students prefer team sports to individual and dual sports in their physical education lessons (Strand & Scantling, 1994). According to Tjerdnsma, Rink, and Graham (1996), students preferred game play and competition over skill and drill practice in a study focused on high school students’ perceptions of a badminton unit. In other words, how physical education teachers manage and plan the learning environment may influence how the students view and perceive the lessons.

Although physical educators have warned against using student enjoyment as the sole indicator of successful physical education (Placek, 1983), physical education teachers usually agree that student enjoyment is relevant to learning. Most physical education practitioners assume that emotional state is important in the classroom, and positive student emotions assist their learning. They argue that students should have fun in physical education and advocate that the learning activities designed should be more like play than like work (Henderson, Glancy, & Little, 1999; Siedentop, 1996). Sports psychologists and educators also recognize the importance of enjoyment in learning and treat enjoyment as a motivator in the educational context (Biddle & Chatzisarantis, 1999). Heywood (2001) agrees that learning ‘joyfully’ is important to children in their educational experiences. Therefore, teachers usually spend some time trying to design enjoyable ways of engaging children or creating an element of fun in the learning environment.

Positive game learning experience may produce enjoyment and enhance the learning of students. Over the past 15 years, researchers have closely examined approaches to teaching games (Allison & Thorpe, 1997; French, Werner, Rink, Taylor & Hussey, 1996; Memmert & Roth, 2007; Mitchell, Griffin, & Oslin, 1995; Rink, 1996; Turner & Martinel, 1992). It is widely accepted that the ‘Teaching Games for Understanding’ approach (Bunker & Thorpe, 1982) and the ‘Tactical Games Approach’ (Mitchell, Griffin & Oslin, 1995) are highly motivating for students (Mitchell, Oslin, & Griffin, 2006; Thorpe & Bunker, 1986). The games are seen as the centre of the learning process. The approach emphasizes the experience of playing games and, through teacher facilitation, students enhance their understanding and learning. Moreover, games help student develop a sufficient level of skillfulness so that they experience the joy and pleasure of games that will afford them continued motivation and increased competence to continue to play later in life. Werner and colleagues point out that the games approach should aim at improving the learners’ performance as well as their enjoyment and interest in the game (Werner, Thorpe, & Bunker, 1996). The Teaching Games for Understanding approach offers a natural and game-oriented setting to learners. Having deliberate play in a game-centered environment will probably have a positive effect on intrinsic motivation over time (Vallerand, 2001). It seems that our students always welcome games.

O’Reilly, Tompkins and Gallant (2001) found that modified games immediately stimulated student interest. Participants in their study described games with low skill demands and a minimum of rules
as fun. Similarly, students also described games as being more fun than drills in organised sport practice environments (Strean & Holt, 2000). Educators realize that modified games can be used to help promote enjoyment and positive learning experiences. Belka (1994) points out that if games are carefully planned and organized, they contribute to desirable cognitive, emotional and social outcomes.

Helping students believe in their ability to be successful also enhances their motivation in learning. According to Harter’s (1978) competence motivation theory, individuals with a high perception of ability are more likely to persist in an activity. Conceptions of ability and beliefs about the stability of ability are important factors influencing learning motivation. Herbert, Landin, and Solmon (2000) found that task progressions can be used to increase self-efficacy. Self-efficacy is described as a specific kind of perceived competence reflected in an individual’s confidence that he or she can effectively use his or her ability in a specific situation (Bandura, 1986). Using an incremental approach when teaching a complex skill may help students experience success in the early stages of practice, which is one of the strategies to enhance students’ self-efficacy and motivation. Providing positive feedback on the performance may also enhance feelings of competence (Deci & Ryan, 2000). Educators also find that students are likely to feel more competent and successful in physical education when their teachers emphasise self-improvement rather than social comparison (Ntoumanis, 2001). How teachers help their students perceive their competence in learning may enhance students’ learning motives. Therefore, the design of teaching and the teachers’ teaching behaviours may impact on the students’ attitude towards, and the learning of, the subject.

Current practice in Hong Kong encourages school-based staff development. Tertiary academics design projects to support teachers in their professional development. The Secondary Teaching Evaluation and Mentoring (STEM) Project is one of the approved Quality Education Fund projects that helps secondary school teachers’ professional development in Hong Kong. Within the project, secondary schools are invited to partner with the Hong Kong Institute of Education. They work closely with the Institute trying to create a collaborative and supportive culture for their teachers’ professional development. Teachers receive training in mentorship, lesson observation, lesson analysis and the implementation of the school-based lesson study. These serve to help teachers’ professional growth and development as well as improving their practice in teaching.

The STEM project adopts the ‘learning study’ model, which guides the design and implementation of the present study. The study presented here is one of the subject studies within the STEM project. The ‘learning study’ was inspired by the systematic work of the Chinese teaching study (Ma, 1999) and the Japanese lesson study (Stigler & Hiebert, 1999) by carrying out in-depth studies of research lessons. It aims at improving teaching and learning in schools based on the university-school partnership effort. Moreover, the learning study which provides the focus of this article, is underpinned by the theory of variation (Marton & Booth, 1997; Pang, 2003). According to variation theory, learning is based on the learner’s dynamic structure of awareness which is closely associated with discernment, variation, and simultaneity (Marton & Booth, 1997). Learning takes place when critical features are discerned and focused on simultaneously. Learners must experience variation in the dimension relating to the feature in question in order to discern a particular feature. Thus, variation is the key for discernment as well as the mechanism of learning.

The present study involved a collaboration between invited schoolteachers and academics at the Hong Kong Institute of Education. Over time, the schoolteachers and academics worked together on the design, implementation, testing, and improvement of one or more ‘research classroom lessons’ (Stigler & Hiebert, 1999). Schoolteachers first identified major learning problem in the subject content and attempted to resolve these problems by re-designing the learning of the lessons. The focus was to help students discern the critical features of the object of learning. Since the present study was premised on a conceptual framework of variation and employed an action research methodology, the learning situations were varied and the learning environment was continuously refined in order to help students discern the critical features of the learning object. In practice, it is a reflexive and on going process in which practitioners develop their practice collaboratively with other
practitioners. Appropriate teaching strategies are initially identified and then incorporated into a practice lesson. The effects of this strategic action are then observed, discussed and reflected upon. A new cycle then begins as the reflections help refine the strategies being employed. The process of the learning study is illustrated in Figure 1. The findings presented in this article are part of the results of a learning study project. As the physical education teachers in the study intended to employ a games strategy to influence student attitudes and learning in volleyball lessons, the purpose of the study was to examine the effect of the application of games on student attitudes and learning of volley pass in volleyball lessons. The study specifically addressed the following research questions: (a) Does the games strategy help student learning in volley pass? and (b) Does the games strategy help to enhance student attitudes in learning volleyball? The findings of the study are important in determining whether the games strategy is effective in helping students to learn volleyball.

Figure 1: Flow Chart of the Process of the Learning Study

Methodology

Participants
The participants in this study were two local, experienced secondary school physical education teachers and 132 secondary two (S.2) (age 13/14) male students in schools A and B. The teachers, Yeung and Chu, were purposely invited to take part in the study, as they were involved in the Secondary Teaching Evaluation and Mentoring Project (STEM). They were trained in the skills and knowledge of mentorship and lesson analysis as well as in the application of variation theory in designing lessons for learning. Both teachers were trained locally in the teaching of physical education and obtained qualified teacher status. The two teachers also have rich background knowledge and experience in teaching and coaching team games. Their experiences in teaching physical education are over 10 years and 25 years respectively. They are responsible for teaching boys in their school physical education lessons. Before the implementation of the study, permission was sought from their school principals and consent forms were completed by the teachers. All names used in this paper have been changed to protect the anonymity of the participants.

Procedure
The investigation commenced with meetings of the study group members, the two teachers, the Institute faculty member (the author) and the teacher development consultant, to discuss the framework and purpose of the learning study. The author acted as the facilitator of the research lessons. One of the purposes of the learning study was to empower teachers so they could gather
evidence to aid reflection and improve their own teaching. The teachers understood their roles and agreed to continue engaging in the learning study. Based on common interests and needs, the teachers intended to improve student learning in volleyball. After hours of brainstorming different aspects of volleyball learning, they identified that their students had common problems in applying a volley pass in game situations when learning volleyball. They decided to enhance the learning of the application of the volley pass through the learning study. In subsequent meetings, they further identified ‘actively apply the volley pass in volleyball playing’ as the object of the learning and proposed ‘movement’, ‘timing’ and ‘sense of success’ as the three critical features of the learning object. However, they both indicated that the attitude of their students towards volleyball was low and special teaching strategies were needed to address this issue. The teachers chose to adopt the games approach and use indirect teaching strategies to enhance student learning in the lesson. The learning activities were then planned and developed, based on these underlying principles in order to help students discern the critical features of the learning object. In addition, the study group members also agreed that providing positive feedback to students would help students develop their sense of success in the lessons. This would, in turn, enhance the students’ perception of their ability in learning. Therefore, the teachers were reminded to deliver as much positive feedback as possible in the lessons.

In order to understand more about the students’ knowledge of, and attitude toward, volleyball, the study group members developed a questionnaire addressing these concerns. Ten secondary two male students (who were not participating in this study) from each school were asked to complete the questionnaire. Based on this information, the study group members modified the questions and designed a revised questionnaire for evaluating the learning and attitude of students toward the volleyball lesson. The questions focused on the learning of the volley pass as well as the students’ subjective feelings about the taught lesson. In addition, a volley pass test was developed to evaluate the students’ application of the volley pass. The questionnaire and the volley pass test were reviewed for content validity by two experienced physical education teacher educators in the Hong Kong Institute of Education. A pilot run of the volley pass test involved a group of 10 secondary two male students in school A. The procedure of the volley pass test was then refined and the administration procedure improved. The test requires a tester tossing volleyball over the net to the student on the other side of the court. The student stands between the central line and the attack line and tries to return the volleyball to the tester using the appropriate passing technique. The tester records the number of volley passes employed by the student in five trials. The procedure of the volley pass test is shown in Diagram 2.

**Diagram 2: Procedure of the Volley Pass Test**

- Student standing between the central line and the attack line (volleyball court);
- A tester tosses the volleyball over the net to the up front of the student;
- The student tries to return the volleyball to the other side of the court with the appropriate passing technique;
- 5 trials for each student;
- The tester records the number of volley passes employed in five trials

After designing the skill test and questionnaire, the study group members focused on the planning of the lesson. Based on variation theory (Marton & Booth, 1997), the teachers designed a number of games to engage students’ interest and help them discern the critical features identified in the lesson. These included ‘cushion’ games, ‘number ball’ games and various cooperative-passing games. The descriptions of these games are included in the Appendix. The teachers employed the variation principles when designing the games. There were variants and invariants in these games. Examples of the variants, invariants and discernment of the games are listed in Table 1.
The study lessons were taught in three cycles by two teachers to three S. 2 (aged 13/14) classes of students in their own schools. Each study lesson lasted 80 minutes. Yeung started the first study lesson in school A and the second, refined lesson was carried out in school B by Chu. Then Yeung taught the final revised lesson in school A. The flow of the three cycles of the learning study is shown in Diagram 3. All lessons were videotaped for later analysis and reflection. The students in each class were required to take the volley pass test and complete the questionnaire before and after each study lesson. The study group members held pre- and post-lesson conferences in order to reflect on and critique the teaching and learning of the lessons. They also considered the post-test results of the students and worked on a revised lesson plan based on what was observed and discussed.

Within the three cycles, the learning activities in the lessons were slightly modified according to the reflections and discussion during the post-lesson meetings. In addressing the responses of the students in the study lessons, the times of the game activities were re-scheduled and re-organized. More modified games were introduced in the lessons. The teachers were strongly encouraged to shorten the explanation time and to provide positive feedback to the students in the lessons. The outline of the learning activities in each study lesson is shown in Table 2.

**Table 1: The Use of Variation in the Teaching Flow**

<table>
<thead>
<tr>
<th>Activity</th>
<th>What Changes (Variants)</th>
<th>What does not change (Invariants)</th>
<th>Discernment (What is learnt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Cushion’ Activity (i) vs (ii)</td>
<td>● Position at which the ball is caught</td>
<td>● Catching the ball from above</td>
<td>● Opposing force → sound</td>
</tr>
<tr>
<td></td>
<td>● Action of the hands and body coordination</td>
<td></td>
<td>● Cushion → no sound</td>
</tr>
<tr>
<td>'Cushion’ Activity (ii) vs (iii)</td>
<td>● Position at which the ball is caught</td>
<td>● Catching the ball from above</td>
<td>● Action of the hands and body coordination associated with volley pass (receive)</td>
</tr>
<tr>
<td>Passing Game I</td>
<td>● Speed of the ball</td>
<td>● Catching the ball from above</td>
<td>● Series of movements to perform the volley pass (receive)</td>
</tr>
<tr>
<td></td>
<td>● Position of the receiver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passing Game II</td>
<td>● Speed of completing a volley pass (receive and push)</td>
<td>● Perform a volley pass (receive and push)</td>
<td>● How to receive and push without holding the ball</td>
</tr>
<tr>
<td></td>
<td>● Holding the ball or not</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passing Game III</td>
<td>● Speed of completing a volley pass (receive and push)</td>
<td>● Perform a volley pass (receive and push)</td>
<td>● How to receive and push without holding the ball</td>
</tr>
<tr>
<td></td>
<td>● Holding the ball or not</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passing Game IV</td>
<td>● Speed of completing a volley pass (receive and push)</td>
<td>● Perform a volley pass (receive and push)</td>
<td>● How to receive and push without holding the ball</td>
</tr>
<tr>
<td></td>
<td>● Holding the ball or not</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passing Game V</td>
<td>● Speed of completing a volley pass (receive and push)</td>
<td>● Perform a volley pass (receive and push)</td>
<td>● How to move to a desirable position in receiving and pushing without holding the ball</td>
</tr>
<tr>
<td></td>
<td>● Holding the ball or not</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Movement of the receiver</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Diagram 3: The Flow of the Three Cycles of the Learning Study

Table 2: The Learning Activities in Each Study Lesson

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>1st RC, School A (2AB)</th>
<th>2nd RC, School B (2CD)</th>
<th>3rd RC, School (2CD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Warm-up (rope)</td>
<td>Warm-up (game: chains)</td>
<td>Same</td>
</tr>
<tr>
<td>2</td>
<td>Stretching (rope)</td>
<td>Stretching (volleyball)</td>
<td>Same</td>
</tr>
<tr>
<td>3</td>
<td>“Cushion” activity</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>4</td>
<td>Passing Game (I)</td>
<td>Same</td>
<td>Same</td>
</tr>
<tr>
<td>5</td>
<td>Passing Game (II)</td>
<td>Passing Game (IV)</td>
<td>Same</td>
</tr>
<tr>
<td>6</td>
<td>Passing Game (III)</td>
<td>Passing Game (V)</td>
<td>Same</td>
</tr>
<tr>
<td>7</td>
<td>Modified game</td>
<td>Modified game (rope as net)</td>
<td>Same</td>
</tr>
</tbody>
</table>

Data Analysis
Quantitative data were processed using Statistical Package for Social Science (SPSS) procedures. For ease of interpretation, some findings revealed in the questionnaire were presented in the form of percentages and descriptive statistics. The dependent t-tests were employed to determine any difference in the performance of volley pass between the pre- and post-test. A significance level of 0.05 (two tailed) was established for test analyses.

Results
Pre- and post-test data for the volley pass test and the questionnaire related to each study lesson were compared and analyzed. The results of the t-test indicated that there were significant differences in the performance of volley pass between the pre- and post-test among the students in all three study lessons. The results of the performance of the volley pass of students in the three study lessons are shown in Table 3. Statistical analysis revealed that all students in the three study lessons exhibited a significant (p < .05) improvement in the application of volley pass after the lesson.

Table 3: The Performance of Volley Pass of Students in the Three Study Lessons

<table>
<thead>
<tr>
<th>School</th>
<th>Class</th>
<th>N</th>
<th>Pre-Test Mean</th>
<th>S.D.</th>
<th>Post-Test Mean</th>
<th>S.D.</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2AB</td>
<td>48</td>
<td>0.83</td>
<td>1.35</td>
<td>2.06</td>
<td>2.16</td>
<td>-5.07</td>
<td>0.00</td>
</tr>
<tr>
<td>B</td>
<td>2CD</td>
<td>41</td>
<td>2.24</td>
<td>1.93</td>
<td>3.73</td>
<td>1.50</td>
<td>-4.67</td>
<td>0.00</td>
</tr>
<tr>
<td>A</td>
<td>2CD</td>
<td>43</td>
<td>0.20</td>
<td>0.96</td>
<td>4.35</td>
<td>1.07</td>
<td>-20.69</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Because the study group members wished to understand the subjective feelings of competence and success experienced by the students in the lessons, the students were asked to indicate their feeling of success during the lesson using a Likert-type scale of 1 (strongly agree) to 5 (strongly disagree) in the questionnaire. Comparing the pre- and post-test data, it was found that there was an increased number of students indicating they either agreed or strongly agreed that they had experienced success in the lessons. For the responses on the feeling of success, the percentage of 2AB students in school A changed from 39% to 59%. The percentage of 2CD students in school B rose slightly from 21% to 23%. The percentage of 2CD students in school A had increased from 29% to 36%. The results of the students’ responses on the feeling of success are shown in Figure 2.

Figure 2: The Responses of the Students on the Feeling of Success

![Figure 2: The Responses of the Students on the Feeling of Success](image)

The study group members also wanted to know whether there were changes in the students’ attitudes towards volleyball lessons. After the lesson implementation, the students were asked to show their interest in participating in future volleyball lessons by using a Likert-type scale of 1 (strongly agree) to 5 (strongly disagree) in the questionnaire. A comparison of the pre and post-test data revealed an increase in the number of students agreeing or strongly agreeing that they showed interest in participating in volleyball lessons in future. For the responses on their interest in participating in volleyball lessons, the percentage of 2AB students in school A rose from 52% to 56%, while the percentage of 2CD students in school B rose from 21% to 26%. The percentage of 2CD students in
school A increased from 33% to 42%. The results of the students’ responses on their interest in participating in volleyball lessons in future are shown on Figure 3.

**Figure 3: The Responses of the Students on Future Participation in Volleyball Lessons**

**Discussion**

The major purpose of this study was to examine the effects of the application of a games approach on student attitude and learning in volleyball lessons. The results suggest that the games strategy is effective in helping students learn volley pass as well as enhancing their attitude toward participating in volleyball lessons.
Readers need to be cautious when interpreting the results as it is only a small-scale study with a limited number of participants. The findings cannot be generalized. However, the process of the learning study implementation may be useful to those who wish to employ the “learning study” model in future. More research with a greater sample size, in different schools is needed.

Findings in the present study indicate that there was an increase in the number of students showing interest in participating in volleyball lessons in the future. The work of previous researchers on enjoyment in physical education may provide possible explanations for the students’ improvement in attitude toward volleyball lessons (Griffin, Chandler, & Sariscsany, 1993; Hastie, 1998; O’Reilly, Tompkins, & Gallant, 2001). These researchers argue that if students are offered realistic challenges and success in terms of mastery, they will enjoy physical education lessons. Once the students have fun, they develop a positive attitude toward the subject. According to the observations and reflections of the study group members during the pre- and post-conferences, the students did enjoy the games activities and participated actively in the lessons. Both teachers also remarked that the student learning behaviours in volleyball lessons were different from previous years. The students had fun when taking part in the learning activities. They seemed to accept the games activities in the lessons. In the present study, the physical education teachers deliberately employed games to address the ‘low learning attitude’ issue. The results appear to confirm the appropriateness of adopting a games strategy in the study. As indicated in a previous research study, boys preferred team games and had greater enjoyment during team games in physical education lessons (Dickenson & Sparkes, 1988; Goudas & Biddle, 1993). A recent survey of high school students also indicated that a majority of students identified team sports and games as the most enjoyable aspects of the physical education curriculum (Bibik, Goodwin, & Omega-Smith, 2007). It seems that the teaching strategy adopted in the present study did influence the students’ learning and their attitudes towards future participation in volleyball lessons.

There was also an increase in the number of students experiencing success in the lessons. This suggests that providing appropriate, challenging games activities and giving positive feedback did contribute towards this feeling of success. Experiencing success in turn helps to generate a positive attitude in learning. As in previous studies, students perceived physical education classes to be fun and enjoyable if they experienced success in the activities (Carlson, 1995; Portman, 1995; Sanders & Graham, 1995; Tinning & Fitzclarence, 1992). This seems to support the notion that experiencing success affects student motivation in the lesson. Creating a positive learning environment with challenging and successful experiences becomes an important task for physical education teachers during teaching.

Findings of the present study also indicated that the students of all study lessons exhibited a significantly improvement in the application of volley pass. It seemed that games designed according to the variation theory did help students discern the critical features of the learning object and ultimately enhanced their learning in the application of volley pass. This suggests that the application of variation principles in designing learning activities is practical and effective. In fact, numerous researchers have demonstrated the effectiveness of the application of variation principles in designing lessons in different subjects (Kwan, Ng, & Chik, 2002; Lo, Chik, & Pang, 2006; Pang & Marton, 2003; Runesson & Marton, 2002). It is likely that variation theory can be used as a theoretical foundation to support the use of the learning study process.

Finally, the results of the present study clearly reveal that the learning study model can have a positive impact on teacher instructional practice. During the post-lecture conferences, the two physical education teachers said that they had learned a lot and improved their instructional practice through the learning study process. It seems that they had benefited from this school-based professional development model. A better understanding of how to make this kind of school-based professional development model workable in different settings and contexts is encouraged.
Conclusion

This study suggests that the games strategy is effective in promoting student attitudes and learning in volleyball lessons. This has implications for the instructional practice of physical education practitioners and teacher educators. Games can be an optional teaching strategy for physical education teachers when teaching volleyball. It is recommended that this school-based professional development model be promoted to improve the teaching and learning of physical education in Hong Kong.

References


**Appendix 1: The Outline of the Passing Games**

**Passing Game I**
- Students are grouped in 6's and every student is assigned a number from 1 to 6;
- One student tosses the volleyball vertically upward and calls out a number from 1 to 6, the numbered student tries to receive the ball;
- If the numbered student fails to receive the ball, he needs to catch back the ball and calls “stop”. Other students stop moving immediately when hearing “stop”;
- The numbered student can move 3 steps and throw/roll/… the ball to a target student. If the ball hits the target student, the target student gets 1 mark. If not, the numbered student gets 1 mark;
- Repeat the game procedure until one student in the group gets 3 marks;
- The student who gets 3 marks is needed to complete a task decided by the group mates.

Remarks: The ball holder is not allowed to call number of the previous ball holder.

**Passing Game II**
- Students are grouped in 6's;
- Students discuss the order of their lining up (according to their ability);
- Demonstration as below:

![Diagram](image)

- Student A passes the ball to student B. Student B passes the ball back to student A and student A passes to student C and etc. The game is finished until the ball passing back from student F to student A;
- Students are required to use volley pass (can hold the ball before passing). If the ball is dropped during the game, student A needs to start the passing from the beginning again;
- The first group to complete the game is the winner.

**Passing Game III**
- Students are grouped in 6’s;
- Demonstration as below:

![Diagram](image)

- Students try to pass the ball in either clockwise or anticlockwise directions to the student next to him without dropping the ball (can hold the ball before passing) in a number of rounds (designed by the teacher);
- The first group to complete the game is the winner.
### Passing Game IV

- Students are grouped in 4’s;
- Demonstration as below:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
</table>

- First, student A tosses the ball (in parabola) to students B, C and D’s up front and students try to return the ball to student A
- After few trials, student A tries to toss the ball randomly to students B, C and D;
- Further, student A tries to toss the ball randomly to student B, C and D but need not in the up front position;
- After few trials, the students change the positions and repeat the game.

### Passing Game V

- Students are grouped in 4’s;
- Demonstration as below:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
</table>

- Students try to volley pass the ball to the opposite side without dropping the ball (can hold the ball before passing);
- Students need to queue up at the back after passing the ball;
- Count the number of continuous successful pass in a restricted time;
- Self competition;
- The group with the most number of passing is the winner.
About the Authors

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The Pacific Circle Consortium for Education

The Pacific Circle Consortium is an organization dedicated to the improvement of teaching about peoples and nations within and around the Pacific Ocean, and in Asia.

From 1997 to 2004, the Consortium was an official program of the Centre for educational Research and Innovation of the Organisation for Economic Cooperation and Development (OECD/CERI). Currently, the Consortium is an independent organization.

The purposes of the Pacific Circle Consortium are to:

- Share ideas, resources, information, material and personnel among Pacific and Asian countries and educational institutions;
- Promote internationally co-operative research and development in education; and
- Undertake co-operative development of curriculum materials and educational support services.

Members of the Consortium

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

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Subscriptions

Pacific-Asian Education is an international refereed journal for curriculum and general education studies within the Pacific Rim and Asian educational communities.

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Guidelines for Submitting Manuscripts

Manuscripts: should be 3000 – 6000 words and proceeded by an abstract of 100 – 150 words. Intending contributors should submit one hard copy and/or an electronic copy (disk or email) of the manuscript to the Editor, and ensure that they retain an electronic and hard copy. Manuscripts should be typed in 12 pt font, left aligned, double-spaced and on one side of the page only. Authors’ names should be included on the title page but not be on the manuscript. A brief (2-3 line) biographical note about each author should be provided on a separate page and should include full contact details (i.e. postal address, phone and facsimile numbers, email address).

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

Future manuscripts for submission to *Pacific-Asian Education* should be addressed to:

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