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Designed by Katherine Dix

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Teacher-child relationships in Turkish and United States schools: A cross-cultural study

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Recent educational research utilising Bowlby's attachment theory has focused on children's interpersonal relationships with their teachers. Research in this area has indicated that the security of the teacher-child relationship influences children's development in many of the same ways as secure parent-child attachments. The purpose of this study is to examine and compare a United States and Turkish sample of teachers and their perceived relationships with their students. It was hypothesised that because teachers in the United States receive more information related to the developmental needs of children, they would be more sensitive to the need for closeness in teacher-child relationships. Results indicate that, in fact, Turkish teachers report less conflict and more closeness to their students than did United States teachers.

Attachment, relationships, multicultural, teachers, children

Recent educational research has focused on children's interpersonal relationships with their teachers. As in the study of parent-child relations, this research has utilised Bowlby's (1973; 1980; 1982) attachment theory as a framework for understanding the interpersonal dynamics of this relationship. This is a departure from traditional teacher-child research, which has tended to focus on the relationships between teacher and child related to instruction. Teacher-child attachment research is primarily focused on the interpersonal relationship between a teacher and child.

Research in this area has indicated that the security of the teacher-child relationship influences children's development in many of the same ways as secure parent-child attachments (Goosen and Van Ijzendoorn, 1990; Howes and Hamilton, 1992; Murray and Greenberg, 2000; Pianta, 1994). Children may look to their teacher for the same sort of "emotional security" that characterises the sensitive, responsive, and socially supportive care-giving of the parent (Howes and Hamilton, 1992). Children benefit from encouraging and positive interactions with their teachers. They are more socially competent and do better in early childhood educational settings (Egeland and Hiester, 1995; Pianta and Nimetz, 1991). Further, research has indicated that children's cognitive activities and social competence with peers can be predicted by child-teacher relationship quality (Howes and Smith, 1995; Howes, 2000). It has been suggested that teacher-child relationships could even serve as a protective factor for children at risk for academic failure (Pianta and Steinberg, 1992; Pianta, Stuhlman, and Hamre, 2002). Therefore, children appear better adjusted when positive and encouraging relationships with their teachers provide a secure base for exploring and learning (Howes, Phillipsen, and Peisner-Feinberg, 2000). Further, it has been argued that a positive relationship between teacher and child is as important as a high quality educational program (Pianta and LaParo, 2003).

The influence of culture on children's attachment relationships has received some attention in studying parent-child attachment relationships (Ainsworth, 1989). Early parent-child attachment research relied mainly on North American mother-child samples. More recent research has begun to consider parent-child attachment relationships in other Western and non-Western cultures. This research has generally found inter-cultural differences in the patterns of attachment suggesting that secure and insecure attachments may manifest themselves differently across cultural contexts. Attachment related behaviours that appear insecure in one culture may be appropriate and evidence of a secure attachment in another (Mizuta, Zahn-Waxler, Cole and Hiruma, 1996). It is logical to assume that if secure and insecure parent-child attachments manifest themselves differently in other non-North American cultures, the same would be true of teacher-child relationships. Yet, there has been a dearth of research examining teacher-child attachment relationships in other cultures.

Thus, the purpose of this study is to examine and compare a United States and Turkish sample of teachers and their perceived relationships with their students. Recently, in Turkish culture, professional caregivers and teachers have begun to become more informed about developmental psychology and the significant effects of positive interactions with children. Despite this attention, one still finds insensitive and unresponsive care-giving, as most of caregivers have not the formal education or advanced training that informs them about the effects of these positive relationships. Research in Turkish schools has not focused on these kinds relationships yet. To date, research has only been conducted with Turkish samples on adult attachment, and factors affecting attachment and psychopathology (Sümer and Güngör, 1999a; Sümer and Güngör, 1999b; see Kayahan, 2002; Hortaçsu, 2003). There have been no studies, like those in the United States, emphasising the importance of attachment-based relationships specifically formed between children and professionals in early childhood settings.

With the strong cultural differences between American and Turkish culture, it was hypothesised that there would be significant differences between the two groups of teachers. Specifically, because of the increased knowledge of developmental psychology found in United States teacher education programs, it was believed that teachers in the United States would report generally more positive relationships, less dependency and conflict than Turkish teachers. We postulated that a greater knowledge of the emotional needs of children would precipitate greater attention to the interpersonal teacher-child relationship by the teacher.

METHOD

Participants

Thirty-one elementary school teachers from the south-eastern United States and 40 primary teachers from south-western Turkey participated in this study. Teachers reported on their perceived relationships with 747 children, with a mean age of 6 years. The Turkish group was recruited from five private preschools (offering fulltime and/or part-time care and education for children between the ages 4-6), four public kindergartens (state-supported, for 6 children years old) and three university based preschools (offering fulltime and part-time care and education for children 4-6 years old in western Turkey. The United States group was recruited from public schools in a large metropolitan area of the south-eastern United States.

On average, children in the Turkish sample were younger than the children in the United States sample by approximately 3 years. The two teacher groups had approximately the same number of years of teaching experience; however, one-half of the Turkish sample did not have a university degree, whereas virtually all of the United States sample had at least a Bachelor's degree in education. All of children from both cultures who participated in the study were attending school

fulltime and had been together with the same teacher for at least one year. For a breakdown of sample demographics for the Turkish and United States groups see Table 1.

Table 1. Sample demographics

Variable	Turkish Sample		United States Sample	
Child Age	5.4 years		7.9 years	
Child Gender	51% Male 49% Female		52% Male 48% Female	
Number of Years Teaching	12 years		14 years	
Teacher Educational Level	High School Diploma	50%	High School Diploma	0%
	Associates Degree	23%	Associates Degree	0.5%
	Bachelor's Degree	27%	Bachelor's Degree	31%
			Master's Degree	69%

Measures

Student-Teacher Relationship Scale: The STRS (Pianta, 1996) is a 28-item self-report measure with a 5-point Likert-type rating scale. It was designed to measure teachers' perceptions about his or her relationship with a particular student, a student's interactive behaviour with the teacher and a teacher's beliefs about the student's feelings toward the teacher. The teacher rates his or her relationship with a particular student by indicating to what extent a particular item is applicable to that relationship. Responses range from 'definitely does not apply' (1) to 'definitely applies' (5).

The STRS yields three subscales: conflict, closeness and dependency. The Conflict subscale comprises 12 items designed to measure the degree to which a teacher perceives his or her relationship with a particular student as negative or conflictual (e.g. "This child and I always seem to be struggling with each other"). The Closeness subscale includes 11 items designed to measure the degree to which a teacher experiences affection, warmth, and open communication with a particular student (e.g. "I share an affectionate, warm relationship with this child."). The Dependency subscale with five items measures the degree of dependency a teacher perceives in their relationship with a particular student. (e.g. "This child is overly dependent on me").

The STRS has demonstrated good reliability on all subscales: test-test reliability coefficients have been reported by the authors as 0.92 for conflict, 0.88 for closeness and 0.76 for dependency. Internal reliability coefficient alphas have also been reported to be 0.92, 0.86, and 0.64 for conflict, closeness, and dependency subscales. The scale has also shown strong evidence for concurrent and predictive validity across studies in terms of school adjustment and academic outcomes (Pianta, 1994; Birch and Ladd, 1997; Kesner, 2000; Kesner, 2002; Hamre and Pianta, 2001). In this study, internal reliability coefficients for the United States and Turkish sample were 0.82 and 0.80 for conflict, 0.81 and 0.73 for closeness, and 0.60 and 0.62 for dependency respectively.

Demographic Information Form: This form includes demographic items related to the teacher such as educational level, experience in the profession, marital state and if he/she has any children.

Procedure

Because STRS was originally developed in English, the scale was translated into Turkish for use with the Turkish group of teachers. These translations were confirmed by two clinical psychologists fluent both in English and Turkish and also by two linguists in English.

Teachers were contacted by the authors in their respective countries and asked to participate in a study of teacher-child relationships. In both cultures, teachers were asked to complete STRS for children in their classroom at the end of the spring semester (end of the school year). Some teachers chose not to complete the scale for all children in their classrooms. On average, Turkish

teachers completed the scale on approximately 13 of their students, while the United States teachers completed the scale on 5 students chosen at random. Besides the STRS, teachers were also asked to fill out a short demographic information form.

RESULTS

Multivariate analysis of covariance (MANCOVA) was utilised to assess differences between the Turkish and United States group of teachers. As noted above, there were considerable differences in both the age of children involved as subjects of the STRS and the level of education between teachers in Turkey and the United States. Thus, child age and teacher educational level were covaried in all statistical analyses.

Results of the MANCOVA, in which the three subscales of the STRS (Conflict, Closeness and Dependency), were the dependent variables and country (Turkey or United States) was the independent variable, indicate significant differences between the Turkish and United States teachers. Turkish teachers report significantly more closeness in their relationships with students as compared to United States teachers ($F_{(1,728)}=12.13$, $p<0.01$). In addition, Turkish teachers report significantly more dependency in their relationships with students as compared to United States teachers ($F_{(1,728)}=83.0$, $p=0.001$). No significant difference was found in the amount of perceived conflict between teachers and students. It should be noted that these significant differences were found after controlling for the educational level of teachers and the age of the STRS child. Table 2 shows a more detailed summary of the means and standard deviations of selected variables.

Table 2. Mean, and standard deviations for teacher reports of child-teacher relationships

Variable	Turkish Sample	United States Sample
Conflict	24.6 (8.6)	23.4 (12.04)
Closeness	45.8 (6.8)**	41.8 (8.5)
Dependency	18.9 (4.9)***	13.1 (3.6)

* $p<0.05$ ** $p<0.05$ *** $p <0.05$

DISCUSSION

The present study was designed to highlight certain culture related variables which could be associated with the quality of teacher-child relationships. The initial aim of this cross-cultural study was to compare perceived teacher-child relationships in Turkish and United States samples based on the dimensions of conflict, closeness and dependency. It was hoped that the comparison between Turkish and United States teacher-child dyadic interactions would provide insight into the nature of those interactions in the two cultures.

Contrary to expectations, results indicated that Turkish teachers perceived significantly more closeness in their relationships with students than did United States teachers. This did not support the original hypothesis of more closeness in the United States teacher-child dyads. Additionally, the original hypothesis of more conflict between Turkish teachers and their students as compared to the United States sample was not supported. There are no significant differences in the amount of perceived conflict between the two cultures. The hypothesis that Turkish teachers would perceive more dependency in their relationships with students compared to United States teachers is confirmed by the results of the study.

Our original belief that increased knowledge of the importance of positive teacher-child relationships in the United States sample did not seem to be a factor in determining the quality of teacher-child relationships. According to Pianta, Stuhlman and Hamre (2002), the foremost factor in explaining variations in the quality of attachment relationships is culture. Limited data on caregiver-child interactions in different cultures indicated that although some attachment-related dimensions varied as a function of culture, there have been many similarities across cultures

(Mizuta et al., 1996; Posada and Jacobs, 2001; Carlson and Harwood, 2003, Sagi et al., 2002, Van Ijzendoorn, 1990).

For effective teacher-child interaction, it seems necessary to recognise how child-rearing practices in different cultures affect the extra-familial relationships children form. From this perspective, variations in findings of the present study might result from cultural differences in parenting practices. In a cross-cultural study, Aukrust et al. (2003), explored parent's perceptions of their young children's close relationships outside family across four different cultures: United States, Turkish, Norwegian, and Korean. In comparison with American parents, Turkish parents emphasised more the importance of their children having close, positive relationships with their teachers at school. The American parents recognised the importance of a good teacher-child relationship, but saw the importance in relation to academic outcomes rather than social-relational ones (Aukrust et al. 2003). According to American parents, relationships with teachers were seen as necessary for successful adjustment to school. However, as opposed to the findings in that study, North American parents have usually stressed autonomy and individuality in many studies (see Aukrust, 2001).

The findings of the present study related to the variations in dependency and closeness dimensions between the United States and Turkish samples can be explained by examining the underlying family structures found in the two cultures (see Table 3). The emphasis on individuality and autonomy common in American families stands in direct contrast to a more collectivist orientation found in Turkish families (Oyserman, Coon, and Kemmelmeier, 2002). Aukrust et al., (2003) concluded that "Ankara parents with the most education seemed most attuned to the social dimensions" (p. 493). This social-relational emphasis persists beyond the family and into the Turkish school system. In Turkey the preschool and primary schools require that children stay with the same teacher and classmates for several years, which allows close relationships to form between teacher and child and child to child. In contrast, children in primary schools in the United States have new teachers every year, and in the later primary years, multiple teachers during the same school day. American parents emphasise the importance of social relations with teachers, but only to the extent that it facilitates their child's academic success. This way of relating to others outside of the family is compatible with the individualistic nature of United States culture (Aukrust et al., 2003). Therefore the findings of the study are best understood by focusing on those individualistic-collectivistic dimensions that mainly affect child-care practices in both cultures (Kagitcibasi, 2000), rather than the presence of absence of knowledge of the importance of close teacher-child relations.

Table 3. Social dimensions and relationship styles in Turkish and United States cultures

Relationship Dimensions	Turkish Culture	United States Culture
Closeness Dimension	Closeness is important for all kinds of relationships	Closeness is important in some cases like academic success
Dependency Dimension	Collectivism is dominant, more dependent relationships	Individuality and autonomy is supported

The lasting impact of this study is to emphasise the need to understand cultural variations in child care practices by conducting cross-cultural studies. In addition, it is necessary to take the findings of such studies and incorporate them into the training programs of teachers from all cultures. Specifically, training teachers to be culturally sensitive educators by educating them in special training programs that focus on the importance of close non-parental adult-child relationships would add a component missing from most teacher training programs in the United States and other countries.

Because of the multicultural structure of many United States schools, there has been growing interest in understanding different cultures. Policy makers, researchers, educators and many other

leaders in the field have tried to increase the awareness of teachers and administrators about the impact of multiculturalism in schools.

In the Turkish culture, despite some studies on adult attachment or factors affecting attachment and psychopathology (Sümer and Güngör, 1999a; Sümer and Güngör, 1999b; see Kayahan, 2002; Hortaçsu, 2003), there has been a dearth of studies emphasising the importance of attachment-based relationships between children and professionals in early childhood settings. Subsequently there has not been the emphasis needed in teacher training programs in Turkey related to the importance of positive teacher-child relations. Despite this, there is a real opportunity to promote this aspect of teacher-child interactions in Turkey because of the almost innate social-relational emphasis found in Turkish culture. An emphasis on interpersonal relationships found naturally in Turkish society (Oyserman, Coon, and Kimmelmeier, 2002) makes the inclusion of this emphasis in teacher training logical.

At this point, it could be suggested that culturally designed interventions to increase caregivers' positive social interaction with children might improve social and emotional adjustment of children by focusing on individual and also cultural influences on these relationships. In the literature, there are few attachment based intervention studies in childcare settings. In one of them, Howes, Galinsky and Kontos (1998) examined whether changes in the sensitivity of child caregivers would increase children's attachment security with their caregivers. They found a modest intervention directed at improving the practices of caregivers could improve the attachment security of children. Additionally, case studies conducted to increase a teacher's sensitivity to a specific child in the classroom and to focus on how problem behaviors could be managed in preschool settings by using behavioral interaction principles (McIntosh, Rizza, and Bliss, 2000).

In classroom interactions, teachers are important figures as significant adults in children's lives. Also since teachers have close interactions with children, they can be effective models in putting those kinds of improvements into practice based on interactional styles. Therefore, teachers need training related to how they can improve themselves both individually and also professionally in order to support the social and emotional development of children. With such training, they would gain insight into themselves and their interpersonal relationships, so they can help children form an emotional balance and protect their mental health.

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An examination of two case studies used in building a decision-making model

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Higher education in Australia contributed almost \$3 billion to the Australian economy in 2000 and education has become an essential source of export profits. Australia now provides university places for over six per cent of the global student population. However, there is little empirical research undertaken in that domain. The research underpinning this paper addresses this problem by focusing on students from Singapore, which represent an overseas student client group of Asia. It sets out to explore personal, environmental and behavioural factors that influence educational decisions of students from Singapore, and to build a model that represents the complex interaction of factors and processes involved. While a built model is the major objective, the focus of this paper is on one component, the two interpretive, in-depth case studies. These present an interpretive phenomenological perspective that represents the complexity of individual experiences and supplements the quantitative research and building of a descriptive decision-making model.

Decision-making, Singapore students, Australian universities

INTRODUCTION

Higher education contributed \$2.7 billion to the Australia economy in 2000 (DEETYA, 2002) and continues to be an essential source of export revenue (Kemp, Madden and Simpson, 1998). As the 37 universities in Australia receive a proportion of their funding through a Government contribution of \$6.2 billion (Department of Education, Science and Training, DEST, 2002) they must rely on income from full-fee paying overseas students. With the prediction that the global international student population is estimated to increase from 1.8 billion to 7.2 billion by 2025 (International Development Program 2002), there will be a continuing need to meet the demand of increasing overseas student enrolments.

Overseas students have been attending Australian universities since 1904 (Bromilow and Zubrsycki, 1990). By 1998, the international student population had risen to over six per cent with its current primary overseas students group, or 39 per cent, being from Asia (UNESCO, 1999). Of this sector, Singapore is an Asian supply nation of full-fee paying higher education students to Australia (Selected Higher Education Statistics, 2002; Blackburn, 1997). This Asian market continues to be a major one (Bohm et al., 2002). The research in this paper is directed at Singaporean students for the purpose of examining the factors that influence their choice of a higher education destination in Australia.

A model has been designed to track the complexity and interactivity of factors in student decision-making about country, institution and course issues. This is shown in Figure 1. The data for the model building about country were obtained, first, through a quantitative approach involving an exploration of personal traits among Singaporean students proposing to study in Australia. The

second study component was qualitative and consisted of interviews that isolated factors in the environment of students that were influential in their decision-making.

The third study component, which is the subject of this paper, focuses upon the complexities that cannot be displayed as data in the decision-making model, but illustrate its operation. Two illustrative in-depth interviews record the experiences of subjects, and explore the meaning and interpretation given to them by the subjects, as they affect the choices they made. Finally, a study of the operations of the Australian Education International (AEI), as an educational distributor and agent, is undertaken.

This paper is directed towards these two case studies, which illustrate the multiple motives of prospective students, the referential networks that exist in the Confucian society of Singapore (Schutte and Ciarlante, 1998) and the close relationship the subjects feel with Australians, as ex-colonial, close neighbours geographically. Finally, these studies show that students of Singapore seek participatory education that engages them in broader Western education that is to some degree transformative.

BACKGROUND

International higher education currently represents net earnings of around \$3 billion to the Australian economy (Department of Education Training and Youth Affairs, DEETYA, 2002). For this reason it ranks amongst the top Australian service industries, being third as a global service provider after Europe (32%) and the United States, (28%) according to UNESCO (1999). International education represented Australia's eighth largest export sector with the financial contribution jumping in gross earnings from \$2.8 billion in 2000 to \$5 billion by 2002 (Bohm, Daris, Meares and Pearce, 2002). Thus it represents a strong, and still growing industry that assists Australia's balance of trade payments, and universities' budgets in particular.

Higher education is today a central factor in preparing students for the challenges of the technological age. The government of Singapore desires a highly educated workforce (EIU World Outlook, 2000; Jolley, 1997). Yet, while the need for higher education places increases, Singaporean universities have not been able to meet the demand, particularly in business, science and technology studies (Song, 1998; Paul, 1993).

Since the inception of universities in 1852, Australia has adopted a largely vocational model of higher education (Edmonds, 1989) that is compatible with educational needs of Singapore. Singapore also has transitioned to the user-pay system of higher education in line with the economic rationalist philosophy prevailing in most Western nations, yet has an increasing student population seeking university places (Bohm et al., 2002). As the Government of Singapore has not correspondingly increased the number of places in universities, the undersupply has led to students seeking university education abroad. There is also an increasing recognition of degrees from foreign universities that favour most Australian institutions. Further, businessmen often favour graduates who have had a Western education (Mazzarol, Choo and Nair, 2000).

Confucian philosophy underpins education and lifestyle in Singapore. The Confucian principles govern society, ethically and morally and in social and business practices and is the cornerstone of Chinese society (Hall and Ames, 1987). Yet Singapore has an education system founded in British colonialism so that students from Singapore coalesce with Australian education and lifestyle and are advantaged by English being their primary business language (Mazzarol, Soutar, Smart and Choo, 2001).

Australia is also geographically advantaged, offering higher education and accommodation at a comparatively lower cost than other Western nations (Mazzarol et al., 2001). Further, cultural barriers are limited, Australia is geophysically well endowed, and many Singapore students have relatives and friends resident in most Australian States (Mazzarol et al., 2001). Thus, besides an

endowment of colonial similarities, Singapore and Australia share complementary educational, politically liberal-democratic-styled governments, regional interests, economic and societal systems favouring cultural, vocational and educational exchange. These elements comprise some of the external factors reported in the literature as providing a context for Singaporean students seeking to study in Australian universities. However, little has been known about the personal, cultural and environmental factors that may influence students' decision-making and how these factors may interact in producing decision outcomes.

RESEARCH METHOD AND RESULTS

In consequence, three research components were designed to examine and explore factors that influenced the choice of prospective students in Singapore to study in Australian institutions and to assist in building a decision model that described how personal, environmental and behavioural factors interacted to enable students to reach their decisions.

The first component of the research is an exploratory study to examine the potential role of personal factors in decision-making, using a quantitative approach. The 16 Personal Factors procedure (IPAT, 1986) was used to survey students, and examine the personal characteristics likely to be found in prospective educational clients at the Australian Education Centre (AEI) in Singapore. The results of this study component are reported in more detail elsewhere but essentially show that one trait most characterising these students from Singapore was a capacity for 'abstract thinking'.

The second component of the research is a qualitative study comprising structured interviews with 18 prospective students looking specifically at environmental factors that influenced their decision-making. Through refining and collating the textual data from these interviews, three key themes emerged and these were used as constructs in the building of the decision-making model. In addition, two extensive in-depth interviews or case studies were conducted to explore elements of the inner life of the subjects, the meanings placed on events, and how these linked lived experiences to the decisions they made. In this way some detail that was sacrificed during the refining and collating process was reclaimed.

The third component of research is a focused observation study to investigate the contribution of the AEI office as an education agent, and a marketing channel for Australian universities in Singapore. The results of this study component demonstrate that the AEI in Singapore informed, recruited and delivered quality services to prospective students that informed and supported their individual choices of courses, locations and preferred universities.

The combined data contributed to building a theoretical model of decision-making contextualised in Singapore. The model built on the data obtained from the 16PF study component the interviews, observations in the AEI and contributions from the literature are presented in Figure 1.

The first set of 18 interviews involved short, structured, open-ended questions of approximately 20-30 minutes duration while the two in-depth interviews or case studies were of over one hour's duration and open-ended. Data from the 18 interviews were subjected to a comprehensive system of refining, collating and organising text elements (Tesch 1990), while the two case studies returned some detail lost in the refining and categorisation processes. Finally, themes extrapolated from the 18 interviews were compared with those identified in the literature and those with strong congruence were used in building the explanatory model.

The two students selected for the in-depth interviews were considered to display features that were representative of the range of segments reported in the 18 earlier interviews. The role of the in-depth interviews or case studies was to give credence to the personal interpretation of experiences that shape decisions (Easterby-Smith, Thorpe and Lowe 1993). These in-depth interviews further revealed the attitudes and understanding of the subjects about family and community, pressures,

privacy, unspoken family conventions, moments that shape the future, expectations, and personal and educational circumstances that impact upon choice. Portions of the two interviewees' stories were used to enrich the overall findings and provide some intimacy lost in thematic presentations based on collective rather than personal understanding. This, then, is the focus of the present paper.

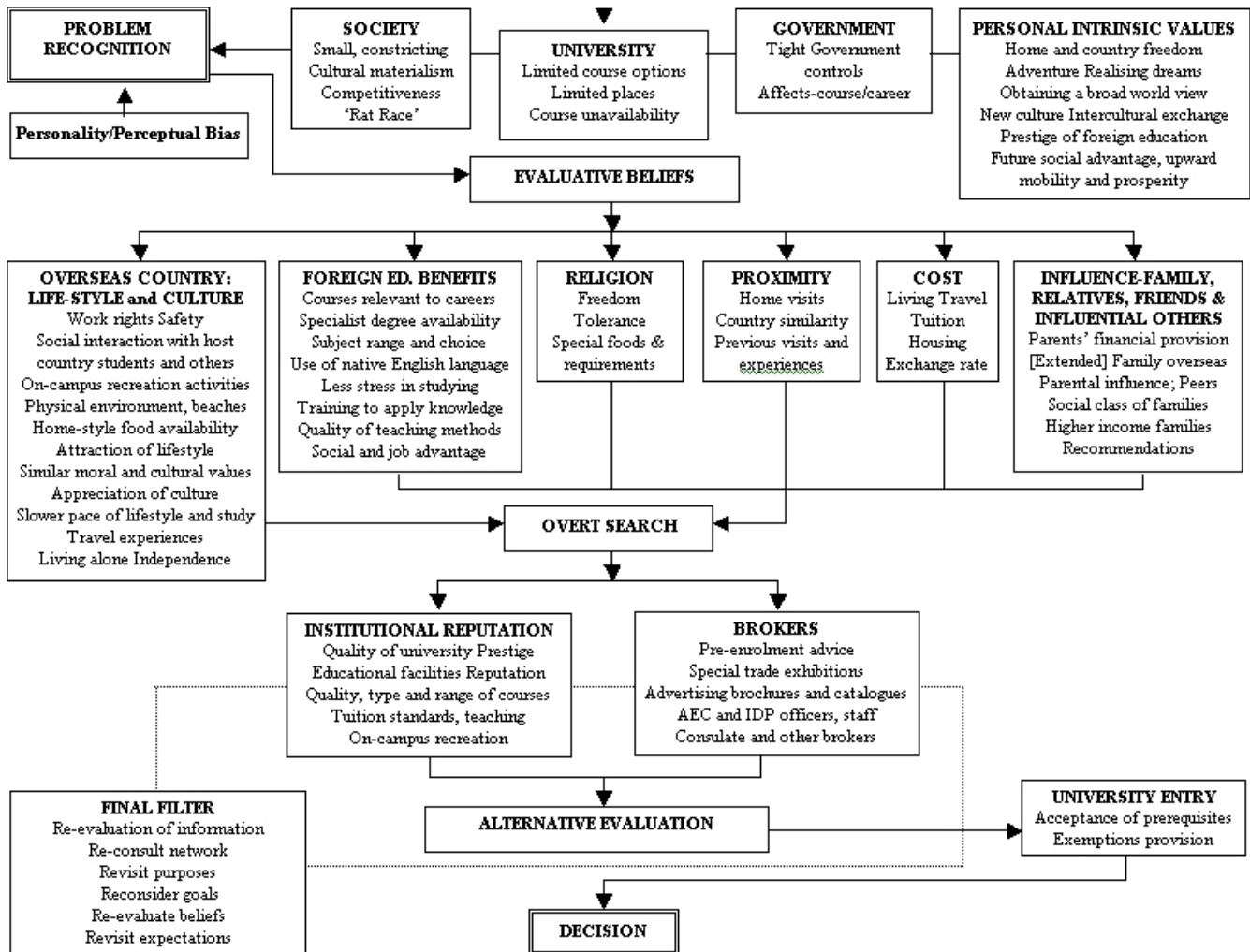


Figure 1. A multi factor model of decision making

FRAMEWORK FOR THE CASE STUDIES

The subjects were students seeking information on Australian higher education: one was male and the other female. The Manager of the AEI office in Singapore selected both subjects, having previously briefly interviewed them. The male subject was considering undergraduate enrolment in Australia and the female wished to return to Australia for further postgraduate study. It was agreed that topical guidance should be given so that they were directed towards identification of a broad framework of influences, internal and external. Therefore, exploration was predominantly of personal themes, motivations and factors that influenced their personal choices.

The guiding principle was that the interviews should be open-ended with subjects sharing any parts of their decision-making they considered had contributed to the current prospect of study in Australia. Both required prompts to give some continuity to the interviews and probes were used to encourage more detailed information of particular experiences. The parameters were set around the subjects' lives, environments and experiences, which included personal events, social and religious environments, family histories, cultural and educational experiences and developments

that shaped their lives. Further, it involved experiences of friendship, beliefs, obstacles, guidance, misfortune, future direction and significant events that affected life decisions or in some ways brought them to their current place of making a future educational decision.

The two participants were Singaporean Chinese in heritage, a female of 24 years of age (Subject 1, S1) and a male of 20 years (Subject 2, S2). Both students were proposing study in Australia and were willing to shed light on their life stories. Subject 1 had applied for a postgraduate Art College place, and Subject 2 was investigating an application for an undergraduate engineering course.

Though within a shared context and societal norms, the life stories of the two students varied greatly. Each subject had experienced personal sufferings in differing ways, and opposition from a difficult family member, yet possessed a hope for the future for which both were striving to fulfil. Although extended family relationships helped shape their views of society, they continued to be the cause of joy and pain, though integral to their lives. Living in close proximity to neighbours was expressed as both a satisfaction and a burden and the concept of solitude lingered in both subjects' minds as both a positive, yet not always desired, force.

The first subject, the female, perceived that the sufferings she experienced were due to being born a girl, which her mother had expressed endlessly as a bad omen for the family. Philosophically, her life became bound up in astrology, ancient ancestry and Eastern religion, while aesthetically, she wrapped her life in Japanese art and beauty. She wished to experience again the freedom she had known in earlier study in Australia and was wrestling with returning to postgraduate study in Australia when her duty was to her ailing mother whose health was slowly deteriorating.

This subject perceived her life as being in bondage to ancestors and sought enlightenment through astrological and ancestral studies. She seemed to have been woven into a tapestry of pain and hurt that darkened her spirit; it could be lightened only through the beauty of music, paintings, visual artistry and graphic design. Her reward for years of pain and a lonely existence were transformed by short visits with her father to Australia, fine arts study in Australia, and her years of graphic design in Japan for which her successful career was richly rewarded. Yet, she desired more and her quest for inner resolution would be in her philosophical study and a future beyond Singapore.

The central influence upon the male subject was from his mother and her family, with its proud Parakan ancestry of Chinese-Malay origins and patriarchal authority. Remembering the past was a duty and endowed upon the family a royal and refined history in the shadow of which they could live today. Duty to his family was instilled from birth. This brought personal conflict as he tried to understand inner leadings and sought guidance.

The female subject was controlled throughout her formative years by her mother, while her father observed in silence. Both parents had traditional Chinese backgrounds, her mother coming from a wealthy Buddhist family from Mainland China while her father had been intelligent but poor. Although he became a successful, self-made man, it was his wife, a concert artist and teacher, who had retained the status and power in the home. Her behaviour became eccentric and she was superstitious, blaming bad luck on her only daughter whom she had disciplined by beatings throughout her life, causing a deep rift, which was still being healed:

With my mother, before all the things that happened to her she was a busy person with teaching music, training students, singing and she was very active at home because students would come over and sing together. It has made me frustrated because my mum is supposed to be an art person but she's treated me like this, in spite of her learning in this area of music. After all, music and art are the same. But why? Because of her traditional values. I think it is a hindrance.

Both subjects suffered childhood illness and injury, the young boy finding deep compassion from the clan family, while the girl suffered rejection. From childhood, Subject 2 explained how he was driven by a need to develop friendships and to connect deeply with society positively through community aid and care work. This he now saw was a means of justifying his existence. He felt he was both child and adult, a conqueror of life, through what he could do for others, and conquered by life, who struggled to make sense of pain and suffering. Often he was overwhelmed by his own poor health and the pressing needs of others close to him. Yet he valued times with his father who had taken him to places in his thoughts, ideas and stories that were based in old Chinese fables of Han Zhong Li, who was a noble warrior who defeated his enemies and won in battle the respect of emperor and god.

He experienced an illness when he was eight that doctors could not diagnose. His mother resolved to take him to Chinese doctors in Malaysia for treatment so that he was separated from school companions, friends and family. On returning after a prolonged period of separation, he experienced some loneliness. During this time, his father finally was able to share his own stories of life:

I became close to my father during my illness. He left work early to spend time with me. He read to me, told me stories of his childhood in old Singapore. [He and his father] shared secrets and [his] father collected special cards with collector cars on them that were [stored] away in the wall. What I have today is a memory to my father. I hope what I achieve will be in thanks to my father.

Despite terrible stab wounds to her ribs at a young age by a deranged neighbour that brought years of operations on her spine, loneliness, and a sense of being trapped by injuries, Subject 1 reported that she found her freedom through study, work and career. The choice of studying abroad encapsulated for her a sense of liberty, free-will, choice, and separation from the nightmare. To her, decision-making was as much about leaving Singapore and immersing herself in something she loved and which freed her, as about studying abroad. To the second subject it was about honouring the family, repaying a debt, while also providing a challenge.

Their current commitment was seen by both the male and female subjects as due to all that had happened in their lives, bringing strong desires to apply themselves completely to their studies:

Even when I went away for my studies I was not like my friends. When I was in Australia, I spent most of my time at school attending lectures, working on projects. All the time I was working and doing part-time work in a design company. (Subject 1)

I spent most of my time at school working hard, working on projects, challenging myself. I will never change because I believe individuals can either grow in society, by hardships or through challenges that can come through study. I need time away from the system in Singapore. I have seen others stay in Singapore and go back to what they feel safe with but I don't want that just yet. I want to grow and be challenged much further yet. (Subject 2)

I actually did have a strong interest in peoples' culture, language and the way of life. I think that was [an important] motive for going away, to know other people's life, to get to see how other people live, to know what are the differences between their lifestyle and my lifestyle. I wanted to compare why there are so many problems existing in my country that is not happening elsewhere because I was thinking that such knowledge would help me in my work, in my art. (Subject 1)

Discussions led both subjects to the political environment in which their lives were grounded, whose perceptions of government in Singapore was stark and real. They accepted that their

contemporary views were unacceptable to older generations who had benefitted from the post-independence policies of Singapore that now seemed outdated to many of the younger generation:

I think it is hard for you to understand because in Singapore the Government actually plans your whole life from high school through college. It is good to structure the society, but it is to the extent where it interferes with your private life that I don't think is right. Everybody has the choice of what they will do. You can't use authority to force people to accept it and most people are forced by the Government to accept the fact that it is like this.

Our Government actually structured the education system so that between 18 to 22-23 are the years of university. Then by 25-26 you can't really get in. Lately they have started the Open University for adults to study. It is now working very well.

Our Government has made Singapore a very competitive society. It is a place where everybody is trying both to prove and to improve themselves. In Singapore you must find a way to survive despite the Government that plays a very important role in decision-making as well as in our careers and for our future. The older generation supports what the Government has achieved but for this younger generation they feel manipulated. (Subject 1)

And for Subject 2:

Of course national service was a regimented life. It is no doubt an extension of the control of Government that is in Singapore at every corner and in every aspect of life. Duty and service are important to people in Singapore and this does not only relate to national service. I'm glad this is at an end for me, as I know the army would never be a career of choice. You have to use it to grow as a person but move on at the right time.

I will not let the Government take any further role in planning my life or career. I have served in the army and I have obeyed the laws. Now it is time for me and I will support any politics I think is right for Singapore when I return. I would like some change although my family never want to change anything. I understand from their background why they must continue to support the present structure. They are in debt for the good life they now have but I think they have earned it.

Regardless of his strong views on the government and its control over society, the male subject's attitude to his environment and his motivations confirmed an appreciation for its benefits and the legacy children of this society had received. It also demonstrates the resilience and resourcefulness of the Chinese spirit in the younger generation as he commented:

I have visited many countries and seen the way other people live and although I enjoy these experiences for a time I know I want to live my life in Singapore making the most of life surrounded by good friends. My family care more that we find what is right for us as individuals and believe that we know what is right for our lives, what will bring us happiness. They ignore my bad behaviour at times but I do know the limits and I try always to stay within those.

My parents have always been supportive of me. My dad has had a successful business career as an industrial manufacturer and I seem to have inherited that interest. Because Singapore is mainly a provider of service industries, a career in business is a better option, although engineering could always be a possibility as there is a shortage in Singapore. Basically, the people of Singapore are its main resources so a business that uses manpower has a certain future in Singapore. In Singapore and with my family I can make the most of life surrounded by good friends.

I completed national service and now I am looking for a business career. I found it a time for self-development but it is time I moved off into a new venture. I feel I am now ready for study and it will be good to use my skills in a new situation. Everything I do I want to be a new adventure and study will be this challenge. I shall mix experiences in a new culture and I should experience growth in new areas. I look forward to this challenge. I have seen others stay in Singapore and go back to what they feel safe with. I want to grow and be challenged much further yet.

This willingness to accept and rise above circumstances in life that cannot be controlled reflected many of the views of students in earlier interviews. In sharing their philosophical positions on life, the two subjects revealed the attitudes, beliefs and understandings they had formed and their learning and information processing capacity:

Some of the best kind of learning does not come from textbooks or just from libraries, which is a limited source of information. We learn things through life: just sitting on a bus looking out of the bus, this is part of the experience. [With people who] have love and happiness you know they know how to treasure happiness. If they have happiness you can feel it. People who are always happy then there is no obstacle they can't overcome. How fortunate they are.

I realised when I was younger there was an anger growing inside but I vented my anger by leaving home, by going away. I found release only last year when my mother fell sick and that changed the whole perspective of my life. I want to be self-contented. It's not the achievement that you have in life that makes you a better person. It is something inside you.

To me, whether you are of the Chinese, Japanese, Australian or any other culture you are all the same except that you are of different parents, with different skin colour and features but that's all. It very much depends upon the individual, how you view life, your perspective. I want to ask of myself as I think about my life in Singapore, is it like this everywhere? I want to see the other side of the world to see why people stay in another country.

If you publicly announce anything against the Government and you are caught by the police, you will end up in jail. A typical Singaporean attitude is that you are told that it is bad to stand up and say something. That is why I don't like my own country and don't wish to stay here. (Subject 1)

I have little experience of other cultures apart from business travel with my father. I do believe that all people are basically the same. We all want to have the same opportunities that others in the world have as it affects our view of life.

It doesn't take much courage to live in Singapore. [With terrible illness], it is then that the real person shows and it is a test of friendship because it is very easy to desert someone who can no longer join in. That is the real test. Life in Singapore is not difficult - except it is difficult to enter your choice of study. (Subject 2)

Satisfaction with the social environment did not overflow into the educational arena for either subject, sharing the same disdain as the political system in many aspects:

Now as a teacher I can feel for the students even at a young age like 12 and 13 bringing piles and piles of textbooks to school and the focus of school is a score, to learn and gain results. They don't care whether the students are coping with it. A lot of students commit suicide when they are in the primary school. The reason behind this is the education system.

What I like about arts is that I can vent my anger in my life here: I can release the pressure. It's me, it reflects me and my outlook on life but I can't reveal it in everyday life.

Everybody has to shut up. If you speak, the next day you will have [to appear] at the police station. I question also that, as teenagers, why are we always under pressure? (Subject 1)

I want to study in Australia for three years. I need time away from the system in Singapore. I know it is really the reason most young people go overseas. I need to study a course for employment and at a university where my degree will be well recognised as that is an important start in business here in Singapore. I could, if I need to, work with my father but I know other families in business who could employ me. I have to think I can work somewhere else. That may change. (Subject 2)

Past experience in other cultures was seen as a shaping influence on the female subject in particular, but the following discourse by both subjects shows some of the processing prospective students engage in as they seek to discern what is the right course of action for the future and their assessments of competing cultures:

For three years I went to Australia and for two years to Japan. It is quite different in Japan to the west; I think one reason being, it is 'Asianised' because it is restricted by our traditional thinking. It's not free, not totally free.

Japan is a totally different society compared to Singapore or even Australia. They are very regimental. The generation gap is wider there even than in Singapore. In Japan they are governed by their traditional values. Before I went to Australia I heard Australian people are lazy, don't work hard, laid-back, slow-paced, back-dated. Looking at their work, especially in art, in the performing arts, drama, visual arts, if they are laid-back they couldn't produce work like this. It is actually a very superficial understanding of people.

[Australia] is not very materialistic: it's not really commercialised. It is more to my liking and it's why I prefer Australia to Singapore. It is very commercialised and everyone's objective is to earn a lot of money, to own cars, to own houses. Japan is worse than Singapore. All the clothes you wear have to be labelled. Designer labels are what count. (Subject 1)

What I have learned from my friends and other family who have lived in Australia, they liked the freedom of the lifestyle and the different ways of doing things. They also say that Australians are relaxed, unstressed people. They aren't design conscious in clothes and I think that is good because it makes you acceptable for who you are, not your image. They say that universities use different teaching approaches to Singapore and the system here is very outdated and it would be good to have new experiences in that way.

My family has [given me] the option of studying in the United States or Australia. I would like to go to Yale or Harvard but I don't think I would be good enough. I don't know many people who have studied in the US but I know many in Australia and there is family there. I understand that the Americans are different, very different, so I am happy to go to Australia and maybe later I can do some postgraduate study at Harvard. (Subject 2)

How the case studies relate to the study findings

The case studies focused on personal experiences of the two subjects from Chinese families with a predominantly Confucian ideology. They revealed complex thinking on issues about their lives, education and society that impacts on the way they engaged in decision-making. The view they presented of the Singaporean environment was of a sophisticated, highly competitive and increasingly Westernised society as well as a somewhat superstitious, Easternised, family-oriented society. They articulated the pressure that striving for success brings and showed that they recognised the value of the different style of learning from those of Singapore. The subjects confirmed that their desire to study in Australia was stimulated by cultural expectations of a freer, less image-conscious society.

The stories unfolded some portions of the pain and joy of 'lived experiences' (Van Manen 1984) and the way it shaped mind and spirit, so that decision-making could be seen in a context of personal history and lived experience. Subject 1 had lived in some degree of personal suffering and remained bound as an adult to the expectations of her traditional Chinese parents. She was bound to a debilitated parent who had enjoyed her own long musical career yet would not free her daughter to pursue hers. Freedom was another land, another culture and a time of intense absorption in study of art before a new career in another place at another time. She sought every benefit that Australian education at its best and fullest could offer her and was hungry to devour it, piece by piece, enjoying the most diverse of teaching and learning applications.

The second subject was seeking a challenge in the educational arena of Australia so that he could be prepared for a future business career where success was the only perceived outcome. This was the debt he owed his family and a trust placed upon him that would show his filial piety to the strongly Confucian family with a proud Paranakan heritage. Behind his educational decision rested the weight of tradition and obligation.

The two case studies were an important part of the research into factors involved in these students' decision-making as were the data from the 18 interviews that had been subjected to a refining process so that the themes emerged that could be used as constructs in the mode (Figure 1). The primary 97 narrative segments were grouped into smaller segments where they contained similar meanings. In this way 97 segments were grouped and "coded into categories" (Tesch 1990) thus reducing them to 79. The educational marketing literature was then used as a baseline for comparison and 51 narrative segments in the research findings were found to be congruent with those in the literature. This was a confirmatory finding.

The research data were subjected to two further reduction processes to concentrate factors that were similar in content and strengthened each category. Thus, the segments were regrouped into categories (Tesch, 1990) of Cost and Finances; Australian Education; and Australia. Of these, three were significantly different in their content to previous studies and were considered to be new to the current understandings. The three segments are represented in the following descriptions and incorporate some student terminology, shown in italics.

Singaporean Environment. This focused on the effect on students of pressures brought about by controls over education, universities, courses and enrolments by the Government of Singapore. In society, this was expressed in status conferral either through high achievement or success indicators, such as the acquisition of the '6Cs' (Condominium, Car, Credit Card, Cash and Certificates). This control was further expressed in perceived social engineering, with the Government controlling life from the cradle to the grave. Educationally students felt a degree of disempowerment and frustration at the shortage of university places. Thus, the combined effects are a perceived lack of educational and personal freedoms and a stifling social and academic competitiveness.

Australia and Education. This related to the attractions of a more resourceful education system awarding higher status degrees in an environment that was conducive to study with course prerequisites easier to meet and degrees of choice more available. Also, being at a low cost, increased the social advantage of undertaking an Australian education. An added attraction was knowledge passed on through friends of a different kind of teaching and learning than was experienced in Singapore. A further advantage was the attractions of a vast land, oceans, beaches and inland mysteries, of an attractive physical environment that offered a relaxed lifestyle, complementary to the academic focus. Intrinsic to this experience was the perceived societal and political freedom that they could enter during this time of study. Many, however, carried an inherent need to succeed academically to honour the sacrifice of their families.

Individual Experiences. This signified the need in studying abroad to be initiated into adulthood, presented with new opportunities and confronting challenges while in Australia. This offered an opportunity to validate their existences through their own efforts. Thus, new freedoms were seen as a catalyst for growth, maturity and to prepare them for future uncertainties in life. It further involved some degree of intercultural exchange in Australia where they could interact in a Western culture that was in some ways different to their experiences in an Eastern society founded on Confucian values. Thus, the strong desire was to be independent and to live and study in a more challenging environment, with low risk but high opportunity to exercise their independence. This provided an escape from the tightly controlled perimeters of a small, highly concentrated community, that for many was perceived as stifling their individuality and inhibiting creative opportunities. For some this small nation-state often felt imprisoning and the perceived need of students was for a short escape to prepare and refresh them before embarking on a future career.

CONCLUSIONS

The case studies and the interviews point to a strong degree of cognitive ability among the individuals, a complex response to situations in their environment and a sound philosophical understanding of themselves and their society. This indicates abstract thinking ability, not generally accorded to Chinese students, that adds an enriching dimension to understanding the decision-making process depicted in the model where philosophy and a human perspective is not easily represented. It further supports indications of high abstract thinking in the personal factors study.

The decision-making model in Figure 1 is a high-involvement one, as high personal and economic investments are made for the outcome. The process begins with 'problem recognition', incorporating factors from the physical and psychological domain, motivating prospective students to examine their 'problem' in socio-cultural and political, as well as personal and educational terms. Then may follow engagement in evaluative beliefs about the Australian education offering and any perceived personal and psychological advancement, educational development and career opportunities. Concurrent is the rite of passage into adulthood through achievement. This may lead to a covert search, with students evaluating hardships alongside opportunities and cognisance of possibility as well as responsibility. Overtly, networks are consulted and information evaluated. Finally, through an alternative evaluation a clear pathway of choice may emerge; or a more turgid evaluation and re-evaluation of choices lead to a desired outcome.

Thus, this model represents an ostensibly simple process of educational choice, overlaid with a complexity of factors including: personal emotions and desires, psychological reasonings and rationalisations, political, social and cultural influences, educational indoctrinations, referent group expectations and social norms, and societal traditions and spiritual directions. The simple becomes the complex. This model, therefore, represents a fragment of the social, personal and

behavioural interaction that occurs during decision-making and a representation of the variables that are at play during this process.

Finally, consideration should be given by university administrators to the need expressed in this research by Chinese students not only for a safe, economical, geographically close location and awards from institutions recognised by their home government, but for personal and cultural outcomes. Advertising material, therefore, might promote an Australian study environment where independence, growth, new experiences, unique friendships, self-management, new life opportunities, and time responsibility are possible. Universities could reinforce this desire for new educational experiences that direction students towards educational autonomy that complements personal aspirations.

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Language difficulties of international students in Australia: The effects of prior learning experience

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Globalisation has placed a growing importance on English language speaking and listening. Prior research indicates that many international students from Asia, studying in Australia, face serious learning difficulties and lack confidence in speaking and taking a proactive role in classrooms. The paper reports on data gathered in interviews with students from five Asian nations, which suggest that these learning difficulties are grounded in weaknesses in students' prior learning experiences – focused on grammar and reading skills in teacher-centred classrooms, not conversational skills – and in beliefs about language learning instilled during schooling. The paper proposes strategies for overcoming these problems.

International students, international market, English as a foreign language, beliefs about learning, conversational skills

INTRODUCTION: GLOBALISATION AND THE USE OF ENGLISH

Globalisation, which is the tendency to world-wide convergence in education and other sectors (Held et al., 1999), is changing the environment in which English is learned as a foreign language (EFL) or second language (ESL). First, economic and cultural globalisation includes the globalisation of language, and in particular the spreading role of English as a universal global *lingua franca* (Crystal, 2003):

It is English that stands at the very centre of the global language system. It has become the *lingua franca par excellence* and continues to entrench this dominance in a self-reinforcing process. It has become the central language of communication in business, politics, administration, science and academia, as well as being the dominant language of globalised advertising and popular culture. (Held et al., 1999, p. 346)

At the same time the balance of emphasis in the use of English as a common cross-border language has shifted, from a primary focus on written communication to continued written communication plus a growing emphasis on oral communication. Linguistic globalisation, which is driven by more and closer cross-border ties in business, education and other sectors, becomes manifest in intensified communication and travel. Increased spoken voice interactions, and English language exposure in media, have placed a growing importance on listening and speaking skills. When people need English competence for their practical life – and in nearly all professional and business domains, in every nation, English is more and more necessary – they often need oral skills. This is especially the case if they are working in sectors involving international dealings or actually crossing national borders themselves.

However, traditional EFL pedagogies in East and Southeast Asian nations are not fully adequate to meet the need for an expanded emphasis on oral communications. These traditional pedagogies take a scholastic approach in that they tend to treat English as if it is outside the national or local linguistic environment. Thus they focus almost exclusively on learning to read English-language

documents, and to prepare English language essays and letters, with little attention to the skills of conversation in English, let alone the ultimate communicative goal of native speaker-level proficiency. Teachers who were themselves schooled in a scholastic approach to the language, and focused on grammar and correct usage with little attention to oral communication, normally feel most comfortable in reproducing this same approach with their own students. However, the scholastic approach has become obsolete because of the growing role of English both inside every local environment, and at the borders between nations. The profound need for listening and speaking skills cannot be avoided. Strategically it is essential that EFL pedagogies in Asian nations move beyond the 'scholastic' tradition. The communicative approach to language teaching takes up this strategic imperative (Savignon, 1993, 1997).

In some quarters the communicative approach is still contested – for example it is sometimes wrongly alleged that the communicative approach is indifferent to questions of correct usage including grammar – and although it now commands policy support in most Asian nations, it is yet to be fully implemented. The problems created by a scholastic fixation with grammar to the exclusion of oral communication are still with us, as the evidence presented in this study shows.

International education

Globalisation also entails the globalisation of education in the form of the expanding market in cross-border study. Approximately 1.7 million students, almost half of whom are from non-English speaking developing nations in Asia, cross borders every year to acquire a foreign education. Altogether 73 per cent of Asian cross-border students entered English speaking tertiary institutions in 2001 (OECD, 2004 p. 211; Marginson and McBurnie, 2004). Many of these students come from nations (for example, China, Japan, Vietnam and Indonesia) where English is learned as a foreign language and the teaching and learning of English is often shaped by the scholastic approach. International education is now of major importance to Australia. Between 1990 and 2003 the number of foreign students enrolled in Australian higher education institutions rose from 24,998 to 210,397. Education is Australia's third largest services export after transport and tourism. Hence from the viewpoint of people working in higher education in Australia, there are two reasons why it might be important to focus on the learning difficulties of international students. First, like all students, international students are valued as students. Second, international students are also a source of revenue, and any improvement in their educational experience has the potential to build a positive reputation for Australian institutions.

When students from Asian countries enter English-speaking nations, they must adjust rapidly and learn fast, coping both academically and socially. No element is more important in this than communication: in the classroom, in dealing with university administration, and in other social sites. These students are reliant on their prior English language-learning experiences – especially at school in their home country – as the base on which their later learning will be built. They are therefore closely affected by the kinds of pedagogies that were used before coming to Australia, the beliefs about language learning that were installed in them, and the numbers of hours of effective experience in conversation already acquired.

Twin purposes

This paper has two main purposes:

1. The explanatory purpose: to use data drawn from research on the conversational strategies of Asian English as a Foreign Language (EFL) learners studying in an English language setting in Australia, to help us understand better the difficulties of such international students with English, including the influence of their prior language learning experience, and their beliefs about learning.

2. The normative purpose: to point towards better learning strategies. It is hoped that the findings of this study will help educators and administrators, both in international students' home countries, and in the countries of study, to conceptualise better strategies for solving the English language difficulties and associated learning problems of international students.

In summary, the paper begins by considering the relevant scholarly writings: it discusses the findings of prior studies concerning the language problems of international students; and studies concerning the formation of second language competence, which include the relationship between beliefs about learning a language and the formation of language competence. It then focuses on the English language experiences of EFL students after they enter Australia, especially their conversation. Specifically, it examines the English language experiences of twelve English as Foreign Language (EFL) learners from five Asian nations, Vietnam, Japan, Hong Kong, Indonesia, and Thailand. These twelve students were interviewed as part of a research project on learner beliefs about language learning and how these beliefs are reflected on their communication strategies. In the interviews, they discuss their English learning experiences at school, in and out of the classroom, and the pedagogical framework of that English learning. They also talk about their difficulties with English in Australia, their beliefs about language learning, and their conclusions about language learning in the light of their Australian experiences. The final sections discuss the implications of these findings and present the conclusions of the paper.

INTERNATIONAL STUDENTS AND ENGLISH LEARNING

Language difficulties experienced by international students

It is probably no coincidence that at the same time that education and business have become more globalised, and the number of Asian students studying in English language nations has grown, research on the issues, difficulties and problems facing international students has also become more extensive and intensive in Australia and elsewhere (for example Robertson et al., 2000; Bayley et al., 2002; Borland and Pearce, 2002; Mulligan and Kirkpatrick, 2000; Hellsten, 2002; Hellsten and Prescott, 2002; Wong, 2004). These works contribute significantly to higher education research.

Most recent research studies of international students, in particular those conducted in Australia, identify their problems in coping with English – both academic English and conversational English – in the field of education. These difficulties are felt especially in relation to speaking and writing. This is especially made clear in the evidence of students themselves. Of all the social and academic issues and problems facing international students that are cited in recent studies – differences in learning style, culture shock, homesickness, social difficulties – the problem they themselves most often refer to is difficulties with English.

Robertson et al. (2000) explored the difficulties experienced by international students studying at one Australian university. The researchers surveyed both international student and local staff perceptions of those difficulties. Staff and students emphasise language as a key source of difficulties in teaching and learning. The students manifest a lack of confidence with English. They have incomplete understanding of lecturers' spoken English, and feel unhappy with their oral performances in the presence of Australian classmates. There are also concerns about colloquial language, writing difficulties, and problems of interpretation. Robertson et al. (2000) concluded that language issues were the major area of unsolved problems facing international students. Research in Australian universities by Bretag et al. (2002) found that according to academic staff, international students from a Non-English Speaking Background (NESB students) were unable to contribute effectively, as required, in tutorial discussion; and that due to poor grammar their written work was often hard to read and to assess. According to the research study

by Bayley et al. (2002), university staff reported that many international students had difficulties with writing:

International students have highly variable levels of English proficiency: if an international student does experience problems, it is most likely to be in the first one to two years of their course, particularly with their written work (Bayley et al., 2002, p. 47)

A study by Wong (2004) used interviews with international students. He found that many international students, accustomed to a didactic and teacher-centred environment with less classroom conversation, found it difficult in Australia to make the transition from passive learning. At the same time, his study found that the students acknowledged that their lack of English language proficiency in the classroom, exacerbated by cultural barriers, was a principal source of learning difficulties.

While generic statements about ‘Asian learners’ should be treated with caution, there is research evidence showing that students schooled in some East Asian and Southeast Asian nations are accustomed to a more passive-receptive style of learning than is the norm in Australian classrooms, especially tertiary classrooms. A study conducted by Hellsten (2002) suggests that international students’ passivity is partly due to constraints resulting from their prior learning:

You know in China there are ... lot of vocabulary and I think really good grammar. But ... we can’t speak for ourselves. We never tried it. And just, uh ... our education system ... put everything in my brain, not participate. There’s only one way. My teacher say. I listen. That’s it. So I never say. So I can’t speak very well before coming here (cited in Hellsten, 2002, p. 9)

Here the strong focus on grammar and correct usage coincides with a didactic pedagogy, both reinforcing a teacher-centred form of learning in which there is relatively little interest in developing the student as an active speaking agent. Research by Hellsten and Prescott (2004) also investigated factors affecting international students’ learning, and reported on language difficulties experienced by them. The researchers used one-hour semi-structured interviews with first year undergraduate students studying in Australia. They found that feeling inadequate in spoken English hindered many Asian international students from participating in classroom discussion. For example:

It’s just hard and difficult. I don’t know the feeling, the nuance, I don’t know those in English so I ... I am not a good English speaker at all. It’s very uncomfortable when I talk with somebody (quoted in Hellsten and Prescott 2004, p. 346)

These studies provide valuable data. However, while they describe the English language problems of international students effectively, they focus on the symptoms rather than the underlying causes. The research conducted so far has largely focused on language constraints as they have been experienced by international students once embarking on their studies in a new social/academic environment. One way to inquire more deeply into the problems of international students is to examine the influence of students’ prior learning experiences and their beliefs about learning.

Unless researchers focus on the whole learning biography of the international students, they will not fully understand the difficulties faced by both these international students and their teachers. No-one who enters the classroom on the first day of a new course is a so-called ‘blank sheet’. All learners are affected by what they already know, and how they have learned to learn. Further, by focusing merely on the language difficulties occurring after the student arrives in the English speaking country, it is implied that the solution of those difficulties lies solely with the students concerned plus the institutions in which those students are studying. But their previous institutions

of study in the students' countries of origin, and in many cases the government responsible for these institutions, also have responsibilities.

Responding to the gap in previous studies, the study on which this paper is based started from the assumption that prior learning experiences were likely to be important in influencing the EFL experience in the English-speaking nation.

Success in second language learning: contributing factors

Success in language acquisition is influenced by many interrelated factors. These include the social context of the learning, cultural beliefs about language learning, the status of the target language, and the processes of language learning itself (Ramirez, 1995). Walqui et al. (2000) argued for the importance of contextual factors in second language learning. Factors such as language (language distance, native language proficiency, and language attitude), learner (diverse needs and goals, role models, and support) and learning process (learning styles, motivation, and classroom interaction) need to be considered. This points to the importance of formal instruction and classroom practices in shaping learners second language learning.

Some researchers have also pointed to the importance of learner's belief system in understanding ways in which learners approach their language learning (for example, Wenden, 1999; Horwitz, 1999; White, 1999; Benson and Lor, 1999; Yang, 2000). Language learners possess a set of beliefs about the nature of language learning. These beliefs have the potential to influence both their experiences and actions as language learners (Horwitz, 1999). Benson and Lor (1999) state:

If learners believe that the best way to learn a foreign language is to memorise its component parts, it seems likely that they will hold positive attitudes towards vocabulary and grammar learning and they will be predisposed to adopt a range of strategies involving analysis, memorisation and practice. If learners believe that the best way to learn a foreign language is to absorb it in natural contexts of use it is likely that they will hold positive attitudes towards communication with speakers of the language and that they will be predisposed to adopt a range of social and communication strategies. (Benson and Lor, 1999, p. 459)

This research has implications for language teachers. Benson and Lor (1999) argue that if teachers wish to influence learners' beliefs, the underlying beliefs on which they are based need to be addressed.

Learners' beliefs derive from a variety of sources, including the learner's previous learning experience. Current teaching and learning practices are another factor and language teachers need to remember that what they do in the language classroom continues to shape students' beliefs and expectations about learning (Mori, 1999). The fact that intervention in current learning programs can reshape beliefs about language learning, including any learning blockages that may have been created in past learning experiences, is good news because it provides teaching opportunities. Tudor suggests that learners should be trained in relation to beliefs, incorporating stock-taking and evaluation of the learners' current beliefs; exposure to alternative approaches and options; and guidelines to assist in exploring these options (Tudor, 1996:53).

The implication for the study reported in this paper was the need to investigate the EFL learners' beliefs more closely, and as far as possible to tease out through interview questions the relationship between learners' prior learning experiences, the beliefs about language learning instilled in them, their current beliefs and their current language experiences and problems in the English-speaking nation.

METHODS

The data reported in this paper were derived from a larger study of English as a Foreign Language (EFL) among international students. The study investigated the EFL learner's beliefs about English language learning and how their beliefs were reflected in their communication behaviour. The empirical research for that larger study included interviews with the EFL learners about their prior English language learning at school. Interviews were conducted with twelve international students, from Indonesia (two males and two females), Hong Kong (one male), Thailand (one female), Vietnam (two males and two females) and Japan (one male and one female). These students had just finished schooling in their own countries and had come to Australia to pursue their undergraduate study in an Australian institution. They had been in Australia from six to ten weeks. At the time of the interview, these students were undertaking a bridging program for ten weeks to supplement their International English Language Testing System (IELTS) score as required by the university, a test of the standard of English which is used as one of the requirements for entry into Australian universities.

The students were asked to comment on various aspects of English language learning, including questions regarding their classroom practices, resources enabling them to use the language in a practical way, and difficulties in language learning. Students were also asked about their language learning experience after arriving in Australia. The interview was transcribed and analysed. In order to maintain the truth value of the students' comments, the extracts quoted are presented as they are without any editing. (The number in brackets identifies each individual participant. Gender and home country are specified).

FINDINGS FROM STUDENT INTERVIEWS

The students provided many comments that bear on the relationship between their prior English language learning experiences in the home nation, their present difficulties with English-language communication while in Australia, and the relationship between their beliefs about learning English and their actual English language experiences.

At school there was a common focus on English grammar, rather than on communicative competence

In the prior English learning of students from all the countries, the main focus of the teaching was on English grammar and other aspects of standard usage. Essentially, learning English was seen as learning a scholarly skill for the purposes of reading and writing, not as learning a living language of use. Thus in learning English at school, the main pedagogical medium was reading and writing, rather than conversation. The main pedagogical style was didactic, in which students were positioned as largely passive learners. In their interviews, the students made frequent references to all three of these aspects, which interacted in the practices of didactic teacher-centred classrooms, and had become combined in their recollections of school. In the typical school lessons on English, teachers explained the grammatical rules, students did the exercises set out in the text books, and classroom interactions were largely one-way. Oral communication skills such as speaking and listening were almost totally ignored. Students rarely had the chance to use English in conversation in the classroom, and were under no pressure to become competent in this.

When I was in Vietnam my teachers just taught me they just taught me the the grammar and writing but they I think they rarely let the students to have a chance to to speak English to practise to give ideas on a topic for example they can rise a question and students can answer. I like that way rather than just answer the question first and then later discuss. (F 2 Vietnam)

They only focus on grammar and writing all I have to do at school is grammar they read some text books and do the exercises and they just mark the exercise about the grammar there are listening test but a little bit not much they taught me how to learn vocabulary and grammar. (F 3 Vietnam)

I think I have problem with listening and I can't speak fluently because I didn't communicate with other people much I had no chance to talk with people in English. (F 3 Vietnam)

Basically we were taught reading and grammar. That is why... my listening and speaking skills are not good enough. That's why I tried to learn English by watching TV or listening to music with English words. (F 11 Japan)

I think for me the most difficult part (now) is speaking. I feel very shy when I speak English in my class. I rarely speak I just listen because I am very shy. (F 2 Vietnam)

I think in school the teacher only in one way the teacher only explain the grammar and we just write it down and do the exercise I think just that it's no enough we have to try to speak and show our ability in English. We are just passive and just listen to the teacher. (M 4 Indonesia)

It's really important for teachers to encourage student to participate in what they teach. They should create interesting activities in class, so that students would have a chance to speak. In my country it's quite difficult for the students to learn English. The teachers just teach grammar. When we have to speak we find it hard. We are not used to it. (F 6 Thailand)

This was reflected in the balance of activities in the classroom

In English lessons at school the students lacked a balanced access to the four skills of listening, speaking, writing and reading. A large part of the teaching time was devoted to the teaching of reading, and then writing.

We didn't have much time for speaking because we have some and the class were very crowded so many students in the same class so students didn't have much chance to talk about and to listen in one class like in Vietnam we have very very many other things to study like writing and reading but normally reading specially consumed and required more time than speaking so and less time for speaking. (M 10 Vietnam)

When examinations excluded speaking skills, this also inhibited conversational skill-development.

Speaking is the most difficult aspect for Japanese students. I have not spent much time speaking English. Only when someone asks me to speak in English will I speak English, that's all. In Japan the university places more emphasis on reading and writing. To pass the examination in English, we don't need to speak English. (M 12 Japan)

Though another student revealed that they did have examinations in English speaking:

Yes I did do speaking practice back home at school. We needed to take public examinations in English and this included an oral test. (M 5 Hong Kong)

And the weakness of conversational English was reinforced by the lack of exposure to good English speakers at school

Students suggested that their teachers' lack of oral competence was one of the factors that inhibited conversational learning. English instruction was mostly delivered using the student's own native language. The students thought that it would have been better if English had been taught by native speakers.

Maybe my teachers were not good at speaking English. They didn't use spoken classroom English at all. When I became a university student I had to learn to listen and to speak, of course. It was a conversational class. Because I was not used to speaking and listening I had to work very hard to catch up with the class. (M 12 Japan)

I think the teachers should be native speakers, because then they could talk in English fluently. It is quite difficult to learn to use English when the teacher is not a native speaker of English. (M 5 Hong Kong)

Moreover, as most of the English teachers at schools were non-native English speakers, the students were not sufficiently exposed to specific English language accents. This created major problems when they entered English-speaking environments, especially given the variety of English accents.

I think the most difficult skill is listening, because people (who speak English) have different accents. I listened to one teacher for the whole course at school and I could listen to him, because I got used to him. But when I went to university I was in big trouble. The most difficult thing is listening. Many of my friend share this thought with me – they also find difficulties in listening. (M 1 Vietnam)

We need to know the accent. Here in Australia it is very different. Back home we usually learn American English not Australian English. For example, sometimes when I say to my teacher 'harbour' (American accent) she said it's wrong, it's 'harbour' (Australian accent). (M 7 Indonesia)

I think maybe we need more practice at school. The teachers should give us more chance especially in listening. We never had a chance to listen to another English teacher with a different accent (F 9 Indonesia)

There were also few opportunities to use the language outside the classroom

Most students commented that during their schooling, they did not have enough opportunities to use English outside the classroom, either through structured activities at school, or in the wider community.

In my country I didn't have any chance... well, maybe a little... to talk with people in English. Here (in Australia), every day I can talk in English. I feel sometimes that this is very useful. (F 9 Indonesia)

When I was in high school there was, like, a special class where native speakers came and spoke to us, but it was only once in six months. (F 11 Japan)

I hardly used English in my country, except in school exercises. I didn't talk with anyone in English. (M 3 Vietnam)

A few students did have opportunities to practise their English outside the classroom, to varying degrees, mostly because of international business activity. This points to the role that economic globalisation has played in spreading the use of English in Asian countries (Crystal, 2003):

My father has a business he deals with Malaysian company and sometimes when they called to my house I have to answer the phone in English something like that my father has his own business but at that time I cannot speak English fluently. (F 6 Thailand)

The most (practice I had) was in my last job. It was in a foreign company. I had to speak English with my boss. (F 8 Indonesia)

Usually I practised with my father and my mother. My mother can speak English well, but my father can't speak English. (M 7 Indonesia)

(I only practised English) in the classroom or when I met tourists. I live in Jokya Jokya, which is a tourist city. Sometimes if I met tourists I tried to speak English with them. (M 4 Indonesia)

Grammatical awareness

As the above quotations indicate, when learning English at school, the students had been loaded with grammar lessons, and developed a strong awareness of this aspect. Regardless of the difficulties this created at the time, or the later consequences for their conversational skills, they had become convinced that grammar was the most important aspect in English language learning. They had absorbed the teachers' lessons that if they first mastered the grammatical aspects of English they would then be able to learn other skills.

In practising English, the most difficult is grammar. But if we know the structure of the grammar I think it is very easy to talk a lot in English. But academic writing is more difficult, and for writing we have to learn more grammar. (M 7 Indonesia)

At the same time, they were very focused on avoiding grammatical mistakes. This fixation with mistake avoidance made it difficult for them to take the risks that are always inherent when speaking in conversation in a language that is only partly understood. For some, the concern about grammar seemed directly to inhibit speaking and listening skill development, then and now. Here the students' beliefs about language learning, instilled into them both implicitly and explicitly at school, directly shaped the way they used and learned English in later life – and in the case of some of the students, continued to set limits on what they could achieve. If learners believe that making errors will impede their language learning progress, these learners may actually refrain from engaging in communicative activities, thus hindering the development of their communicative competence:

Yah, I am afraid of making grammar mistakes in speaking. When I do make a mistake I try to correct it, to make my speaking better. Sometimes when I speak wrong words or wrong sentences I don't realise till after. If that's what I have said, I cannot take it back, but I try to correct the mistakes later because I know I was wrong. (F 2 Vietnam)

Some people say grammar is not important. But I think grammar is important, because when I know grammar I can change (the way I use English) in many ways. (M 12 Japan)

Despite the great emphasis on the teaching of grammatical aspects at school, the students still found it a difficult aspect of English to learn, then and now. When asked what part of learning English was difficult for them, most students referred to grammar. One reason for this was that as noted by one of the students, there were pronounced differences between the grammatical structure of English and that of the student's own language. Focusing on these elements, continuously translating grammatical structures mentally while trying to talk in English, continued to inhibit speaking.

For me grammar is difficult. I have problems with grammar when I want to speak with somebody. I have to think about the tenses – is that right or not? (F 9 Indonesia)

Before I speak in English I need to concept the word in correct sentences with correct grammar in English. I have to think in my own language first and then transfer it to English with correct grammar usage. (M 5 Hong Kong)

Grammar is difficult. It's true that we learned enough grammar at school, but I find the structure of English very different to Indonesian. This is difficult for me. I also know that for many other Indonesian students, their weakness is in English grammar. (M 4 Indonesian)

After living in an English-speaking nation, the students had definite ideas about how the language should be taught and learned

The EFL students had learned by experience about the importance of developing oral skills in English. Some were still wedded to the importance of learning grammar and some were not, but all wanted to see schools back home using more practice with speaking and listening.

When you study English try to have a real situation if you want to say 'hello' to someone the beginner want to say 'hello' to someone just sit down and follow the teacher but set the real situation so it's easy to remember the situation where it can be used not by looking at the text book or follow the teacher. (M 10 Vietnam)

Now I have heard about communicative approach teachers can give some handouts and some cards in the class and students can discuss about anything about a certain topic and I think it is an effective way, so we are engaged in an activity. (M 1 Vietnam)

It's really important for teachers to encourage student to participate in what they teach like they should be more like make interesting activities in the class that the students have a chance to speak or something like that because for my country it's quite difficult for the students because the teachers just teach the grammar so when we have to speak and do something like that it's hard we are not used to it. (F 6 Thailand)

May be more practice I think at school the teachers should give more chance especially in listening we didn't have a chance to listen from another English teachers with different accent. (F 9 Indonesia)

I think it's better if English is taught in an interesting situation. We don't have to learn more grammar, just practise speaking and listening. (M 7 Indonesia)

Language and culture: being in an English-speaking country helps

The students also now felt having cultural knowledge and living in a second language environment contributed to success in language learning. The majority strongly agreed that it was best to learn English in English speaking countries, where there was more linguistic input and more opportunities to learn. This implies the need for the inclusion of culture as an integral part of English language learning in home country.

When we study in English speaking countries we always speak English and always think in English. But when we studied English in Japan we might still think in Japanese. (F 11 Japan)

Language and culture are related. To study English or to study any language we should know the culture and the customs of that language. We should know what we should

ask and what we shouldn't ask English people, like age or personal matters. To study English is also to study the culture so as to know how to apply English in real situations. When you study the real situation you study the culture. It makes it easier. (M 10 Vietnam)

If we learn English we have to use it, we have to speak more often. If we learn a language but don't try to use it, it's easy to forget. The best way is to go to a country when English is the first language. (M 4 Indonesia)

IMPLICATIONS AND CONCLUSIONS

Main findings

How do the findings of this study, as reported above, help us to understand better the English language difficulties of international students, and enable educators and administrators to conceptualise better strategies for solving their language problems? In summary the interviews provided five findings.

- Students' prior English language learning experience has an impact on how well they can cope with the academic requirement of the Australian university.
- The data indicate that students did not have sufficient exposure to English language conversation either in classroom or outside class, prior to coming to Australia.
- Classroom practice was not only largely didactic (one-way) rather than conversational in form, but was largely confined to the teaching of grammatical rules.
- This classroom practice appeared to have shaped some learner's beliefs that grammar was the most important part of English language learning.
- It appeared that this belief had then become manifested in their communication behaviour, so that they were not able to communicate effectively, socially and academically, and the learning of conversational skills was retarded.

In the move from country of origin to country of education, it is common for the primary English language learning goal to shift from grammar and vocabulary, to effective communication. This shift is very typical of the experience of many of the 85 per cent of international students studying in Australia who come from Asian nations. The research summarised here suggests that many of these students are caught in the country of education without a firm foundation for the new requirements.

Contribution of these findings to research

These findings do not enable new theorisations about EFL learning, about the relationship between belief and learning, or about pedagogical practices of Asian classrooms. Rather, they contribute in two other ways. First, the findings confirm the previous literature about the weaknesses of international students studying in Australia in relation to oral English, and the learning difficulties created by those weaknesses. Secondly, and most important, the evidence presented here makes explicit the connection between the international students' problems with English, and the prior language learning experiences of those international students in their own countries, and their beliefs about language learning. This insight connects two previously separated sets of research and theorisation, the research on language learning experiences and beliefs, and research on the communications problems and English language difficulties of international students. In doing so, the study contributes better to an understanding of the learning context of the many international students from East and Southeast Asian nations studying in

Australia, and similar nations and education systems such as New Zealand, United Kingdom and Canada.

To summarise, in research, policy and pedagogical discussion of international education, the dimensions of prior learning experiences and beliefs about language learning are not being taken sufficiently into account – though clearly these dimensions can have major implications for student learning. It could be argued that given that the dimensions of prior learning and beliefs about learning have not been taken into account sufficiently or systematically, this alone suggests that the diagnosis of international students' learning problems is a poorly developed area. If so, such a weakness in diagnostic approaches would be surprising, given that almost one million international students enter English speaking education every year, and given the economic importance of this market in the provider nations, especially Australia and the United Kingdom.

These findings and this study have implications for both language teaching practices in English-speaking countries such as Australia, and language teaching practices in the countries of origin.

Implications for international student programs in Australia

Australian academics need to be more sensitive to the language difficulties experienced by international students. First, they need to commit significant resources to addressing language difficulties. Australian universities could take the solutions to this problem a step forward by providing sufficient comprehensive language assistance. Language support units have long been provided, but staffing has been much too limited to deal with all the problems. Such units can accumulate expertise and so play a more effective role in assisting international students with their language difficulties.

Second, academics with responsibility for international students need to understand better the root causes of their language learning problems, by familiarising themselves with students' prior learning experiences, and with their beliefs about learning. In turn, this will enable them to design better programs, including compensatory programs.

Third, as suggested in the literature and confirmed by the findings of this study, the literature on language learning points to the importance of beliefs about learning as a factor in learning competence. The study emphasises that the negative effects of wrong beliefs about learning can be quite dramatic. The literature also suggests that it is possible to intervene in relation to beliefs about learning. This suggests that discussion of belief issues needs to be made explicit, and care taken from the beginning of the international student experience to give speaking and listening skills the appropriate status. This needs to be backed by extensive practical programs in these hitherto neglected skills.

Implications for programs prior to commencement of international education

There has been much discussion of strategies and programs designed to assist international students in the country of education (Pantelides, 1999; Hellsten and Prescott, 2004, Bretage et al., 2002, Borland and Pearce, 2002). However, little attention has been given to improving their preparation in the country of origin. Responsibility for the solution of these problems lies partly with the country of origin, as well as the English-speaking country of education. The government of the country of origin should have a continuing interest in the educational development of its student citizens, many or most of whom will return to positions of responsibility.

First, there is a need to develop better communicative teaching and learning practices in the home countries. In recent years this has been the explicit purpose of English language teaching in non-English speaking countries, but it appears, given the existing problems of international students, that the results so far have not been satisfactory. Yet language teaching could be made more

interesting by engaging students actively and orally in the classroom, achieving a two-way interaction that would build more confidence and better listening and speaking skills. This change of approach is not easy to achieve, given that it involves a major change to well entrenched teaching practices, and requires the cooperative agreement of both government and educational practitioners.

Second, there is a strong case for the development of an intensive bridging course in the country of origin, before international students commence undergraduate studies in Australia and similar countries, which would prepare and assist students to cope more generally with academic requirements. This could be jointly financed by the Australian provider and the home country government. Bridging programs already exist, but these have been designed mostly to prepare students for their IELTS. As noted by some students in the group interviewed for this study, preparation for the IELTS test does not in itself provide a broad-based preparation for coping with language issues in the Australian academic situation. The whole focus is on the test itself.

This bridging course could take the form of a one year program after the completion of high school. It would involve English native speakers as instructors, and emphasise communicative language skills such as oral presentation. Such a program could play an important role not just in building language skills but in reducing anxiety in Australian classrooms, with spin-offs for all aspects of student learning, whatever the field of study. In such a program, international students would be able to experience a real English-language academic environment before commencing their actual study in Australia. Such a program could help to reduce so-called 'study shock' and 'culture shock'. The student could undergo IELTS preparation and take the test upon completing this one-year bridging program.

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The children's peace project: Service-learning and art education

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This paper presents the case of a service-learning art experience in an after-school housing development program. Beginning with a dialogue concerning peace and how it can become part of their world, children and pre-service teachers explored and connected the idea of peace through symbols, metaphor and idealism in works of art. A critical and reflective account of this experience demonstrates the ways that young children and pre-service art teachers can benefit from meaningful and socially relevant service-learning activities.

Service-learning, art, education, peace

INTRODUCTION

Boyer's (1994) vision for "Creating the New American College" called for "scholars who not only skillfully explore the frontiers of knowledge, but also integrate ideas, connect thought to action, and inspire students. . . The aim of education is not only to prepare students for productive careers, but also to enable them to live lives of dignity and purpose" (p. 77). In answer to Boyer's challenge, many universities involve their students in service-learning programs. Service-learning is a structured and theoretically grounded practice in which service experiences are directly connected to academic objectives.

Much of service-learning pedagogy is derived from Dewey's (1938/1963) theory of education, experience, and democracy. For Dewey, pedagogy connected practice and theory or "action and doing on one hand and knowledge and understanding on the other" (p. 107). Dewey believed that a democratic society lives in the knowledge that action and inaction must be made in regard to how they affect others (Rhodes 1997, p. 210). Dewey (1963/1938) felt that education should not merely be a preparation for future life but should be full of life in itself. He challenged educators to arrange the kind of learning experiences that engage rather than repel, promote further inquiry and the desire to know more.

Freire's co-intentional education theories also greatly affect service-learning theory and pedagogy. Freire believed that "committed involvement" was essential in an education that valued both teachers and students as active participants in the teaching and learning process. "The teacher is no longer merely the one who teaches but who him or herself learns in a dialogue with the students who in turn teach while being taught" (Freire, 1994/1970, p. 60-61). Freire looked at teachers and students (or service-learners and community agents) as co-learners or co-workers who work together toward mutual goals of social justice and personal transformation. This reciprocity is probably the most crucial aspect of service-learning theory as constant and meaningful exchange between all parties involved is critical for mutual respect, values, needs, and expectations.

Beans and Rice is a private, non-profit, tax-exempt community development organisation in Radford, Virginia. The organisation works with an under-served population of Central Appalachia

low-income African American, White and Hispanic women and their children through a variety of programs. (Beans and Rice, 2000).

The directors of Beans and Rice conduct regular formal and informal reflection sessions with the community, volunteers, and the children who attend their after-school program. As the local elementary public school that the children attend offers art classes only once a week, the children and their parents expressed a desire to have more opportunities to work with art materials in the after-school program. The directors approached the art education program at Radford University and asked for their involvement in both creating and facilitating meaningful art activities in the after-school program.

During one of their two art education classes per week, ten pre-service teachers worked with approximately 15 children at the housing communities for 12 weeks a semester. Working one on one with the older children and in groups of three with the younger children, the pre-service teachers helped the children with their homework and facilitated art study and making activities. The goals of the project began very simply to provide art-making experiences for the children and to provide art-teaching experiences for the pre-service art teachers. As the project continued, these goals were expanded and changed as needs, ideas, desires, and hopes became more apparent.

THE CASE

The Peace Project

The children at the after-school program ranged in age from 5 to 13 years old. Many of them lived daily with poverty, fear, and apathy. They were often hostile, angry, and treated each other and the facilitators at the program in disrespectful and hurtful ways. It was difficult to be there and yet the pre-service art teachers knew that their time at the program was possibly the most important experience they would have in their teacher training. This was a real environment with real children whose daily existence affected the way they learned.

In an attempt to address the often disruptive atmosphere in the after-school program, the pre-service art teachers wanted to begin a dialogue with and among the young students concerning the idea of peace and how it could become a part of their world. They wanted to assist their young students to develop a personal awareness and connection of how peace results from multiple understandings of the world around them. They attempted this through the creation and facilitation of a unit of instruction entitled 'Making Peace in Our World', which included research, interpretation, and self-reflection.

Through experience young students became acquainted with the multiple ways artists create their views of the world through searching for the ideal and displaying the harsh reality. Works of art chosen by the pre-service teachers and their professor included Hicks' *Peaceable Kingdom*, Rockwell's *Freedom from Want* (from his Freedom Series), Lomas Garza's *La Tamalada*, Chicago's *The Dinner Party*, and Howland's *Environmental Place Setting*. Young students answered and discussed such essential questions as "What is peace?" and 'Where is peace?' along with more probing and comparative questions about the works of art. For example, the discussion of *Peaceable Kingdom* and *Freedom from Want* challenged the young students to think about and question what is real in life and history and what we or the artist wishes or idealises to be true.

Hicks' 1833 oil painting *Peaceable Kingdom* features small children amongst a band of large and diverse animals. A Quaker, Hicks is said to have derived this image from Chapter 11 of Isaiah. "The wolf also shall dwell with the lamb, and the leopard shall lie down with the kid, and the calf and the young lion and fatling together; and a little child shall lead them." Hicks incorporated a scene in the distance to represent Penn's treaty that was said to have been adapted from a popular painting by West (Curry, 1997).

The young students quickly exclaimed that a lion or tiger would not stand idly by a young child or other small animal that could be a meal. Pre-service art teachers then pointed out the human figures in the painting and explained Jackson's Removal Bill of 1830 which resulted in the "trail of tears" forcing eastern American Indian tribes to move beyond the Mississippi River (Curry, 1997). Many of the young students remembered studying this event in their history classes. And although they readily acknowledged the oppressive nature of this event, the realisation that Hick's idealised and metaphorical approach represented a *zeitgeist* of the time led them to a more critical interpretation of Rockwell's painting *Freedom from Want*.

Rockwell's *Freedom from Want* is a part of his *Freedom* series that was inspired by President Roosevelt's January 1941 State of the Union address that outlined four basic human liberties: freedom of speech, freedom of worship, freedom from want, and freedom from fear. Featured on the cover of the *Saturday Evening Post* in 1943, Rockwell's paintings reached millions of Americans and became symbols of American democracy. Rockwell's *Freedom from Want* painting has become the quintessential Thanksgiving image featuring an older man and woman bringing a large golden cooked turkey to a pristine table of smiling and eager guests.

"I see that picture on television every Thanksgiving," said one of the young students of the painting. "Is this what every American's Thanksgiving dinner looks like?" asked a pre-service art teacher, "Does this represent peace in our world?" "This is what it's supposed to be", answered another young student. Further discussion of the painting included questions surrounding supposed gender roles, foods, colour of faces, dress, and placement of people at the table that Rockwell's painting characterised and ultimately idealised. In the midst of this discussion, pre-service art teachers presented artist Garza's *La Tamalada* painting. *La Tomalada* is a colourful painting with simplistic images of many people in a kitchen preparing a meal. The young students discussed the differences in style and colour as well as the relative view of reality. Pre-service art teachers explained that the artist was telling a story of a Latino or Hispanic family preparing a traditional meal of tamales. In this painting the kitchen is a social environment as well as a place for food preparation (Katz, Lankford and Plank, 1995). The discussion continued as the pre-service art teachers explained that even though peace may look different or be associated with different sounds and space in cultures other than their own, the basic idea of peace as living in harmony is the same.

By incorporating multicultural perspectives, tasks, and questioning strategies into this unit, the pre-service art teachers witnessed first-hand how issues of cultural diversity may play out in their future classrooms. In fact, many of the issues such as multiculturalism, interdisciplinarity, postmodernism, and critical pedagogy, that the pre-service art teachers were reading about in their classes were interwoven into this service-learning experience. In addition to multicultural education theories, environmental educative issues were also illustrated in the service-learning experience during discussions and comparisons of Chicago's *The Dinner Party* and Howland's *Environmental Place Setting*. Chicago's *The Dinner Party* is a triangular multimedia construction of a table and table settings that represent women artists, writers, and feminist theories. For example, the place setting honouring artist O'Keefe features a large flower hand-painted on a plate that sits on an exquisitely stitched runner. The centre of the construction contains the names of 999 known and unknown women on a black porcelain floor. Howland's *Environmental Place Setting* is a table setting installation with miniature toxic waste drums or barrels as glasses, plates with images of oil spills, and a centrepiece made of smudge pots and candles.

Comparisons between the two groups of art works inspired discussions about thinking and motivation. For example, some young students said that Howland's *Environmental Place Setting* caused them to think more about the ways that environmental issues affected their ideas of peace because her images and symbols were violent and obvious. They compared these observations

with images and scenes that they had seen portrayed in movies and television shows dealing with everything from war to family sitcoms featuring teenage rebellion.

Including the study of such non-traditional art forms as television and movies in art education is a new direction in the field known as visual culture art education. Duncum (2002, p. 8) characterises this approach as a “focus on the extraordinarily diverse ways people deal with the visual products of global capitalism as people negotiate, resist, and appropriate the meaning of images in terms of their own cultural predispositions”. For example, the young students involved in the after-school peace service-learning project looked critically at signs, symbols, and places of peace in works of art and popular culture. They looked at and discussed the peace symbol, hand gestures, advertising logos such as Dove soap, television commercials, and situation comedies. They discussed the ways that such images of peace affected their purchasing and viewing practices.

Continuing their discussion of Howland's *Environmental Place Setting* and Chicago's *Dinner Party*, the children and the pre-service art teachers discussed the ways that the arrangement and settings of the tables in these works of art affected the meaning and interpretation. The young students talked about their ideas of a peace table and or peace talks in relation to politics as well as the ways that a peace table is used in school and home to solve problems.

THE SERVICE-LEARNING PEACE EXHIBITION

Following the completion and facilitation of the ‘Making Peace in our World’ unit of instruction, the pre-service art teachers curated an exhibit entitled “The Children's Peace Project”. Children's voices filled the gallery at all times from the television in a corner where a video continually displayed the unit of instruction, resources, and student examples. In front of the television, pillows lay on the floor beside a low table covered with markers, tacks and stacks of coloured paper hand-shapes. Visitors were asked to ‘lend a hand’ in making peace in our world by writing or drawing on a hand shape and then attaching it to a large world collage on the wall. A long table stretched at an angle in the gallery space and featured the children's peace place settings. ‘Peace Mirrors’ made by imbedding objects and text into plaster frames hung on the walls with a text panel that asked, “Who is ultimately responsible for peace in your world?” ‘Peace Boxes’ created from tissue paper and text sat on pedestals in the middle of the gallery and held secrets that the young students formulated for making every day a peaceful one. Text panels contained explanations as well as provocative questions concerning personal reflections of peace.

REFLECTION

Throughout the creation and facilitation of the ‘Making Peace in Our World’ unit of instruction and resulting exhibition, ‘The Children's Peace Project,’ continual efforts were made to stress the connections between the young students' lives inside and outside the after-school art program. According to Cahan and Kocur (1996, p.xxv), “such an approach not only encourages students to speak from their own positions and to represent themselves, but also encourages them to critique their environments, and confront social issues in ways that are synthesised with the study of art”. The keystone of service-learning pedagogy is this kind of reflection. Rhodes (1997), referring to Freire (1994/1970), called for action and reflection that suggested looking forward, continually working, and actively seeking ways to address community needs. Service-learning reflection may involve such activities as individual and group discussions face-to-face or online and reflective writing journals or formal papers. The ‘Children's Peace Project’ exhibition became another reflection activity that involved art criticism as well as the sharing of personal anecdotes, thoughts, and ideas.

CONCLUSIONS

One main goal and hope of service-learning is to instil an enduring sense of civic responsibility. By 'enduring', I mean that service to and with our communities becomes just as habitual as brushing our teeth in the morning (Taylor, 2002). It is part of our everyday existence and we simply know no other way to live.

In addition to making service to and with our communities a part of our everyday existence, it is important to recognise critically the political implications of what we do and think about in education and service. "As Freire suggested, education is not just about learning to read, but learning to question the conditions that leaves many without access to education, economic opportunity or political power" (Eyler and Giles 1999, p. 132). Therefore, our service-learning experiences must assist us in critically perceiving how we exist in the world. Through such experiences we may learn to see the world not as a static reality in which we must function according to the rules and values of the dominant culture but as a process of transformation (Freire, 1994/1970).

There are many concerns facing our world today. Environmental atrocities threaten the air we breathe, the water we drink, and the ground on which we walk. Illiteracy, language barriers, health care, drug addiction, physical, mental and emotional disabilities, elderly care, child care, food and nutrition, intolerance, hate, and violence are a part of many teachers' and students' everyday experiences.

In our service-learning experience, we discovered that responding to the idea of peace is both simple and complicated. Peace at home, in school and in our community is just as significant as peace in the world. From going to bed at night to eating a meal, the idea of peace affects almost every aspect of our lives. Our young students understood not only that this idea applied to their personal lives, they began to see how the way they live their lives affects the idea of peace to others. Pre-service-art teachers learned how approaching the study of works of art and art-making activities through critical and self-reflective practice is relevant to the lives of their students and may assist them in developing an empowering sense of life and living. In other words, if our young students began to see themselves as having the power to affect their world now, they may see how their actions and inaction can affect the future world. As teachers and students work together toward such meaningful endeavours as making peace in our world through service-learning, we just may see the value of becoming actively involved in service to and with our communities for the rest of our lives.

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Public-private partnership in a minimally invasive education approach

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In developing countries like India, the onus of development lies mainly with the government, which faces the predicament of multiple demands and limited resources. This leads to a situation where even fundamental objectives such as basic literacy for all are not met. On the other hand, there exists a vibrant private sector, which has resources and the desire to undertake social responsibility. This sector is also coming up with innovative approaches to overcome barriers to education and is targeting the have-nots. Minimally Invasive Education (MIE) is one such endeavour. This paper discusses results obtained from Madangir (New Delhi), one of the sites where MIE learning stations were installed. It encourages children to learn on their own, with minimal, or no intervention. Children are provided with free access to computers in an open outdoor location. The informal environment enables children to acquire computer literacy, enhance their academic levels and imbibe other life skills. This project is an illustration of a public-private partnership between the Government of Delhi and NIIT (India's leading private sector corporation offering IT education, training and global IT learning solutions) to overcome digital illiteracy.

Public-private partnership, minimally invasive education, computing skills, social networking, academic achievement

INTRODUCTION

The extent to which India is able to realise its goal of educating all and transforming itself as a knowledge based economy depends on the quality of education being imparted. In its education report for 2004, UNESCO ranks India at 105 (out of 127 countries) in its Education for All Development Index (EDI). The report doubts India's ability to achieve the Education for All (EFA) goals by 2015 (www.infochangeindia.org) since "of every 100 children enrolled in Class I, only 47 reach class VIII, which is the terminal year of Elementary school" (<http://sify.com>). National sample survey (52nd round) indicates that the schools that are available for such children fail to attract and retain them or majority of dropouts are from the underprivileged sections that are "unable to cope with the academic failure and lack of interest in studies"(National Sample Survey Organisation, 52nd round 1998). These out-of-school children have to work to support themselves or their families. For them, options and opportunities for self-advancement at the individual level are negligible.

In order to tackle the problem of high dropout rate and bring in out-of-school children, the government has taken a series of measures to make educational opportunity available to all children in the age range of 6-14 years. It has tried to make schooling more attractive by introducing policies like mid-day meals, school adoption programs (by better off private schools

and non-governmental entities) and inviting private sector (particularly Information Technology industry) to participate in such an endeavour. A public-private partnership has the potential of optimising existing resources, as the public sector plays the role of enabler and facilitator, and the private sector contributes its expertise, technology and management practices.

In India's capital, New Delhi, it has been estimated that more than a million children are living in slums and they have no access to school or education. Educating these children will require setting up 2000 new schools, providing them with basic infrastructure, appointing teachers and non-teaching staff (Phillip, 2001). The government may find it difficult to achieve this target alone; hence, it may have to depend on non-government, voluntary sector to supplement its efforts. The contribution of the private sector and particularly the participation of the IT sector in social development have increased recently. Literacy being the key area, focus is also on overcoming the digital divide.

India's emergence as a superpower in Information Technology (IT) has also led to an increase in inequalities in digital literacy within the country. While IT has improved the quality of life of the digitally literate population, it is still beyond the reach of the underprivileged. Efforts are being made to integrate new technology with mainstream education and increase the penetration of IT, thus striving to become knowledge based economy.

It is in this context that in the year 2000, the Delhi government signed a MOU with NIIT. (Asia's leading IT education company) to spread computer literacy through Minimally Invasive Education (MIE hereafter) where children (between 8-14 years of age) learn to use computers on their own, in an informal and open environment. MIE pedagogy is an attempt to take IT the revolution to the economically disadvantaged children and provides free of cost access to computers.

MIE is defined as a 'pedagogic method that uses the learning environment to generate an adequate level of motivation to induce learning in groups of children, with minimal, or no, intervention by a teacher' (Mitra et al., 2005).

The MIE learning stations have been designed on the basis of expertise gained from various experiments conducted by NIIT. Aspects such as climatic conditioning, anti theft and safety features, design to provide convenient access to a varying age group of users were taken into account while constructing MIE learning stations. For example, the architectural design incorporates features to maintain the temperature within the tolerance level without air-conditioning. These technical features enable MIE learning stations to be installed in open, outdoor locations, sometimes with extreme climatic conditions (Inamdar, 2004). For example, learning stations have been installed in places like Leh (at an altitude of 12000 ft) in Himalayas, Jaisalmer (in Thar desert) and Pather Protima (Sunder ban Delta).

MINIMALLY INVASIVE EDUCATION EXPERIMENTS

The first MIE experiment (in 1999, in Kalkaji, Delhi) was initiated with the objective to understand if economically disadvantaged children were able to operate computers without any instructions and also whether it was possible to operate computers placed outdoors (called learning stations) (Mitra and Rana, 2001; Cappelle et al., 2004).

This experiment was repeated in a small town of Shivpuri (Madhya Pradesh state) and Madantoosi (a remote village in Uttar Pradesh state). Evidence from these experiments indicated that both the objectives could be met by making a small change in the hardware and the design of the building (Mitra, 2000; Mitra and Rana, 2001)

A similar experiment was replicated in Madangir (a socio-economically disadvantaged area in New Delhi) in 2000, and six MIE learning stations (with five computers each) were installed. This was the first time that more than one learning station, with more than one computer was installed.

The time frame for this project was for three years (i.e. from 2000 till 2003) and the exploratory research phase on MIE pedagogy began during this period. After three years, a project evaluation was conducted by the Centre for Educational Management and Development (CEMD, appointed by the Delhi Government) and an independent market research firm (Quantum Market Research Private).

The post evaluation period was the second phase of the project, and the research focus shifted from a purely exploratory approach towards more directed attempts. During this phase an effort was made to examine whether exposure to MIE learning station has any so-called 'snowballing' effect on academic performance and collaborative learning along with the acquisition of computing skills.

This paper discusses the results from the Madangir project and its impact on the children between 8-14 years. Like earlier experiments, this project was implemented as a platform for self-directed learning for the slum children and the poorest of the poor. It was also expected to supplement their formal learning process by providing additional educational resources.

Profile of Madangir

Madangir is, largely, a socially and economically disadvantaged locality in the south of Delhi. The majority of the residents are migrants from various states of India and live in small rented rooms. Occupational structure varies from self-employed (vendors, carpenters, plumbers, stall owners, vegetable sellers) to those who work, at the lowest levels, in government and private organisations (sweepers, peons).

The background data for 100 children revealed the following information.

1. Both of the children's parents have a very basic level of education and at the same time they aspire for their children to complete their schooling. In spite of the economic burden, they send their children for extra tuition so that the child performs well in school.
2. The majority of the children attend schools run by the Municipal Corporation of Delhi and government aided schools.
3. Girls attend schools in the morning shift and boys in the afternoon.
4. The medium of instruction is Hindi, though now English is also taught from first standard onwards. But in the absence of regular guidance, either from teachers or parents, their command over English (reading, writing, speaking abilities) is poor.

Project evaluation, undertaken by an independent research organisation, Quantum¹ (2003) estimated that approximately 6,365 children in the 8-14 years age group have interacted with these learning stations. In order to arrive at an estimated proportion, they conducted a dipstick in the project area in a matrix of 100 children, within the age group of 8-14 years. The dipstick revealed that 67 per cent of the children in the specified age group visited MIE learning stations.

Content that children accessed

Content provided to these children varied from basic literacy modules², Edutainment³, and IIK portal⁴. CDs were procured from two sources: (a) National Institute of Open Schooling⁵ (NIOS,

¹ Quantum Market Research Private.

² Developed on the basis of outline provided by Jamia Milia Islamia University, Delhi (hyperlink given in IIK portal)

³ Educational Games, Puzzle/Tricky Games, Musical Games, and Fun Games.

⁴ A guided browsing system, with access to both the online and offline contents regarding Edutainment, News and information, Entertainment, Discover India, About Delhi, Education

⁵ NIOS - An autonomous body to facilitate distance schooling.

New Delhi), which uses these educational VCDs as part of its endeavour to “reach the unreached” through Distance Education Mode (DEM); (b) Headstart⁶ Rajya Shiksha Mission (Bhopal, Madhya Pradesh, India), which develops educational software for use by teachers and students in elementary schools. These CDs were on various topics related to English, Science, Social Science and General Awareness.

Usage

Usage of MIE learning stations by children averaged around two hours per day in the initial stages, but with an increase in the comfort levels and familiarity, the daily time spent averaged around 1-1.5 hours. Children tended to work and play at these stations before and after school and also whenever they happened to pass by the learning stations.

When internet connectivity existed, the children were interested in reading current news apart from sports news and downloading songs, and accessing games and cartoon sites. For example, they all had read and seen pictures of America vs. Taliban war in Afghanistan.

The children also accessed games at Indiatimes.com site and in the absence of internet connectivity MS Paint was the most preferred application. Children learned Windows Imaging, how to use the calculator, changing the display settings, playing quiz at IIK portal.

Evaluation Approach

The initial observations indicated that children use the MIE learning station to acquire familiarity with computers. It was also observed that the children acquired collaborative behaviour by learning how to work together, by forming their own learning groups and by transferring knowledge from one child to another, from one group to another group and from present users to new ones. Their academic levels were also expected to show some improvements.

Evaluation Framework

Tools and measurements for evaluation were developed and adapted according to the need to collect quantitative data, including:

- a) Icon Association Inventory to measure acquisition of computing skills;
- b) English, Math and Content Assimilation tests to measure influence on academic achievement;
- c) A sociometry technique based on the methodology, developed by Coi and Dodge in 1983 (www.users.muohio.edu), was adapted after some modifications, to study collaborative learning, social networking and information flow; and
- d) qualitative data were collected through direct observation, diaries written by children to understand their perception.

These tools were developed, by taking into consideration that these underprivileged children were not well equipped to express their thoughts. Compared with the more privileged children of 8 –14 years of age, these children experienced difficulty in reading and writing.

Sample size

The groups selected for the study fell into two categories – frequent and infrequent users⁷.

⁶ Head Start: Project for computer enabled education operational in elementary schools of Madhya Pradesh, India.
<http://www.headstart-mp.org.in/>

⁷ These two categories were formed on the basis of MIE learning station usage data.

1. The frequent users were those users, who came to learning stations regularly and worked, on an average, for two hours or more.
2. The infrequent users were those who visited the learning stations occasionally (once or twice a week) and worked for an hour per week.

The target population being transient, the composition of both the groups underwent changes over a period of time. Often infrequent users became frequent users and some of the older frequent users stopped using the learning stations regularly

The total sample size consisted of 100 children from all the five kiosks.

RESULTS AND DISCUSSION

The following discussion is based on the results obtained during the second stage, when efforts were made to study the impact of these learning stations on several aspects in addition to the acquisition of computing skills.

The positive benefits of providing primary school children with computers have been studied in formal settings. These studies, namely Haughland (1992), have shown that the benefits derived are improvements in areas like intelligence, motor skills, mathematical abilities, critical thinking, problem solving, verbal skills and what Nastasi and Clements (1994) call 'effectance motivation' (the belief that they can alter their environment).

The degree to which MIE learning stations impart these skills or abilities may vary due to the environment in which these learning stations are located. A MIE learning station itself provides an environment where stimulation is ever present but no direct guidance is available to the child. Children learn to share the knowledge gained and this influences their attitude towards the new technology.

Measuring Computing Skills – Results of Icon Association Inventory

This project indicated that children were able to acquire familiarity with computers through MIE learning stations. Initial MIE experiments also revealed (Mitra S, 2003) that children associated Graphical Users Interface (GUI) icons with their functions and formed their own vocabulary to describe these icons. A study by Walton and Vukovic (2003) in South Africa suggested that with some experience of computers, users were able to understand Graphical Users Interface (GUI) environment. GUI used icons to represent various operations or functions, which were easily understood by the users. With basic or minimum of literacy, it is argued that anyone can learn to work within the GUI environment.

Keeping this factor in mind, the Icon Association Inventory (IAI hereafter) was developed and has been made independent of the name or the application associated with the icon.

It was observed that the some icons were specific to a particular application (e.g. sum in Excel) while most (e.g. cut, copy paste) are general in nature. The IAI consisted of 77 icons, clustered in six broad categories based on their functionality. These categories were: Desktop (7), Excel (4), Generic (15), Internet (11), Paint (18), and Text format (22). Figure 1 summarises the results for acquisition of computer literacy (Performance in Icon Association Inventory) and indicates that there is an improvement in performance, in IAI, by both frequent and infrequent users over time.

Children have been able to acquire familiarity with GUI environment due to trial and error and frequent interaction. One comment was "We have learnt by observing and trial and error...just kept hitting various buttons". The following findings have been recorded:

1. April 2004, a significant difference ($p=0.000$ in both cases) in performance in the icon association inventory was observed between frequent users and infrequent-users. The same held true for July 2004.
2. This indicated that frequent users performing significantly better than infrequent-users at both time points.
3. When the results were compared for frequent users over the four-month interval, there was an improvement in performance, though not statistically significant. The same held for the infrequent-users.

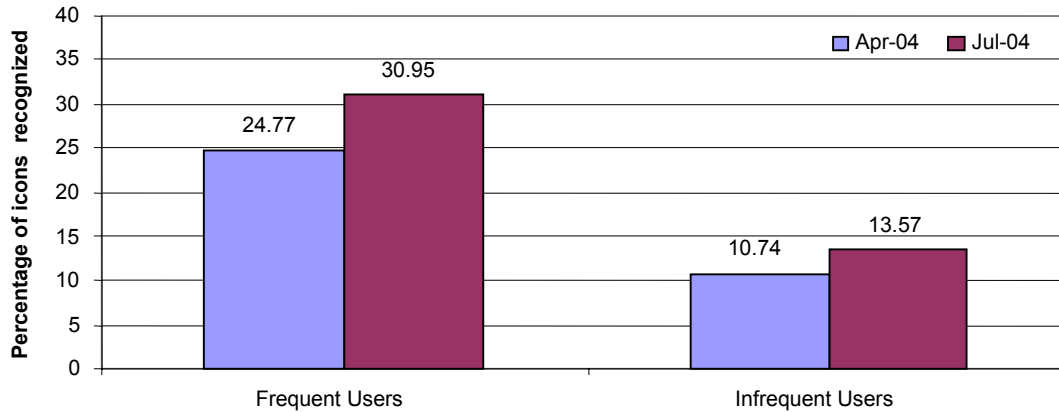


Figure 1. Icon association inventory results

Measuring Academic Performance

In the absence of proper guidance from parents or teachers, MIE learning stations were expected to fill in this void to a certain extent. In order to measure impact on the academic performance, tests were developed and administered. English and Math tests are based on the National Centre for Educational Research Training (NCERT)⁸ syllabus for Class I to VIII. Assessment was also carried out on the basis of content (NIOS and Head Start educational material) provided to children. Figure 2 summarises the results for change in academic performance shows a comparison in academic performance between frequent and infrequent users when tested at two time points (i.e. in the month of April 2004 and October 2004).

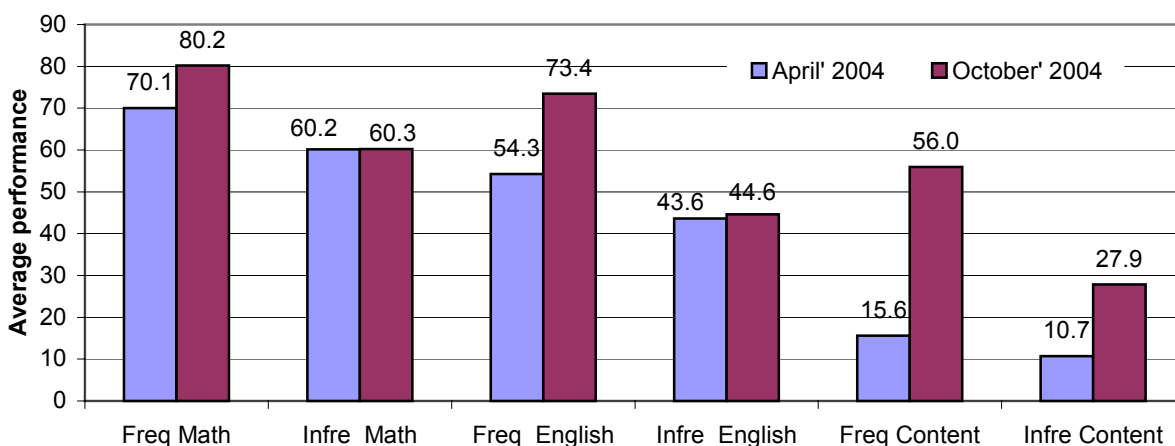


Figure 2. Summary results for changes in academic performance

⁸ NCERT is the national institution in educational research and training.

Figure 2 suggests that both frequent and infrequent users have performed better in all subjects (i.e. HiWEL English, HiWEL Math and Content Assimilation) when tested in the month of October as compared to their performance in April, with the following specific findings.

1. For frequent users, results are statistically significant ($p=0.00$) for all the three subjects.
2. In the case of the infrequent users, only the content-assimilation result is statistically significant ($p=0.00$).
3. This indicates that the learning through social networking might have influenced the child's performance irrespective of the categories they belonged to.

It was expected that longer exposure to this content and testing over a longer period of time might show even stronger results. These findings suggested that children found the content interesting and engaging. Not only did children play games at these learning stations, but they also learnt subjects directly related to the curriculum. Of course, the magnitude of gain was more for frequent users than for the infrequent users.

Learning through Social Networking

As discussed above, the learning at MIE learning stations is self-directed and participatory, in other words, children decide what they want to learn and with whom. This way the children who are working or playing at the learning stations form their own social network by connecting groups, directly or indirectly. They connect by assisting, cooperating and collaborating⁹ within the groups and between individuals, at the learning stations. The information transmission took place within and from these groups.

The primary benefit of social interaction or networking is that not only does the child learn from himself but also from his peers, through the process of communication. Thus the learning station becomes an invaluable tool in the entire learning process.

Social Networks, at MIE learning stations, may operate with certain inherent biases; for example, girls appear hesitant to participate due to parental and social disapproval. Accessibility to the learning stations (i.e. the proximity of residence) also affects the learning and interaction with the other learners and users.

Sociometry methods were applied to frequent and infrequent user groups to try to understand the dynamics in terms of emerging leaders in such an informal setting and their social status. The results obtained from Madangir showed that children learnt by approaching their friends, peers, siblings and also knowledgeable persons within the community. Other children approached some of these children and in this way the knowledge is transferred through networking, as represented in Figure 3, and the following observations were made.

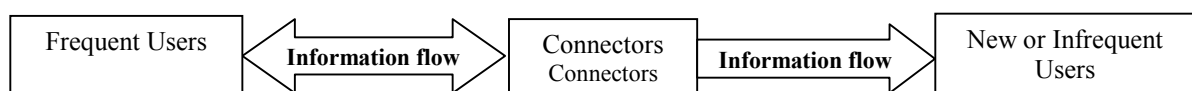


Figure 3. Information flow through social networking

It can be observed that the flow of information between connectors and frequent users is mutual. Connectors are those children within the frequent user groups who facilitate the flow of information within and from the group. Therefore, the arrow between frequent users and

⁹ It may be noted here that a study by Bathla (2002) on collaborative learning indicated that levels of aspiration, social competence, and achievement, along with general awareness, were enhanced among subjects exposed to peer group learning at the Madangir learning stations.

connectors the two-way flow of information. However, the direction of information flow, between connectors and infrequent users is only one way because connectors are interacting with new or infrequent users.

Here connectors are perceived to be playing the key role in percolation of the information among other groups. They are expected to enrich the community and support the adoption of digital tools. Pentland (2003) also suggested that social networks facilitated flow of ideas and this flow or channel was influenced by the status of the individuals in the network.

An independent study (Bathla, 2002) was also undertaken to investigate how computer-learning strategies in a collaborative learning situation transformed into social learning system. After four months, it was found that there was no significant difference in the intellectual level but the aspirational level, social competence and achievement (along with general awareness) were all enhanced and these improvements might have been due to collaborative or peer group learning.

MIE learning Station – As Perceived by Children

Children perceived MIE learning stations as a place, which gave them an opportunity to learn on their own, away from the authoritarian control of teachers or parents. For them it was a place for entertainment, enjoyment and exploration. Occasionally children were asked to write down what and how they learned at the learning station. These data yielded valuable information regarding what children were learning and how. Here is a sample response of a regular user:

Name: Javed Age: 13, Gender: M, Grade: V

Q1: What do you think of the new learning stations?

A1: I feel very good.

Q2: How much time do you spend now at the learning stations?

A2: I spend one hour at the learning stations.

Q3: Have you learnt anything different? If yes, then what, how and from whom?

A3: I love playing games like Pinball and also the new content that has been put on solar system. I have learnt it all by myself. Nobody taught me.

Q4: Which subject do you like the most?

A4: I like English and have picked up from the learning stations.

Q5: Have you taught it to someone else? If yes, then please tell us the name(s).

A5: I have taught my younger brother Salman how to work at the computer.

The majority of children had never seen a computer before and they associated it with the learning station. When they were asked to draw a computer, they drew a picture of the entire learning station, with monitor screen and keyboard visible. A sample drawn by Zainab, a 10-year-old girl is shown in Figure 4.

Children referred to the computer learning station as a place where they went to play computer games “*computer game khelne jaate hai*”. It is spontaneously associated as a play-station for small children (age group of 8 - 14 years).

Parents, on the other hand referred to these learning centres as “computer centres” or “learning centres”, where their children were able to interact and learn more about computers. They viewed it as a viable place to send their children to – a free, accessible interface with the cyber-age.

Community members viewed these learning stations as a facility for their children where they could acquire computer literacy, free of cost. Their perceptions regarding these learning stations were the outcome of attitudes towards the new technology.

prospects. In the case of MIE learning station users, it is expected that not only do they acquire computing skills but also derive other positive benefits.

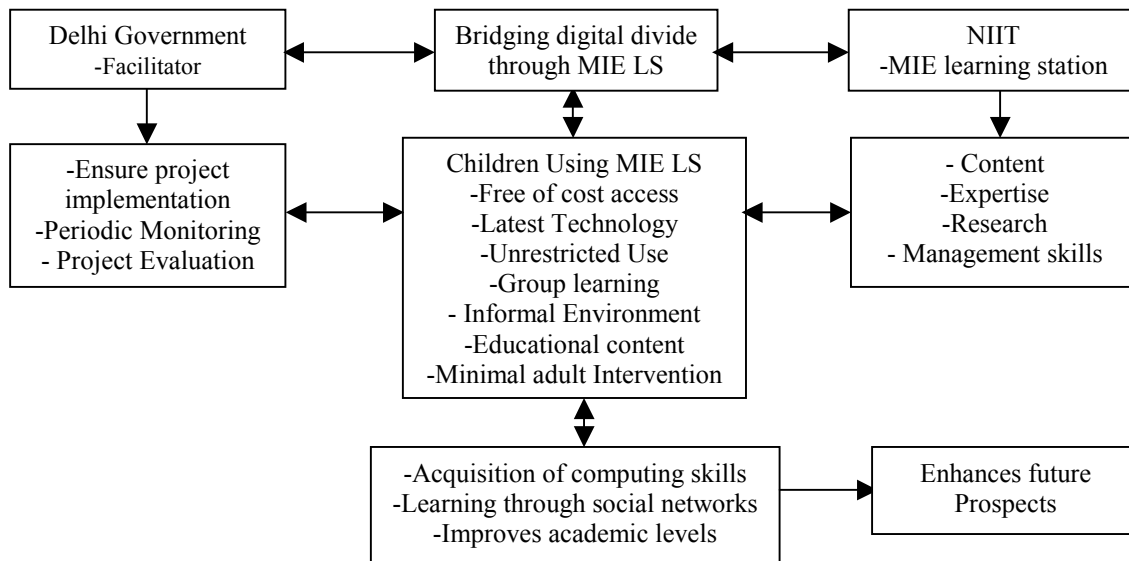


Figure 5. MIE learning station – bridging the digital divide

The MIE approach can provide alternative avenues to the disadvantaged schools. It can be effective in supplementing existing resources of these schools by acting as one of the catalysts in the entire learning environment. It has the potential to initiate diffusion of technology at the grassroots' level.

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Prevalence of peer victimisation among secondary school students in Nigeria

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The study investigated the prevalence of peer victimisation among secondary school students in a state in South Western Nigeria. Participants consisted of 385 secondary school students selected from ten secondary schools across 10 local government areas in Osun State, Nigeria. The participants, aged between 10 and 19 years, were stratified into junior and senior secondary classes. The Multidimensional Peer-Victimisation Scale was used to collect data on four types of peer-victimisation commonly found among students. Results from descriptive and inferential analysis of data indicate that the majority of participants reported overall high levels of peer victimisation with attack on property as the most frequent form of peer victimisation. There were significant differences between male and female participants on all forms of victimisation with females reporting higher level of social victimisation, verbal victimisation and attack on property than males. The study also found that while students' level of study did not significantly influence the extent to which they were victimised by peers, age was a significant factor in reported levels of peer victimisation. The study brings into focus the need to make guidance services functional in Nigerian secondary schools to overcome the problem of bullying and peer victimisation.

Peer victimisation, bullying, aggressive behaviour, peer oppression, peer harassment

INTRODUCTION

Peer victimisation, also known as bullying in the literature of educational research, is a social issue which has received considerable attention from researchers and educators (e.g. Björkvist, Lagerspaetz and Kaukiainen, 1992; Rivers and Smith, 1994; Slee and Rigby, 1994; Ambert, 1995; Dawkins, 1995; Salmivalli, Lagerspetz, Björkvist, Osterman, and Kaukiainen, 1996; Austin and Joseph, 1996; Rigby, 1996; Ross, 1996; Owens, Shute and Slee, 2000) in many parts of the world. According to some research findings, peer victimisation is a common experience among school children with 10 to 15 per cent of children experiencing it (Pepler and Craig, 2000; Kochenderfer and Ladd, 1996).

In Nigeria, peer victimisation among students seems to have attracted little or no attention from researchers probably because it is not seen as a serious social or educational problem. Traditionally, there is the tendency to regard peer victimisation as a normal part of childhood experience which Nigerian children must learn to tolerate as part of the process of growing up (Obidi, 1990).

However, in recent times, there has been a growing concern for the increasing level of student unrest, sexual victimisation, violence and cultism in Nigerian schools. The dimensions which these problems have assumed and the inherent danger which they portend for the educational

development of the nation make it expedient for educational researchers to investigate the phenomenon of peer victimisation, which many believe sets a pattern for subsequent interactions involving victimisation and violence in the wider adult society.

Generally, peer victimisation is defined as the experience among children of being a target of aggressive behaviour of other children, who are not siblings and not necessarily age-mates (Hawker and Boulton, 2000). Smith (1991) described the act as an unprovoked attack that causes hurt of a psychological, social, or physical nature. According to Olweus (1994), peer victimisation occurs when a student is exposed, repeatedly and over time, to negative actions on the part of one or more other students. These negative actions are not necessarily provoked by the victim and for such actions to be regarded as peer victimisation; an imbalance in real or perceived power must exist between the victim and the person who victimises him or her (Coloroso, 2002).

Peer victimisation takes two major forms. Sometimes it may be physical, as in fighting, punching, pushing, kicking, hitting, strangling, beating, physical assault and direct vandalism (Hanish and Guerra, 2000; Hawker and Boulton, 2000). More often, peer victimisation takes a non-physical form. Non-physical victimisation includes a wide range of behaviour such as verbal abuse (Rigby, 1996), hurtful name-calling, emotional intimidation, persistent teasing, gossip and racist remarks as well as social exclusion (Mishna, 2003). Many European researchers have studied the effects of peer victimisation on the social and psychological well-being of its victims. In summary, the studies showed that students who are victims of peer victimisation are at the risk of developing severe psycho-social adjustment and emotional problems, which may persist into adulthood (Olweus, 1978, 1993; Rigby, 1996; Pellegrini, 1998; Kumpulainen, Raesaenen and Puura, 2001).

Apart from developing psycho-social adjustment problems, research findings also suggest that many aspects of victimised children's lives may be affected. In a meta-analytic review of cross sectional studies on peer victimisation and psychosocial maladjustment over a period of 20 years, Hawker and Boulton (2000) concluded that students who are victimised by peers suffer a variety of feelings of psychosocial distress. They feel more anxious, depressed, lonely and worse about themselves than do non-victims.

On the demographic correlates of peer victimisation, gender and age factors are given prominence by researchers. Most research findings on the relationship between age and peer victimisation tend to conclude that bullying behaviour is more prevalent among younger children than older ones (Nansel et al., 2001; Crick, Casas and Ku, 1999; Sourander et al., 2000). However, research findings appear to be inconclusive on the peer-victimising experiences peculiar to different age categories of school children.

Research findings have not been consistent on the relationship between gender and peer victimisation. While researchers such as Olweus (1994), Nansel et al. (2001) and Crick and Grotpeter (1996) found that boys report significantly more overt victimisation than do girls, evidence from others such as Crick and Grotpeter (1995) and Crick, Casas, and Ku (1999) suggested that girls report significantly more relational victimisation or socially hurtful behaviors than do boys. However, Bjorkqvist et al. (1994) presented a theory according to which the sex difference among adults in regard to victimisation appears to diminish or almost disappear with the males 'catching up' with the female advantage.

In Nigeria, there is currently no reliable data on the prevalence of peer victimisation among secondary school students. This study is therefore a pioneering attempt to investigate the prevalence of the problem with a view to sensitising Nigerian researchers to the need for more research in this area.

METHOD

Participants in this study consisted of 385 secondary school students (Male = 204, Female = 181) selected from ten secondary schools across 10 local government areas in Osun State, Nigeria. The participants, aged between 10 and 19 years, were stratified into junior secondary (N = 214) and senior secondary (N = 171) classes. Participants in the junior classes were those who had received less than three years of secondary school education while those in the senior classes had completed at least three years of secondary school education. The selection of participants was not necessarily random as they were students who the researcher met in class during visits to selected schools.

One research instrument, the Multidimensional Peer-Victimisation Scale (MPV) developed and validated by Mynard and Joseph (2000), was used to collect data for the study. The scale is a 16-item self-report instrument consisting of items intended to find out the extent to which students were victimised by their peers. The items cover four aspects of peer victimisation, namely physical victimisation (e.g. 'hurt me physically in some way'); social manipulation (e.g. 'tried to make my friends turn against me'); verbal victimisation (such as 'made fun of me because of my appearance'); and attack on property (e.g. 'deliberately damaged some property of mine'). Participants were required to indicate how often (0 = 'Not at all', 1 = 'Once', 2 = 'More than once') during the school year they had experienced 16 victimising experiences.

Scores on the total scale have a possible range of 0 to 32, and a possible range of 0 to 8 on each of the four subscales. Scores between 0 to 16 indicate a low level of victimisation, 17 to 21 indicate moderate level of victimisation while a high score of between 22 and 32 is indicative of a high level of victimisation.

The 16 items on the four subscales of the instrument emerged from a Principal Component Analysis of 45 victimising experience items gathered from 812 respondents by the original authors of the instrument. The items were reported to possess satisfactory internal reliability with Cronbach's Alpha values of 0.85, 0.75, 0.77 and 0.73 for physical victimisation, verbal victimisation, social manipulation and attack on property subscales respectively (Mynard and Joseph, 2000).

RESULTS

In order to ascertain the prevalence and nature of peer victimisation among participants, data collected from the administration of the Multidimensional Peer Victimization Scale were subjected to descriptive analysis. The data in Table 1 reveal the overall level of peer victimisation experienced by participants.

Table 1. Reported levels of peer victimisation

Level of Victimisation	Frequency		
	N	Per cent	Cumulative Per cent
Low	8	2.1	2.1
Moderate	105	27.3	29.4
High	272	70.6	100.0
TOTAL	385	100.0	

As shown in Table 1, eight participants representing 2.1 per cent of the total sample reported a low level of victimisation while 105 participants representing 27.3 per cent were moderately victimised. Also, 272 participants representing 70.6 per cent experienced a high level of peer victimisation. To ascertain the type of peer victimisation experienced, participants' scores on each of the four sub-scales of the research instrument were subjected to descriptive statistics. The mean and standard deviation values of each type of peer victimisation are as presented in Table 2.

Table 2. Mean and standard deviation of component variables of peer victimisation

Type of Victimization	N	\bar{x}	Standard Deviation
Physical Victimization	385	6.18	1.46
Social Manipulation	385	5.48	1.86
Verbal Victimization	385	4.99	1.73
Attack on Property	385	6.50	1.50
TOTAL	385	23.16	3.15

The data in Table 2 reveal that attack on property was the most frequent form of peer victimisation experienced by participants. This was followed by physical victimisation and social manipulation. The least experienced form of victimisation was verbal victimisation.

A further attempt was made in this study to ascertain the influence of the demographic variables of sex, class of study and age on reported levels of victimisation. Table 3 presents a t-test comparison of the peer victimisation scores of male and female participants on each form of peer victimisation while Table 4 shows the difference in the scores of students in junior and senior classes.

Table 3. Difference in peer victimisation scores of male and female participants

Forms of Victimization	Participants	N	\bar{x}	SD	df	t	p
Physical Victimization	Male	204	6.51	1.41	383	4.79*	< 0.05
	Female	181	5.82	1.42			
Social Manipulation	Male	204	4.99	1.97	383	5.81*	< 0.05
	Female	181	6.04	1.55			
Verbal Victimization	Male	204	4.36	1.61	383	8.19*	< 0.05
	Female	181	5.70	1.59			
Attack on Property	Male	204	6.28	1.57	383	3.09*	< 0.05
	Female	181	6.75	1.38			
Overall Victimization	Male	204	22.14	3.05	383	7.18*	< 0.05
	Female	181	24.31	2.85			

* Significant level $p = < 0.05$

Table 4. Difference in peer victimisation scores of junior and senior students

Forms of Victimization	Participants	N	\bar{x}	SD	df	t	p
Physical Victimization	Junior School Grade	214	6.47	1.49	383	4.44	> 0.05
	Senior School Grade	171	5.82	1.33			
Social Manipulation	Junior School Grade	214	5.34	1.97	383	1.74	> 0.05
	Senior School Grade	171	5.67	1.55			
Verbal Victimization	Junior School Grade	214	5.16	1.61	383	2.12	< 0.05
	Senior School Grade	171	4.78	1.59			
Attack on Property	Junior School Grade	214	6.35	1.57	383	2.26	> 0.05
	Senior School Grade	171	6.70	1.38			
Overall Victimization	Junior School Grade	214	23.32	3.13	383	1.07	> 0.05
	Senior School Grade	171	22.97	3.17			

As shown in Table 3, a comparison of the overall peer-victimisation scores of male and female students using the t-test statistical analysis, yielded a t-value of 7.18, which is significant at the 0.05 level. This implies that there is a significant difference between the general level of peer victimisation by male and female participants with females reporting significantly higher level of victimisation than their male counterparts. Also, t-test statistical analysis of the different forms of peer victimisation reported by participants showed significant differences between male and female scores on all forms of victimisation with female participants reporting higher level of social victimisation, verbal victimisation and attack on property than male students. However, male students reported a significantly higher level of physical victimisation than female students.

From Table 4, the peer-victimisation scores of participants in junior and senior classes were compared. A t-test statistical analysis of peer-victimisation scores of junior and senior secondary school students on all forms of peer victimisation except verbal victimisation did not reveal any

significant difference at 0.05 probability level. This implies that the levels of physical and social victimisation as well as attack on property reported by students in junior and senior classes were not significantly different.

The study also investigated the influence of age on the reported levels of peer victimisation experienced by participants of different age categories using the one-way Analysis of Variance (ANOVA) statistical procedures. The results of the analysis are as shown in Table 5.

Table 5. Influence of age on participants' level of peer victimisation

Form of Victimization	Source of Variance	Sum of Squares	df	Mean Square	F	p
Physical Victimization	Between Groups	51.09	2	25.54	12.79*	< 0.05
	Within Groups	762.82	382	2.00		
	Total	813.91	384			
Social Manipulation	Between Groups	78.49	2	39.25	12.02*	< 0.05
	Within Groups	1247.65	382	3.27		
	Total	1326.14	384			
Verbal Victimization	Between Groups	42.48	2	21.24	7.31*	< 0.05
	Within Groups	1110.50	382	2.91		
	Total	1152.98	384			
Attack on Property	Between Groups	0.12	2	0.058	0.026	> 0.05
	Within Groups	862.13	382	2.26		
	Total	862.24	384			
Overall Victimization	Between Groups	215.40	2	107.70	11.44*	< 0.05
	Within Groups	3597.29	382	9.42		
	Total	3812.69	384			

* Significant $p = < 0.05$

As shown in Table 5, the general level of peer victimisation reported by participants was significantly influenced by age ($F = 11.44$, $p < 0.05$). Table 6 shows the direction of the influence of age with younger participants reporting a higher level of peer victimisation than older participants.

On specific forms of peer victimisation experienced by participants, Table 5 shows that the age of students significantly influenced the extent to which they experienced physical, social and verbal forms of victimisation. However, the extent to which students experienced attack on property was not significantly influenced by age ($F = .026$, $p = > 0.05$).

A further attempt was made to ascertain which age category experienced the least and the highest overall level of peer-victimisation. To this end, participants were classified into three age groups namely: (i) Below 11 years ($N=97$) (ii) 11 to 15 years ($N=174$) and (iii) Above 15 years ($N=114$). Data on overall level of peer victimisation by participants in the three age categories were subjected to a post-hoc multiple comparison test using the Least Significant Difference (LSD) formula. The results are as shown in Table 6.

Table 6. Multiple comparisons of overall peer victimisation scores according to age

Age Group (i)	Compared Group (ii)	N	Mean	Std. Deviation	Mean Difference (i-ii)	Std. Error	p
Below 11 Years	11 – 15 Years	174	22.82	3.05	1.63*	0.389	<0.05
	Above 15 Years	114	22.61	3.34	1.84*	0.424	<0.05
11 - 15 Years	Below 11 Years	97	24.44	2.75	-1.63*	0.389	<0.05
	Above 15 Years	114	22.61	3.34	0.21	0.369	>0.05
Above 15 Years	Below 11 Years	97	24.44	2.75	-1.84*	0.423	<0.05
	11 – 15 Years	174	22.82	3.05	-0.21	0.369	>0.05

* Mean difference significant at 0.05 level

From Table 6, the mean value of participants who were younger than 11 years old ($\bar{x} = 24.44$) was higher than the mean values of participants from any of the other groups. This implies that

students who were younger than 11 years old experienced the highest level of peer victimisation while students who were older than 15 years experienced the least level of peer victimisation.

DISCUSSION

The results of this study have shown that most secondary school students in South Western Nigeria experienced high levels of peer victimisation. Data collected on the prevalence of this phenomenon among secondary school students revealed that 70.6 per cent of the study sample reported high level of peer victimisation while 27% and 2.1% reported moderate and low levels of peer victimisation respectively. The study has also revealed that attack on property was the most frequent form of peer victimisation, followed by physical victimisation and social manipulation. The high proportion of students who reported high level of peer victimisation with regard to attack on property and 'physical victimisation' appears worrisome as it suggests the existence of a serious problem that may have far-reaching effects on children's emotional and social development and by logical extension impact negatively on the social and psychological well-being of the entire Nigerian society.

The findings of this study point to the seriousness of peer victimisation as a social issue requiring the immediate attention of school authorities in Nigeria. It is reasonable to assume that the exposure of young people to bullying and victimisation while in school normally will generate high level of social aggression which according to Farrington (1993) may persist into adulthood in the form of criminality, marital violence, child abuse and sexual harassment. When these happen, the negative impacts extend beyond the victims of peer victimisation to their family members, the community and the entire nation. It also appears reasonable to conclude that the high level of peer victimisation reported by participants in this study is probably one of the early signs of anti-social behaviour that eventually culminates in youth violence and violent crimes in Nigerian society. This line of thinking is reinforced by suggestions from researchers such as Keise (1992), Stein (1995) and Mishna (2003) that the antecedents for many anti-social behaviours of young people such as violence and sexual harassment consisted of teasing and bullying, which are implicitly condoned by adults. In the same vein, Hazler and Carney (2000) had conceptualised youth violence as a continuum that has bullying behaviour such as fighting and teasing at its one end.

Another major finding of this study indicates that while students' level of study did not have significant influence on reported levels of peer victimisation by Nigerian students, their gender significantly influenced the extent to which they were victimised by peers. Specifically, female participants experienced an overall higher level of social and verbal victimisation than their male counterparts. The reason for this might not be unconnected with the lower status accorded women in Nigeria coupled with their general perception as the weaker sex in the Nigerian cultural setting. Though research findings generally tend to indicate that boys are victimised more often than girls (Olweus, 1994; Atlas and Pepler, 1998), the finding of the present study on gender differences on reported level of peer victimisation is consistent with that of Maekoya and Dussich (2003), which indicates that female students were significantly more likely than male students to be victimised by peers. However, there is need for caution in interpreting this result. This is because in the Nigeria socio-cultural setting, parents expect male children to prove their manliness by tolerating peer victimisation without complaints much more than their female counterparts. It is therefore expected that the lower level of peer victimisation reported by male students in this study is a reflection of the socio-cultural expectation which tends to make male children deny that they had been victimised by their peers.

The finding of this study also revealed that age was a significant factor in participants' reported levels of peer victimisation. Consistent with previous research (e.g. Crick, Casas and Ku, 1999; Nansel et al., 2001) this study revealed that younger students experienced higher level of peer victimisation than older students. This finding is not surprising as the concept of peer

victimisation, according to Farrington (1993), implies the oppression of a less powerful person by a more powerful individual or group of persons. Since younger students tend to possess less physical power, it is normal to expect them to report a higher frequency of peer victimisation when compared with older students.

CONCLUSIONS

This study has established the high prevalence of peer victimisation among secondary school students in South Western Nigeria. In view of the negative consequences of this social phenomenon not only on its victim but also on the entire society, an elaborate school-based intervention and prevention program in Nigeria is highly expedient. Such a program, which should have the victims of peer victimisation, the bullies themselves, as well as other students and school teachers as participants, should teach basic inter-personal and conflict-resolution skills to members of the school community. It is important that both teachers and school administrators should recognise the problem of bullying and sensitise the entire society towards ensuring that social support is provided to victims of peer victimisation. It is also necessary to make guidance services functional in all secondary schools to overcome the problem of peer victimisation. Counsellors should work in conjunction with school administrators to develop a code of behaviour to regulate student-student interaction in all schools with a view to minimising the occurrence of bullying behaviour among students. It is expedient, therefore, to increase the present number of counsellors in Nigerian secondary schools to ensure that practical and meaningful guidance intervention programs are provided for victims of peer victimisation.

Classroom teachers should encourage collaborative academic endeavours among students rather than endeavours that tend to promote unhealthy rivalries. When students are made to work cooperatively and in collaboration with one another, they develop healthy relationships that tend to discourage any form of peer victimisation. According to Adams, Carlson and Hamm (1990), team spirit, rather than individual rivalry, is stressed as students learn to work together in the classroom.

School authorities and parents should recognise the individual, peer and environmental factors that are related to peer victimisation in their schools and how these affect the children's social, psychological and academic development. They should regard peer victimisation as potentially detrimental to children's socio-psychological and academic development and give priority attention to programs aimed at assisting the victims. They also need to be concerned about strategies that can help not only the victim but also the bully and make him or her develop acceptable social behaviour.

One major limitation of the present study is, perhaps, its relatively small sample size. For a pioneering study of this nature, a larger sample would have ensured a wider generalisation of the findings. Though the study provides a useful insight into the nature and prevalence of peer victimisation, its results should, at best, be considered tentative until more elaborate research is conducted on the peer-victimisation phenomenon in Nigerian schools.

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Classroom interaction in private schools serving low-income families in Hyderabad, India

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This paper reports on a study of classroom interaction and discourse in privately-funded schools serving low-income families in Hyderabad, India. In common with other developing countries, India has seen a proliferation of such schools and yet little systematic study has been made of them. One hundred and thirty eight lessons were analysed using a computerised systematic observation system; a further 20 lessons were video recorded and analysed using discourse analysis. The findings reveal patterns of classroom interaction and discourse similar to those reported in earlier studies of Indian government primary schools. Teacher-led recitation, rote and repetition dominated the classroom discourse with little attention being paid to securing pupil understanding. The wider implications of the findings for improving the quality of classroom discourse in Indian primary schools are considered together with the need for further research into how the wider social order is influencing pedagogic practices.

Classroom interaction, observation, discourse, primary school, private education, India

INTRODUCTION

As the second most populous country in the world after China, covering a geographical area that is 24 times the size of England, India is a country of many contrasts. While over 70 per cent of the population still live in rural communities, densely populated conurbations such as Bombay, Calcutta and Delhi have grown up, as well as hi-tech cities such as Bangalore and Hyderabad. Within a hi-tech city like Hyderabad, a large, educated middle class has grown. There are, however, large numbers of people living in slum areas in the city of Hyderabad. A major feature of these areas has been the growth of private unaided schools (those run completely with private funds) in which English is the official medium of instruction (private aided schools also exist: these are privately managed but receive a grant from the government). Although private schools for the poor are politically contentious, their growth throughout India, as in other developing countries, has been phenomenal and yet there has been little systematic study of them. Official figures obtained from the District Education Office of Hyderabad show that 61 per cent of students are enrolled in the private unaided sector (67 per cent at upper primary level – the focus of this research). There are also three times as many teachers in the private unaided sector as in

the government sector. Altogether, the official figures show almost 1,000 private schools in the Hyderabad district: 46 per cent of the total number of schools. However, these government figures are likely to overestimate the proportion of children in government schools and underestimate the number of private unaided schools, because they only report those that are recognised. Many private unaided schools appear to be unrecognised at the primary school level, in part because there is no need to be recognised at this level in order for children to take state examinations. Therefore the figure for private unaided primary schools is likely to be considerably higher.

Because of the proliferation of private schools for the poor within India and the lack of research into the pedagogy within these schools compared to the state sectors, the authors decided to investigate the underlying pedagogic practices as revealed in the classroom interaction and discourse. This research forms part of an ongoing project to compare the public and private sector in order to explore the impact of culture on Indian primary school pedagogy.

Throughout the 1990s within the public sector of education, an important aspect of the discussion of the quality of education in developing countries has been a growing recognition of the need to analyse process factors as well as outcome measures (Clarke, 2001; Colclough with Lewis, 1993; Levin and Lockheed, 1993). There is now an understanding that effective teaching will play a crucial role in developing the quality of primary education and attention has turned to pedagogic issues. However, as Stephens (1997) and Heneveld and Craig (1996) argue, within the research literature on teacher effectiveness in developing countries there is a paucity of data into how teachers actually teach in the classroom. They go on to suggest that there is a need for much more field data on which to base decisions and formulate policies so as to bridge the gap between the rhetoric and reality of educational development. Description and interpretation of classroom practices in the developing world are much needed, particularly of the discourse strategies for teaching and learning.

Most of the research into the discourse of classroom interaction has focused on the industrial world. For example, studies of classroom discourse from North America (Cazden, 2001) and the United Kingdom (Edwards and Westgate, 1994) show that whole class teaching across all stages of schooling is dominated by what Tharp and Gallimore (1988) call the 'recitation script'. Drawing on United Kingdom classrooms, Sinclair and Coulthard (1975) first revealed that in its prototypical form teacher-led recitation consists of three moves: an *initiation*, usually in the form of a teacher question, a *response* in which a student attempts to answer the question, and a *follow-up* move, in which the teacher provides some form of feedback (very often in the form of an evaluation) to the pupil's response. This three-part exchange, or IRF, structure is particularly prevalent in directive forms of teaching and often consists of closed teacher questions, brief pupil answers which teachers do not build upon, superficial praise rather than diagnostic feedback, and an emphasis on recalling information rather than genuine exploration of a topic. Recitation questioning therefore seeks predictable correct answers and only rarely are teachers' questions used to assist pupils towards more complete or elaborated ideas.

Studies of Indian government primary classrooms also show a pedagogy made up of teacher-dominated discourse, rote learning and memorisation (Alexander, 2000; Clarke, 2003; The Probe Team, 1999; Sarangapani, 2003; Shotton, 1998). For example, Alexander's international study of schools and classrooms from five countries (France, India, Russia, United States, United Kingdom) reveals the comparatively highly ritualised nature of classroom discourse in Indian primary classrooms. He also shows interesting discourse variations in Indian classrooms when compared classrooms in the developed world, particularly in the feedback move of the three-part, IRF structure. Building on these earlier studies of government schools for the poor, the current paper provides a detailed analysis of the discourse practices found in the privately-funded schools

for the poor. It also explores the usefulness of such analysis for investigating and helping to develop pedagogic practices in Indian primary education.

THE STUDY

The data gathered from this classroom interaction study were designed to provide a baseline measure in order to investigate the effectiveness of future interventions, particularly with regard to school-based teacher training programs. Three Hyderabad-based research associates were engaged to conduct the class observations under the guidance of the Newcastle University based team. A purposive sample of 15 private schools was selected to ensure a balance of neighbourhoods and fee ranges: the average annual tuition fee, including monthly, termly and annual fees and donations was 1,637 Rupees (37 USD per year). The average annual income of the fathers is 259 USD to 370 USD; therefore the fees represent seven to ten per cent of the father's annual income (Tooley and Dixon, 2003).

The average size of the private schools was 559 pupils, ranging from 293 to 1,004 pupils. On average, 55.5 per cent of the students were boys, 45.5 per cent were girls. On average there were 19 teachers in each school, ranging from 9 to 30 teachers. Hence, the average student-teacher ratio was 29 to 1: much lower than government run schools where the ratio was 53 to 1 (OECD, 1998). All of the schools were 'all-through' schools, teaching from Nursery up to Standard 10 (up to age 15 or 16). All taught using the English medium – that is, purportedly teaching all subjects in the English language – although one school also had an Urdu medium section, and three schools also had some Telegu medium classes. All of the schools in the sample were secular, although many of them, by virtue of their locality, served predominantly Muslim communities; none of them excluded children on the grounds of their religion or caste.

All of the schools were situated in slum areas of Hyderabad. Fifteen per cent of fathers had no schooling at all, rising to 30 per cent for the mothers. Indeed the great majority of the mothers (63%) either had no schooling, or were educated to grade VII or below. More than half the parents indicated that their income was paid on a daily basis, and although some households had two or three breadwinners (around 20 per cent of those sampled) around 33 per cent received a *family* income that was below the minimum wage.

In total, 138 teachers were observed in the cross section from the 15 schools. Although 69 per cent of the teachers were educated to degree level and above, only 10 per cent had the government teacher training certificate and 8 per cent a Bachelor of Education degree. The average age of these teachers was 28 years old. There were predominantly more female teachers than male teachers: 81 per cent female against 19 per cent male. As Table 1 shows, most of the observations were carried out in mathematics, English, science and social studies lessons taught through the medium of English with the rest being made up of local languages: Hindi, Urdu and Telugu.

Table 1. Breakdown of observations by subject area

Subject area	Number	Per cent
English	24	18
Science	33	24
Mathematics	28	20
Social studies	21	15
Hindi	17	12
Telugu	12	9
Urdu	3	2
Total	138	100

The average lesson was 35 minutes in length and the average class size was 23. The classes had roughly equal numbers of boys (n=12) and girls (n=11). The average age of the pupils observed was 11 years (ranging from 4 to 16 years old).

Computerised observation

Observations were carried out using a computerised observation schedule developed by the research team known as the Classroom Interaction System (Smith and Hardman, 2003). A continuous sampling method was used. The coding scheme uses 'The Observer' software (Noldus Information Technology, 1995) to log the number of different types of discourse moves made by teachers and pupils. This was done using a handheld device about the size of a calculator. This computerised system enabled the researchers to observe the lesson in real-time and was quicker than traditional paper and pencil methods because the data were instantly stored, and therefore available for immediate analysis. Good measures of inter-rater and intra-rater reliability were achieved (correlations of 0.86 and 0.78 respectively): an in-depth discussion of the Classroom Interaction System can be found in Smith and Hardman (2003).

The computerised system logged (for each teaching exchange): the actor, the discourse move and who the receiver was. It therefore primarily focused on the three-part, IRF structure and gathered data on teachers' questions, whether questions were answered (and by whom), and the types of evaluation given in response to answers. It also recorded pupil initiations in the form of questions and statements. The system recorded whether teacher questions were *open* (questions defined in terms of the teacher's reaction to the pupil's answer: only if the teacher will accept more than one answer to the question would it be judged as open) or *closed* (questions calling for a single response or offering facts). Responses were coded according to whether a boy or girl answered or whether there was a choral reply. Teacher feedback to a pupil's answer was coded according to whether the answer was praised, criticised, or accepted. The system also captured two alternative strategies in the feedback move: *probes* (where the teacher stayed with the same child to ask further questions) and *uptake* questions (where the teacher incorporated a pupil's answer into a subsequent question).

Transcript analysis

Video recordings of an opportunity sample of 20 teachers (15 women, 5 men) covering lessons in English, mathematics and science were carried out. Only one of the teachers had gone through a program of formal teacher training and the average age of the teachers was 24. Selections from the video recordings were transcribed and coded using an intensive system of discourse analysis adapted from the work of Sinclair and Coulthard (1975) focusing on teaching exchanges. As with the systematic observation instrument, the discourse analysis framework provided a clear and systematic basis for analysing the classroom discourse in all 20 lessons because, for the majority of the time, whole class interaction centred on the teacher was the main activity. By focusing on the three-part, IRF structure, the findings of the discourse analysis could be compared with the computerised observation data.

FINDINGS

Lesson structure

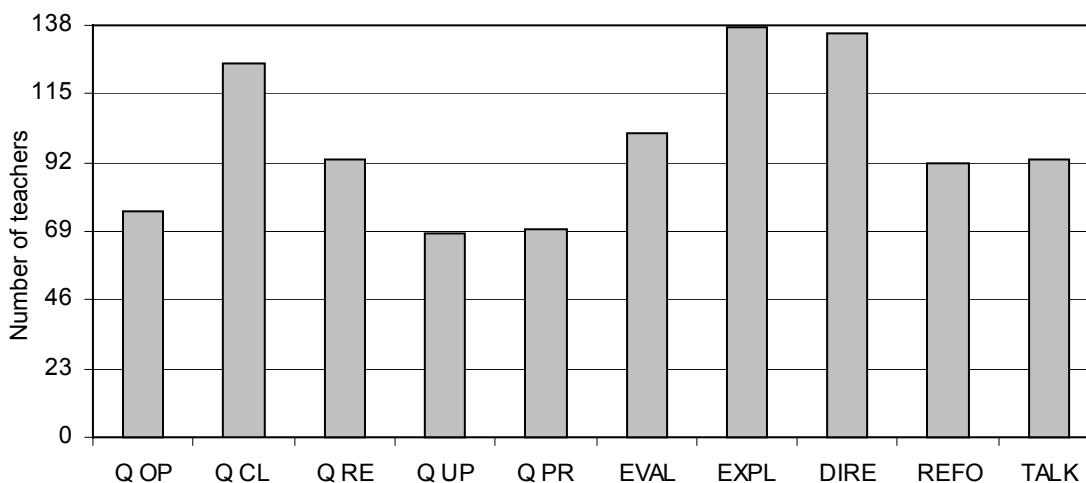
The most common lesson format was for the whole class to be listening to the teacher – all 138 lessons used this format. The pupils worked through a problem, as a class, in 105 of the lessons (three quarters of all lesson). Pupils worked individually (doing work not directed by the teacher) in only 28 lessons (one in five lessons). Group work only occurred in seven lessons (1 in 20).

The duration of each of the four aforementioned formats was recorded for each lesson. So, for example, a lesson might consist of 40 minutes of the whole class listening, 10 minutes of whole class work, 5 minutes of group work and 5 minutes of individual work. This would translate as 66.7 per cent whole class listening, 16.7 per cent whole class work, and 8.3 per cent for both

group and individual work. The breakdown for a typical lesson (based on the analysis of all 138 lessons) was as follows: 62.9 per cent whole class listening, 33.6 per cent whole class work, 0.1 per cent group work and 3.4 per cent individual work. Therefore the overwhelming majority of lessons did not provide opportunities for collaborative work or self-reliance, and pupils had no real opportunity to talk to each other or to initiate ideas whatever their age or the focus of the lesson. Even when pupils were working from their textbooks or the chalkboard, the expectation of both the teachers and children was that this work was to be carried out by individual pupils in silence.

Classroom discourse

Figure 1 below shows the number of lessons in which certain types of discourse were observed. The maximum height for each bar is 138 (the number of lessons observed). Most teachers used explaining and directing. Closed questions were used by 90 per cent of the teachers and 55 per cent of the sample did not ask any open questions. Similarly, half of the teachers did not use an uptake or probe question at any time during the lesson. Interruptions occurred in 77 per cent of the lessons.



Key: Q OP – Open question; Q CL – Closed question; Q RE – Repeat question; Q UP – Uptake question; Q PR – Probe; EVAL – Evaluation; EXPL – Explain; DIRE – Direction; REFO – Refocus; TALK – General talk.

Figure 1. Number of lessons in which the different discourse moves were observed

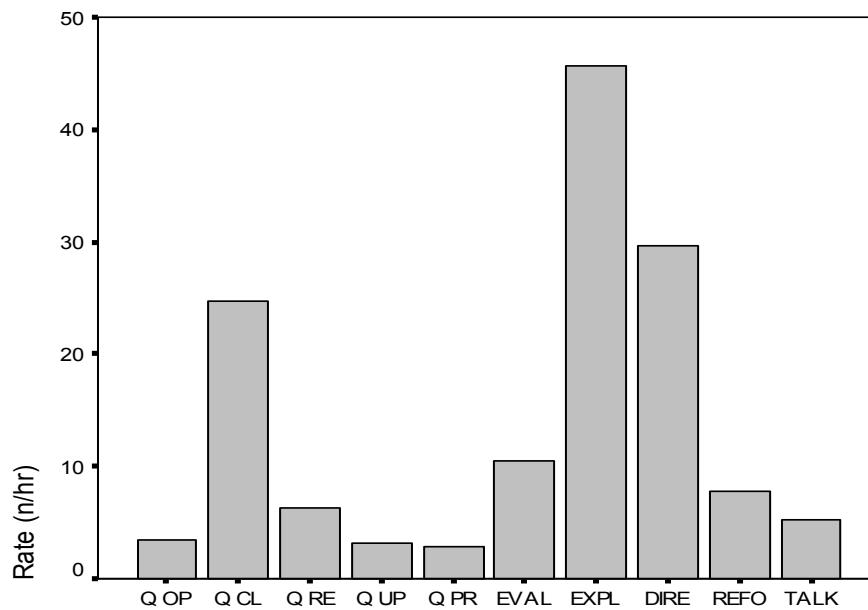
Figure 2 shows the rate (number per hour) for each of the teacher discourse moves. Clearly the most frequent discourse moves, as found earlier in the types of discourse moves included explaining (46 per hr), teacher direction (29 per hr) and closed questions (25 per hour).

Throughout the observations the focus was upon the teacher, but responses and initiations from pupils during the whole class sections of the lessons were also analysed. When pupils spoke, the most dominant discourse was to answer a question. The moves are listed below:

- Answering a question (31 moves per hour);
- Choral response (7 moves per hour);
- Presentation (19 moves per hour); and
- Spontaneous contribution (7 moves per hour).

Rather than looking at rate per hour (which takes no account of the length of a discourse move), it is also possible to report the *mean duration* for each discourse move (average length in seconds) and the *percentage duration* for each discourse move (each discourse move's total contribution to

the entire whole class section). For example, if explaining took up ten minutes of a 40 minute whole class section the percentage duration of explaining would be 25 per cent. Mean durations and percentage durations for each discourse move are shown in Table 3. The pupil discourse moves are shaded in the table.



Key: Q OP – Open question; Q CL – Closed question; Q RE – Repeat question; Q UP – Uptake question; Q PR – Probe; EVAL – Evaluation; EXPL – Explain; DIRE – Direction; REFO – Refocus; TALK – General talk.

Figure 2. Rate of teacher discourse moves

Table 3. Mean duration and percentage duration for each discourse move

Discourse move	Mean duration (secs)	Per cent duration
Direct	10	10.0
Explain	26	54.0
Open question	6	0.5
Closed question	5	3.5
Repeat question	6	1.0
Uptake question	5	0.5
Probe (question)	8	1.0
Evaluate	6	2.0
Refocus	15	3.0
General talk	12	2.5
Interruption	20	2.5
Pupil answers	7	7.0
Choral response	12	4.0
Spontaneous contribution	12	2.5
Presents	21	6.0
Total:		100.0

The data in Table 3 show that explaining was the most frequent discourse move followed by teacher direction of the class. Teacher explanation was of the longest duration (26 secs) and took up 54 per cent of the time spent by the teacher interacting with the whole class. Teacher questioning and evaluation of answers took up 8.5 per cent of the time and the mean duration of the moves was very similar. Most questions (averaging 25 per hour) were closed, requiring recall and the response of a single word. Probing and uptake questions were very rare. Pupils did not often volunteer answers but were called on by the teacher. The average length of a pupil answer was seven seconds. Choral responses took longer – 12 seconds. Pupil presentation, when pupils were called to the front of the classroom, singly, in pairs or as a group, to work at the blackboard

or recite, took up 6 per cent of the time and the mean duration was 21 seconds. Altogether, pupil responses (individual, choral and presentations) took up 17 per cent of the time spent interacting with the teacher.

By adding up the teacher discourse moves (top ten in the table), it is clear that the teacher dominated the whole class section for 78 per cent of the time. The 19.5 per cent pupil contribution was mainly made up of answering questions: individually, as a choral response or in the form of a presentation. Interruptions to lessons accounted for the remaining percentage (2.5%).

When a teacher evaluated an answer, just over half of all evaluations (53%) were simple affirmations ('yes', 'no', 'ok'). Nearly 23 per cent of evaluations were in the form of a criticism, 16 per cent were probes for more information and 8.5 per cent were in the form of praise. However, as the discussion of transcript analysis in the next section shows, it was not uncommon for teachers to use the two-move exchange structure (teacher question and pupil answer) thereby providing no feedback to a pupil answer. Nor was it uncommon for them to ask and answer their own questions.

Discourse analysis

As with the systematic observation, the discourse analysis of the teaching exchanges suggests that all 20 lessons were conducted through teacher-led recitation, where teacher explanation and interrogations of the pupils' knowledge and understanding was the most common form of classroom interaction. Using a descriptive apparatus adapted from the work of Sinclair and Coulthard (1975), the researchers analysed the different forms of teaching exchanges that occurred in the transcripts using the IRF structure.

The following extract (see Table 4), taken from a science lesson exploring the physiology of the human mouth with a class of 13 to 14 year old pupils, is typical of the discourse style used by all 20 teachers across the three subject areas.

The extract reveals the extent to which the classroom discourse is made up of teacher explanation (Turns 37, 41, 44) and question and answer sequences. The rapid pace of the teacher's questioning and tight control over the discourse through the predictable IRF or IR classroom exchange structure is also evident. Questions are often direct with little cued elicitation: where pupils are given a clue as to how to answer a question. Individual pupils do not usually volunteer for turns but are called on by the teacher (Turns 7, 10, 15, 22, 27, 30, 34) where the pupil stands up to answer. Choral responses to questions are common (Turns 3, 6, 13, 18, 21, 26, 33, 39) and are often used to reinforce information given by the teacher or elicited from the pupils. Pupils often know from the intonation of the first move of an IRF exchange whether it requires an individual answer or a choral response. When the two-move discourse structure is used, it precludes feedback on answers and therefore any systematic building upon them. The structure of the interaction appears highly ritualised and the repertoire is clearly understood by the pupils: communicative rights and responsibilities follow a set pattern that obviates the need for frequent reminders about classroom routines from the teacher. The lack of an explicit feedback move prohibits any systematic building on pupils' answers that are often limited to three words or fewer for over 90 per cent of the time.

Overall findings

The findings of the systematic observation and discourse analysis reveal that the prevailing pedagogy in private schools for the poor is dominated by teacher-led recitation. All the lessons observed used transmission models of teaching in which the teacher often used a textbook or chalkboard to transmit recipe knowledge for rote learning (therefore imparting information and testing recall). Little attention was given to securing understanding, and ritual knowledge was an

explicit focus of the learning tasks which teachers presented. Cognitive engagement therefore appeared limited and the tasks were essentially mechanical ones.

Table 4. Extract from a science lesson with pupils aged 13 to 14

Number	Actor	Exchange
1	T	so today we're going to study about types of teeth first we're going to look at types of teeth then we'll come to types of salivary glands
2	T	so can you tell me how many types of teeth
3	P	(chorus) four types of teeth
4	T	four types of teeth are there
5	T	can you name them
6	P	(chorus) yes teacher
7	T	first type group
8	P	incisors
9	T	yes very good incisors
10	T	Faisal your turn
11	P	canines teacher
12	T	what
13	P	(chorus) canines teacher
14	T	canines (writes on chalk board)
15	T	then we have
16	P	premolars
17	T	what
18	P	(chorus) premolars
19	T	sit down
20	T	and the small ones
21	P	(chorus) molars
22	T	what
23	P	molars
24	T	ok sit down (writes on the board)
25	T	so where do molars exist the mouth
26	P	(chorus) four and four
27	T	ok you stand up Abdul where do incisors exist in the mouth on which side
28	P	at the front (demonstrates)
29	T	yes the front teeth the four teeth are called incisors
30	T	so how many incisors have we got here
31	P	eight
32	T	eight on the upper side only
33	P	(chorus) four on the upper and four on the lower
34	T	one person only answer
35	P	four teeth on the upper and four teeth
36	T	ok sit down
37	T	four and four teeth on the upper side and four teeth on the lower side
38	T	so four and four how many teeth
39	P	(chorus) eight
40	T	ok so there are eight (writes on board)
41	T	that means the front teeth on the upper jaw and the lower jaw are the same the teeth which are present on the upper side are also present on the same on the lower jaw also so you can see that the arrangement of the teeth on the upper jaw and the lower jaw are the same
42	T	understood
43	P	(chorus) yes teacher
44	T	the incisors front teeth are the incisors and the four are present on the upper jaw and four are present on the lower jaw the function of the incisors is that

Because of the dominance of whole class teaching, tasks were usually undifferentiated in respect of ability and the teacher monitored mostly from the front. Pupils spent a great deal of time, over 45 per cent of the lesson, listening to the teacher explaining. The average length of time spent

listening to the teacher was just over 16 minutes. Teachers would often ask a closed question requiring recall and the response of a single word. Such questioning and pupils answering took up nearly 20 per cent of the lesson time. Typically, the questioning exchange structure entailed a question delivered in a rising tone and volume, its last word drawn out, and a loudly chanted choral response.

Teacher feedback on responses was rare even where individual pupils were concerned, offering few opportunities for ideas to be developed or examined from other angles. In the case of an individual answering, pupils did not bid to answer but were nominated by the teacher. Teachers would also ask questions and provide an answer, thereby further closing down opportunities for more exploratory forms of questioning. Overall, as in Alexander's (2000) study of Indian state primary classrooms, the interactive core of the lessons was therefore highly ritualised and rigid.

Lesson lengths were regular (on average 35 minutes) and the structure was predictable. Introductions and conclusions were instructional but always very brief. Central sections were usually episodic, combining direct instruction with short periods of reading or writing and recapitulation. The quick-fire succession of tasks were as likely to stand alone as to be related to each other. The lessons appeared strongly reiterative, going over previously taught material, rather than developmental in nature to ensure progression in learning. Most of the learning tasks put a strong emphasis on factual, propositional knowledge (knowing that) rather than procedural knowledge (knowing how).

In the classrooms pupils were seated in rows regardless of the subject being taught, with all desks facing the chalkboard, and many were small resulting in cramped conditions. Such poor physical conditions clearly hampered the quality of the classroom interaction. Many of the classrooms also had a distinctive 'action zone' where a group of actively participating pupils were seated. The teacher talked to them more and asked them questions most of the time. Those on the fringes of the room hardly participated in the classroom learning and this was exacerbated in larger classes. It was also apparent from the video evidence that the quality of the classroom interaction was hampered by the lack of teaching resources and textbooks in many of the classrooms. Better quality teaching aids and textbooks would promote more active forms of learning and encourage different forms of differentiation beyond the 'one task, different outcomes' formula to cater for differences in ability and help to close the attainment gap evident in many classrooms. There was also very little pupil-pupil discussion or collaboration, except when children voluntarily helped each other. Breaks in this pattern occurred when children were called to the front of the classroom, singly, in pairs or as a group, to work at the chalkboard or recite. Pupil presentation took up nearly 6 per cent of the lesson time. Teachers also moved relatively little, remaining at the front of the room for most of each lesson and occasionally venturing between rows to monitor written work.

Strict discipline in the classrooms meant that teachers were not spending time on control and command and there seemed to be an unspoken respect for the teacher. Kumar (1991) traces the tradition of strict discipline in Indian primary schools back to British colonial days. However, the passivity and self-discipline of the pupils is both a strength and a challenge to the Indian education system in trying to get the pupils to take some responsibility for their own learning, and to think and work independently. A significant proportion of pupils appeared disengaged because they simply did not understand, although they remained outwardly compliant. Most children, including those showing little understanding, observed the outward forms of the required collective behaviour: chanting answers back to the teacher, holding their pens poised above their exercise books, gazing at the chalkboard or the textbook if available.

DISCUSSION AND CONCLUSIONS

In conclusion, the findings of the computerised systematic observation and discourse analysis reveal that teaching in Indian private schools for the poor is dominated by highly ritualised forms of teaching. They therefore mirror discourse practices found in government run primary schools (Alexander, 2000, Clarke, 2003, Sarangapani, 2003). Clearly these findings have implications for the linguistic and cognitive development of Indian primary school pupils. Such an emphasis on directive forms of teaching in Indian primary classrooms goes against the social constructivist theory of learning that underpins western notions of a dialogic pedagogy (for example, Mercer, 2000; Wells 1999). Research into the constructivist function of dialogue and learning suggests that classroom discourse is not effective unless pupils play an active part in their learning. This view of learning suggests that our most important learning does not take place through the addition of discrete facts to an existing store of knowledge, but that we relate new information, new experiences, new ways of understanding to our existing understanding of the matter in hand. One of the most important ways of working on this understanding is through talk, particularly where pupils are given the opportunity to assume greater control over their own learning by initiating ideas and responses which consequently promote articulate thinking. Such a theory of learning therefore questions the value of the linguistic and cognitive demands made upon Indian pupils within the traditional teacher-led recitation format found in the public and private sector of schools serving the poor. As these findings show, pupils are mainly expected to be passive and to recall, when asked, what they have learned and to report other people's thinking.

In looking for explanations for the highly ritualised teacher-pupil exchanges found in the private schools for the poor beyond the physical and resource constraints, a number of theories arise. The fact that the majority of teachers lacked any formal training may have played a major role. However, Clarke (2003) found that teacher training had had little impact on the pedagogic practices of teachers working in state schools. Although teacher training programs advocated a more active pupil-centred pedagogy in place of the traditional pedagogy that upholds learning and memorisation, she found it was rarely practised or little understood by teachers due to a culturally defined model of pedagogy that had been learned as pupils and students. Through a process of socialisation, Clarke found teacher thinking and action were being shaped by powerful cultural practices which are said to originate out of the Indian respect for tradition and authority, leading to the institutionalised phenomenon of recitation routines. Therefore, once in the classroom teachers would teach as they themselves were taught, both at school and in the colleges, thereby perpetuating culturally transmitted and deeply internalised cultural influences. Alexander (2000) also discusses the impact of Indian educational history on the teaching and learning process, particularly the central role of the religious text and the model of teaching and learning it provides: oral transmission through constant teacher-led recitation and pupil repetition so that text is committed to memory. Teachers may therefore find it difficult to imagine that knowledge, information and skills could possibly be transmitted in any other way than through teacher-led recitation.

The fact that the teaching and learning in the classrooms observed mainly took place in a second language environment may also have added to the ritualised exchanges. Drawing on her study of African teachers, Arthur (1996) argues that a major cause of the ritualised teaching practices as found in the current study is the requirement to use English as the medium of instruction. Such practices, she argues, have been derived from conventions imposed during colonial rule, leading to the collusion of teachers and pupils in mutual face-saving over the adequacy of their classroom interaction for the achievement of teaching and learning. This is often achieved by code switching into the mother tongue of the children so that it functions as the language of complicity. In other words, rather than having its origins in traditional cultural patterns of interaction, the recitation routines result from the constraint on learning imposed by the requirement to use a foreign

language as the medium of instruction. Teachers and pupils are therefore mutually interdependent in that all need to keep up the appearance of effective activity in the classroom and fulfilment of their respective roles leading to highly ritualised exchanges.

Clearly the findings of the study have major implications for those charged with the responsibility of improving the quality of teaching and learning in private schools for the poor. The findings of this and previous studies of government primary schools suggest that the classroom practices of Indian primary school teachers reflect limited understanding of how best to support children's learning. It seems that teachers' perceptions of their role in both the state and private sector are based on their own experience in school and college and the cultural relationship between adult and child. In order to change these often-entrenched teacher beliefs and classroom practices, more effective teacher education programs are needed which address the realities of the classroom context and the needs of the Indian child (Clarke, 2003; Sarangapani, 2003).

In the case of the untrained teachers in the current study, such programs would have to be delivered through school-based training. The programs would need to start by helping teachers to explore their own beliefs and by getting them to reflect on their classroom practices. Joyce and Showers (1995) argue that teachers need extended opportunities to think through new ideas and to try out new practices, ideally in a context where they get feedback from a more expert practitioner and continue to refine their practice in collaboration with colleagues. Coaching and talk-analysis feedback may be useful tools for professional development whereby sympathetic discussion by groups of teachers of observation data derived from their own classrooms could be an effective starting point for critical reflection. Such an approach could provide supportive interactions with peers through modelling and feedback in order to change traditional patterns of whole class interaction necessary for responsive teaching. Clarke (2003) argues that such an approach would also be useful for teachers working in government primary schools. Such a model of in-service would build on existing systems and structures, and support teachers' reflection on their own practice.

More research needs to be carried out to evaluate the effectiveness of such approaches and to study the powerful cultural and linguistic influences shaping traditional classroom practices in Indian primary classrooms across both the public and private sectors. The research methods adopted in the current study could help in the search to see if there are constants in classroom pedagogy which override cultural specifics. These findings also suggest a need for further research into ways of effectively supporting Indian primary school teachers in their professional development in order to promote more reciprocal forms of teaching to increase the opportunities for extended interactions with pupils. More research is also needed to provide conclusive evidence that such reciprocal forms of teaching are more effective than traditional approaches in terms of producing significant gains in learning.

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Lecturers' perception of student evaluation in Nigerian Universities

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The need for improvement in undergraduate instruction in Nigerian Universities necessitated this investigation. The survey used a random sample of 200 lecturers drawn from five of the public universities in Nigeria. It sought to find out how lecturers perceive the importance of student evaluation, both for formative and summative purposes. The 20-item questionnaire used for the collection of data had a reliability coefficient of 0.61. The data collected were analysed using the Z-test statistic. It was found that lecturers generally do not accept student evaluation, particularly when it is for summative purposes. Despite lecturers' apprehension, it is recommended that student evaluation of classroom teaching should be made mandatory and conducted regularly in Nigerian universities.

Formative evaluation, summative evaluation, university teaching, Nigeria

INTRODUCTION

Just how good university teaching is globally and how good it should be are two questions that have no exact answer. The complaints about the quality of undergraduate instruction are both current and chronic (Eble, 1974). A rare glimpse of teaching as it goes on inside university classrooms was afforded by Kilpatrick (1997) where he concluded that aimlessness is the most important single cause of ineffective teaching. His recommendations, which include the need for better preparation of graduate students as teachers and effective in-service programs for improving the quality of instruction, are as pertinent now as they were then.

Though there is great desire for effective undergraduate teaching in our universities, recognition and evaluation of it have different applications for different institutions. While some shy away from formalising the means by which a faculty teacher's teaching competence is judged, others are reluctant to give students a voice in the decisions that affect a faculty member's career (Eble, 1974). However, institutions are beginning to appreciate the fact that there are many sources of information about teaching effectiveness and many ways of bringing that information to bear upon the evaluation of teaching. According to Richmond (2003) and Clifford (1999), student opinion is of particular importance because it represents an important addition to the data customarily used to judge faculty competence. It is the one source of direct and extensive observations of the way teachers carry out their daily and long-range tasks. Eble (1974) identified the benefits of student evaluation to include the following:

1. Student evaluation increases the chances that excellence in teaching will be recognised and rewarded.

2. Student evaluation provides a means of participating between students and teachers in the teaching-learning process and raises the whole level of instruction.
3. Evaluation provides the only direct and extensive information about a faculty member's teaching.
4. An institution may be stimulated by student evaluation of teaching to consider its overall goals and values.
5. The support of student evaluation is a tangible sign that faculty and administration recognise the importance of student involvement in shaping the institution's educational goals and practices.

The foregoing contributions provided a theoretical framework for this study. They also helped to give direction to the development of the instrument used.

Teacher evaluation refers to a periodic evaluation of teachers' performance. It involves a systematic gathering and analysis of information, on the basis of which decisions are taken regarding the effectiveness, efficiency and/or competence of the teacher in realising set professional goals and the desire of the school to promote effective learning. Such evaluation can be seen to have two broad purposes namely:

Formative Purposes – when results of such evaluation are used to improve classroom instruction, student learning, and to foster professional growth of the teacher.

Summative Purposes – when results of such evaluation are used for administrative/personnel decisions like promotion, salary increase, demotion, dismissal, awards and/or meeting public/government accountability demands (Gold, 2001).

Certainly the issue with teacher evaluation, from the available literature, is not whether it is necessary or should be done or not. The concerns with the practice are largely who should do it, for what purpose, and by what means? (Gardener and Milton, 2002). Jackson (1998) identifies nine approaches to teacher evaluation, namely: classroom observation, students' ratings, student achievement, peer-rating, self-rating, teacher interview, parents' rating, competency tests, and indirect measures. Studies concerned with measures of teachers' teaching competences have usually employed some of these approaches (Iyamu, 1998; Otote, 2004).

PREVIOUS RESEARCH

Maiwada (2001) presses the view that the inability of stakeholders in education to evaluate the standard of classroom teaching has contributed to the falling standard of education in Nigeria. Students are stakeholders in education. The implication here is that if students' evaluation of instruction is, as a rule, made a part of evaluative process, instructional improvement in schools could result. Should students evaluate classroom teaching and for what purpose? Investigation of the views of Nigerian University lecturers on these is the orbit of concern of this study.

Haefele (1992) and Darling-Hammond, Wise and Peace (1983) state that there are really many questions about the reliability, validity and utility of student evaluation of teachers, especially when they are for personnel decision and other summative purposes. Whether the situation in Nigerian Universities is the same as other parts of the world is also part of the concern of this study.

Isiaka (1998) shows that lecturers in selected Colleges of Education in Ghana and Kenya accepted the idea of students evaluating their classroom effectiveness. Smith and Anderson (2003) also found out that teachers in most American Colleges are disposed to student evaluation. The lecturers' acceptance cuts across gender (males and females). Isiaka's work emphasises the use of student evaluation for formative purposes only. In his study, teachers' opinions were not

dependent on gender, but on seniority (teaching experience), as more experienced lecturers were found to show more preference for student rating of teaching effectiveness than their junior counterparts. Whether this is true of Nigerian University lecturers is the focus of this study. The findings of this study are expected to add to existing knowledge in the area of the use of student rating of teaching effectiveness for summative purposes.

Jackson (1998) revealed that teachers in their perception of students evaluation of teachers did not differ on the basis of gender, location of school, academic attainment, teaching experience, and teaching subjects, under both formative and summative purposes in selected American universities.

Thus, schools and teachers in developed nations of the world like the United States, Canada and Great Britain have recognised the role of teacher evaluation by students and have harnessed the immense importance and contributions of this exercise for the good of the school systems and the teaching profession. Students are the direct beneficiaries of instruction, and given that they spend a great deal of time with teachers, they can offer useful inputs in identifying flaws during instruction and ways of remediation. These, they can do in spite of their seeming immaturity or irresponsibility. In Nigeria, however, the practice of teacher evaluation by students has not received much emphasis, and hence this study.

THE PROBLEM

The involvement of students in the evaluation of their lecturers' teaching effectiveness is seen as a practical demonstration of democracy in education. It is not in doubt that students are always able to provide a lot more information on their lecturers' teaching than would their Head of Department or Dean of Faculty. In Nigeria, universities lack effective systems of mentoring. A graduate assistant employed starts teaching immediately without being attached to more qualified and experienced professors to understudy (Nwadiani, 1999). Besides, a majority of lecturers, especially those of senior lecturer and below ranks are more like businessmen-lecturer. They spend more time outside the university engaged in other activities to earn additional money. Though this is justified considering the poor remuneration of university lecturers in the country, the negative impact this practice has on the quality of teaching cannot be glossed over. One of the ways to make them become more serious with their teaching is to subject them to summative evaluation by the students. The questions that are germane here in this regard are

How do Nigerian University lecturers perceive students' evaluation of their teaching effectiveness when the purposes are formative and summative? Will rank influence the perception of Nigerian University lecturers of students' evaluation of their teaching? The study aimed to answer the following questions:

- How do Nigerian university lecturers perceive students' evaluation of their teaching effectiveness.
- How do Nigerian university lecturers perceive students' evaluation of their teaching effectiveness when the purposes are formative and summative.

HYPOTHESES

The following hypotheses were tested in this study.

1. The mean score of Nigerian university lecturers on the student evaluation questionnaire who perceive the importance of students' evaluation of their teaching will not be significantly less than 50 per cent.

2. There will be no significant difference between junior and senior lecturers' perception of the importance of students' evaluation of their teaching.
3. The university lecturers' perception of the importance of student evaluation of their teaching will not differ significantly when the purposes of evaluation are (i) formative and (ii) summative.

The purposes of this study therefore are to verify the foregoing hypotheses as a basis for encouraging this practice in Nigerian Universities in order to improve the quality of teaching

PROCEDURES

The study employed a survey design. It sought to elicit the opinions of Nigerian university lecturers on students' evaluation of their teaching effectiveness. Two hundred lecturers made up of 100 junior (from Graduate Assistant to lecturer I) and 100 senior (from senior lecturer to professor) were randomly selected from five public universities in Nigeria.

The instrument for data collection was a questionnaire made up of 20 items. Items 1-10 were on the general need for student evaluation; 11-15 were on formative purposes; and 15-20 were on summative purposes on student evaluation. These items are (1) The idea of students evaluating their lecturers is acceptable (2) Students are mature and responsible to evaluate their lecturers (3) Students possess good value-judgment to evaluate their lecturers (4) Lecturers will be more prepared for their teaching (5) Lecturers will be more regular and punctual to class (6) Lecturer-student relationships will be improved (7) Lecturers will be more committed to their job (8) Lecturers will be more disciplined generally (9) Feedback on student evaluation helps lecturers to improve on their teaching (10) Lecturers will be more innovative in their teaching (11) Feedback on students' evaluation helps lecturers to improve on their teaching (12) Results of student evaluation are needed to improve classroom instruction (13) Results of student evaluation are used to improve students learning (14) Results of student evaluation are used to foster professional growth of lecturers (15) Student evaluation reports help lecturers to evaluate themselves. (16) Results of student evaluation are needed for administrative decisions (17) Student evaluation results are used for the promotion of lecturers (18) Such results are needed for salary increase for lecturers (19) Student evaluation results are needed to select the best teachers for award in the faculty (20) Results of student evaluation are used for decisions on lecturers' retention.

The questionnaire had a four-point Likert scale response pattern. These were: Strongly Agree, Agree, Disagree and Strongly Disagree and were weighted 4, 3, 2 and 1 respectively. The instrument had a reliability coefficient of 0.61. The data collected were analysed using the Z-test of proportion between population and sample means, and Z-test of significant difference between two independent means. All tests were carried out at the 0.05 level of significance.

RESULTS

The results of testing the three hypotheses posed in this investigation are presented in Table 1.

Table 1. A Z-test analysis for hypotheses one, two and three

Category	Sample (N)	Sample Mean (X)	Hypothesised Mean	Standard deviation	Calculated Z	Critical Z	p
Hypothesis One	200	41.3	50	3.09	2.18	1.96	
Hypothesis Two							
Junior Lecturers	100	39.2		3.11	2.41	1.96	>0.05
Senior Lecturers	100	53.8		2.23			
Hypothesis Three							
Formative purpose	200	51.6		3.14	2.01	1.96	>0.05
Summative purpose	200	39.5		3.67			

Examination of data in Table 1 shows that the calculated z is greater than the critical z . As a result, the first null hypothesis is rejected. Thus, the mean score of Nigerian university lecturers who perceive the importance of student evaluation is significantly less than 50 per cent. This implies that the majority of lecturers do not perceive the need for student evaluation. Their negative disposition to this practice may be explained by the views of Eble (1974) that faculty members in most institutions are skeptical of student evaluation because they might be detrimental to their career. Furthermore, according to Eble (1974), while many institutions shy away from formalising the means by which a faculty teacher's teaching competence is judged, others are reluctant in giving students a voice in the process. This finding is particularly a confirmation of the views of Cross (2002) that student evaluation does little general good and some particular harm. According to Cross, faculty anxieties on this point are not precisely clear, for the critics who are most dubious about general impact are often very sensitive to the particular harms student ratings can inflict. The majority of Nigerian university lecturers probably belong to this category of critics. In another view, Richmond (2003) stated that student evaluation might arouse unhealthy competition among faculty members. This may have influenced the perception of Nigerian university lecturers, a majority of whom did not see the need for student evaluation.

Analysis of data in Table 1, under hypothesis two, indicates that there is a significant difference in the perception of junior and senior categories of Nigerian university lecturers with respect to student evaluation. The null hypothesis is therefore rejected. The result is a little surprising because junior lecturers are probably apprehensive of their educational and professional inadequacies that may be revealed by student evaluation. Many studies including Urevbu (1997) and Imogie (2000) have reflected on the decay in Nigeria's education system to the extent that Nigerian undergraduates are merely certificated and not truly educated. Poor preparation of graduate students as teachers portends danger for Nigerian universities because the actual achievement of a university does not rise above the level of classroom performance (Clifford, 1999).

On the other hand, the senior categories of lecturers must have been better disposed to student evaluation (with a mean score of 53.8 as against 39.2 for the junior category) because of their experience and qualification. While a majority of them (72%) hold a PhD, majority of the junior lecturers (64%) do not. These senior lecturers are probably more confident, focused, purposeful and methodological in their instructional delivery, compared to the junior lecturers whose teaching has been characterised by aimlessness (Kilpatrick, 1997). They were probably less apprehensive of and sensitive to the particular harm that student ratings can inflict.

The result of the data analysed in Table 1, under hypothesis three, indicates that there is a significant difference in the lecturers' perception of the importance of student evaluation when it is meant for formative and summative purposes. The null hypothesis is therefore rejected. With a mean of 51.6 for formative purposes and 39.5 for summative purpose, it suggests that the university lecturers would accept student evaluation in as much as it is meant to serve a formative purpose and not for summative purposes.

Isiaka (1998) had reported that college teachers in Ghana and Kenya accept student evaluation. The study also showed that while the acceptance cut across gender, emphasis was on the use of such student evaluation for formative purposes only. The result of the present study must be a reflection of the lecturers' anxieties about the use of such student evaluation to make particular administrative decisions on their career. Where student evaluation contributes to decisions on promotion, demotion, dismissal, salary increase and awards (Gold, 2001), lecturers tend to be more sensitive to the harm that such practice could inflict on their career. However, such anxieties seem to be alleviated if lecturers are convinced that the evaluation results are meant to help them assess their own teaching and work to improve on it. This is more likely to be true of the junior

lecturers. Senior lecturers, especially the professors, tend to be less sensitive to the harm of student evaluation by virtue of their qualification and experience and the fact that they have reached the pinnacle of their career. They are likely to advocate student evaluation as a means of improving teaching and promoting the quality of university education in Nigeria. This finding agrees with Darling Hammond, Wise and and Peace(1983), Haefele(1992) and Joshua(1998).

By endorsing student ratings of teachers for formative purposes, Nigerian university lecturers are invariably recognising the unique contributions that students as stakeholders in the educational system, can make towards fostering the professional growth of teachers, improving classroom instruction, and also serving other formative purposes. The negative attitude of lecturers toward the use of students' evaluation of their teaching effectiveness for summative purposes is an issue to worry about. These authors believe that the use of students' rating of their teachers may not be totally useless in taking some administrative decisions or serving other summative purposes. If lecturers know in advance that their career advancement depends, in part, on the ratings by students, the chances are that they will sit up to render effective teaching.

CONCLUSIONS AND RECOMMENDATIONS

From the findings of this study, the following conclusions seem warranted.

1. Nigerian university lecturers generally have a low perception of the need for student evaluation. They are likely to be apprehensive and sensitive when this practice is introduced into the system.
2. Nigerian university lecturers at the lower level show low acceptance of student evaluation compared with their senior counterparts. These junior lecturers are likely to resent this practice.
3. Nigerian university lecturers are more accepting of student evaluation for formative purposes than for summative purposes.

The study recommends that students' evaluation of classroom teaching should be made mandatory and conducted regularly in Nigerian universities as teachers, students and indeed the university system will benefit from such evaluation. Student evaluation of teaching effectiveness is often criticised as lacking reliability, validity and generalisability due largely to the fact that instruments in use have no universal criterion of effective teaching. Now, there is an urgent need in Nigeria for experts to develop and publicise validated instruments for evaluation of teaching and teachers, not only by students but all other stakeholders in teacher evaluation.

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Primary education in Vietnam: Extra classes and outcomes

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Extra classes are increasingly observed in both developed and developing countries. In Vietnam, a country where education reforms are at their height, extra classes are proliferating and have become a concern to society and the government. Although the government has banned extra classes that are independent of school administration, teachers often run home-based classes to supplement their income. This paper examines the extent and characteristics of extra classes among eight-year-old children, and examines the association between taking extra classes and learning outcomes (numeracy, reading, and writing skills).

Vietnam, primary education, extra class, learning outcomes

INTRODUCTION

The dominance of the millennium development goals (MDGs) and poverty reduction strategies (PRS) among donors and in developing countries has caused most discussion around primary education in international development to focus on enrolment rates. This means that attention has understandably focused on sub Saharan Africa where enrolment rates remain low and there is little chance that children in most countries in sub Saharan Africa, boys and girls alike, will be able to complete a full course of primary schooling by 2015 (UNDP and UNICEF, 2002).

There is relative international complacency about countries where primary enrolment rates have been very high for some years. Vietnam is one such country. The primary enrolment rate rose from 87 per cent in 1993 to 91 per cent in 1998 and is probably currently around 92 per cent (UN Vietnam, 2003). However, the combination of a short school day and a short academic year mean that most primary students receive little more than half of the international normal annual teaching input (WB and ADB, 2002). This has led to a booming business of 'extra classes' (Chau, Ry, and Dam, 2000; Dan, 2000; EduNet Forum, 2004; Hanoi Department of Training and Education, 2000; HCMC Department of Training and Education, 2000; Minh, 2000). Extra classes occur even among the extremely poor and even though the government banned illegal extra classes and standardised the time quota for legal extra classes in 1993 (Government of Vietnam, 1993). Some extra classes are organised by the school's administration and are classified as legal. In contrast, teachers can create an artificial demand for extra classes by reducing the duration and learning content of their school classes and by running extra classes in their own homes, both of which are considered illegal (Dan, 2000).

The cost burden of extra classes emerged as a key issue in a recent qualitative, participatory poverty assessment among children in Vietnam (Harpham, Huong, Long, and Tuan, 2005). This study analyses how this situation arose, examines a sample of 1000 eight-year-olds across five provinces in Vietnam to consider the extent and burden of extra classes and assesses whether extra classes are associated with improved educational outcomes in the basic subjects.

METHODS

Sample

Respondents were 1,000 eight-year-old children¹ and their caregivers in the Young Lives survey (YL), conducted in 20 sentinel sites in five provinces (Lao Cai, Hung Yen, Da Nang, Phu Yen and Ben Tre) in Vietnam in 2002. These provinces spanned across the country – from North to South. They were randomly identified from a population of 4716 households that contained children aged eight years. The children were interviewed using structured questionnaires (see www.younglives.org.uk for full questionnaires and sampling details).

Measures

Extra study: This variable was measured through a number of indicators, including child attendance at extra classes (yes/no) after school, subjects of extra classes, identification of advisers who prompted children to take extra classes, number of hours attending classes in each subject per week, and total costs in Vietnam dong (VND) incurred during the previous year for overall education and extra classes.

Household poverty: The household wealth index (WI) was a score between 0 and 1 that was constructed as an average of three components: (1) *housing quality*, which was the simple average of rooms per person, and floor, roof and wall quality [household was scored 1 for each if it has finished material floor, sturdy roof, brick or plastered wall, and scored 0 if it does not have them]; (2) *consumer durables*, being the scaled sum of the nine consumer durable dummies [household was scored 1 for each if having any of the following nine durable items: radio, bicycle, TV, electric fan, motorbike, refrigerator, landline phone, mobile phone and car or truck; and scored 0 if not having any item]; and (3) *services* of drinking water, electricity, toilet and fuel, all of which were 0/1 variables. In this paper, three groups are used: the very poor ($WI < 0.25$), poor ($0.25 \leq WI < 0.5$), and non-poor ($WI \geq 0.5$).

Child learning outcomes: Reading, writing and numeracy were indicators. All 1,000 children were asked to read and write a simple sentence and multiply 2 by 4. The result is coded 0 ‘able to read’, ‘able to write’ if the child performed the task perfectly (*non-case*); and 1 ‘not able to read’, ‘not able to write’ if the child could not read/write at all or could read/write only one word or a phrase but not a full sentence (*case*). Similarly, 0 was given for correct multiplication and 1 for incorrect multiplication. Only one child did not give an answer due to shyness.

Data Analysis

Data were analysed using the survey commands in STATA 8 (StataCorp, 2003) with sentinel sites as strata, the primary sampling unit equivalent to the household, and sampling weight factor (pweight) denoting the inverse of the probability that an eligible child is included in the sample in each sentinel site. Therefore the estimates using weighted data in this paper can be generated for all 4,716 eligible children aged eight in the 20 sentinel sites. The Pearson chi-squared statistic corrected for the survey design is used for categorical data, and bivariate and multivariate analysis. The descriptive results present both percentages/figures for the study sample ($n = 1,000$) and estimates of percentages/figures for the population ($N = 4,716$).

To test the association between having extra classes and child learning outcomes, multivariate analysis was used. Factors from four main variables were put into the model to control for confounding factors: (1) community: region, (2) household: wealth status, father’s education, number of persons in the household, (3) mother: mother’s education, social capital level, and (4) child: ethnicity and mental health status. Gender was not entered into the analysis as the literature

¹ In Vietnam, 8-year-old children were in Grade 2 or 3, depending on when the survey was conducted.

review suggested that there is no significant difference for enrolment at primary between boys and girls in Vietnam. This study found no significant difference either.

DOES EXTRA CLASS PROLIFERATION OCCUR?

Prevalence of extra classes

Table 1 shows that, overall, 46 per cent (95% CI[0.45; 0.51]) of in-school children in the YL sites were currently taking extra classes. The prevalence increased from seven per cent in mountainous regions to 56 per cent in rural and 58 per cent in urban areas. This difference is highly statistically significant ($p < 0.001$). A higher proportion of Kinh (majority Vietnamese) children went to extra classes than ethnic minority children ($p < 0.001$). This was consistent with ADB and World Bank research that concluded that wealthier and more urbanised students were far more likely to receive outside tutoring and additional courses (Bhushan, Bloom, Huu, and Thang, 2001).

Table 1. Prevalence of extra classes by region

Region	Prevalence of extra classes				
	Study sample (n=988)			Estimate of the Population (N=4716)	
	n	%	p-value	%	p-value
Mountainous (n ₁ = 239)	13	5.4		7	
Rural (n ₂ = 549)	300	54.6	<0.001	56	<0.001
Urban (n ₃ = 200)	123	61.5		58	
Total (n = 988)	436	44		46	
Ethnic minority (n ₁ = 117)*	3	2.6	<0.001	3.4	<0.001
Kinh (n ₂ = 871)	433	49.7		50	

* Of the three ethnic minority children, two were in mountainous Lao Cai and one in the rural Phu Yen site.

Types of subjects taken in extra classes

Of those who were taking extra classes, 90 per cent took only one kind of class, for example, either *mathematics and Vietnamese together* or *extra-curricular (so-called arts/sports) subjects* (such as dancing, swimming, singing, chess, and painting). The remaining 10 per cent took two types at the same time. Attending extra classes for mathematics and Vietnamese was the most common, accounting for 82 per cent in the study sample and 80 per cent, as an estimate for the population. One in every five children had extra classes in all the subjects taught in the curriculum at school. Only seven per cent of children taking extra classes went for extra-curricular subjects (see Table 2).

Advisers

When asked who suggested taking extra classes, caregivers (mainly mothers) reported that parents and other close relatives were most likely to have prompted children (over 60 per cent for all types of extra classes). Teachers both in and outside of the schools where the children studied were the second most common source of encouragement. Fewer than 10 per cent of children attending extra classes for all school subjects and mathematics or literature perceived a need for the extra classes themselves, but 17 per cent of children taking extra classes in arts or sport subjects *had* suggested this option themselves. The estimate for the population is 21 per cent (see Table 3).

Time spent in extra classes

Table 4 shows the average hours children spent in extra classes per week. This time varied slightly across regions, from 7.9 hours in mountainous areas to 8.9 hours in rural and 9.7 hours in urban areas, although this difference is not statistically significant ($p > 0.05$). The estimates of the population present similar means (7.8 in mountainous, 8.9 in rural and 9.5 in urban). Of the 13 children taking extra classes in the mountainous sites, only 2 were from an ethnic minority. Therefore almost all the children taking extra classes were Kinh people whose living habits and

education values did not vary much across regions. This might explain why the mean number of hours of extra classes did not vary significantly across regions. According to government regulations, students in primary education were not allowed to take more than two extra classes, equivalent to four hours, per week. In this study, 90 per cent of children who took extra classes attended for more than the stipulated hours; 58 per cent of these attended for more than eight hours a week, twice the legal duration (Table 5).

Table 2. Distribution of type of extra classes by region

	TOTAL		REGION (n=436)						p-value
	n	%	Mountainous		Rural		Urban		
			n	%	n	%	n	%	
Type of extra classes taken									
All school subjects	85	20	1	8	54	18	30	24	>0.05
Mathematics & Vietnamese	356	82	11	85	256	85	89	72	<0.05
Extra-curricular subjects	29	7	0	0	9	3	20	16	<0.001
Other subjects	11	3	1	8	9	3	1	1	>0.05
No. of extra classes taken									
One type	391	90	13	100	272	91	106	86	>0.05
Two types*	45	10	0	0	28	9	17	14	
ESTIMATE RATE OF POPULATION (N=4716)									
Type of extra classes taken									
All school subjects		20		8		19		23	>0.05
Mathematics and Vietnamese		80		85		84		73	>0.05
Extra-curricular subjects		7		0		4		12	<0.001
Other subjects		3		7		3		1	>0.05
No. of extra classes taken									
One type		90		100		90		90	>0.05
Two types**		10		0		10		10	

* No child took more than two types of extra classes.

** Taking two types of subjects at the same time meant that children had extra-curricular classes plus either all school subjects or mathematics and Vietnamese.

Table 3. Persons who prompted children to take extra classes

Type of extra class taken	ADVISERS (n = 436)							
	Parents		Teachers		Children		Other	
	No.	%	No.	%	No.	%	No.	%
All school subjects (n ₁ = 85)	56	66	21	25	8	9	0	0
Mathematics and Vietnamese (n ₂ = 356)	229	64	96	27	29	8	2	1
Arts subjects (n ₃ = 29)	19	66	5	17	5	17	0	0
ESTIMATED RATE OF THE POPULATION (N=4719)								
All school subjects		69		24		7		0
Mathematics and Vietnamese		64		27		9		1
Arts subjects		62		18		21		0

Expenditure

Table 6 shows the difference in costs that parents incurred for children's education across regions. Parents in urban areas spent around three to four times more than those in rural and mountainous areas respectively (p<0.001). The total education cost included basic school fees,² uniform, textbooks, notebooks, other school supplies and extra classes.

According to the Vietnam Household Living Standards Survey 2002, costs amount to an average of VND270000 per year for a child in primary school and around 25 per cent of this amount was for extra classes (World Bank, 2003). In this study the average estimate for the population was VND376800 and 30.7 per cent of this was for extra classes. This difference might be explained by

² Government policy was that there were no school fees, but at the beginning of the school year parents were informed about 'fees', which were described as 'voluntary contributions to the school'. Therefore, socially they were considered a kind of 'school fee'.

the fact that the YL study was designed as a sentinel site study and the sample was therefore not nationally representative and might exclude extremely poor unregistered children or those living in very remote areas (who tended to pay less for education costs).

Table 4. Mean hours in extra classes per week for children taking extra classes, by region

Region	Mean hours children spent in extra classes per week			
	n	Mean	Std. Err.	95%CI
STUDY SAMPLE^a (n=436)				
Mountainous	13	7.9	N/A	4.5; 11.3
Rural	300	8.9	N/A	8.5; 9.3
Urban	123	9.7	N/A	9.0; 10.4
Total	436	9.1	N/A	8.7; 9.5
ESTIMATE OF THE POPULATION^a (N=4716)				
Mountainous		7.8	1.6	4.6; 11
Rural		8.9	0.2	8.5; 9.4
Urban		9.5	0.4	8.7; 10.3
Total		9.1	0.2	8.7; 9.5

^a No significant difference ($p > 0.05$)

Table 5. Distribution of time in extra classes among children taking extra classes

Hours in extra classes per week	REGION (n=436)							
	TOTAL*		Mountainous n ₁ = 13		Rural n ₂ = 300		Urban n ₃ = 123	
	n	%	n	%	n	%	n	%
<=4 hours	43	10	6	46	33	11	4	3
>4-8 hours	139	32	2	15	97	32	40	33
> 8 hours	254	58	5	38	170	57	79	64
ESTIMATE OF POPULATION^a (N=4716)								
<= 4 hours		10		46		11		4
>4-8 hours		32		15		32		34
> 8 hours		58		38		57		62

^a p-value < 0.001

Table 6. Cost of extra classes (in thousands of VND) by region in 2002 among children taking extra classes

Region	Cost of extra classes (A)	Overall cost of education (B)	% (Mean A/Mean B when child taking extra class)
	Mean (VND)	Mean (VND)	
Mountainous	98.8	169.5	29%
Rural	60.0	235.2	23%
Urban	500.7	877.0	47%
Total	185.5	349.2	30%
ESTIMATE OF THE POPULATION (N=4716)			
	Mean (VND)	95%CI	Weighted % 95%CI
Mountainous	96.6	[33.7; 159.4]	29% [20; 40]
Rural	60.2	[53.2; 67.1]	23% [21; 25]
Urban	425.5	[369.5; 481.5]	44% [41; 47]
Total	191.7	[171.1; 212.2]	31% [29; 32]

The Young Lives study found that the cost for extra classes incurred by parents in urban areas was around VND425000 per year. This amount was four to seven times higher than in rural and mountainous areas. As a proportion of total education costs incurred by parents, extra classes constituted 44 per cent in urban areas, while in mountainous and rural areas the proportion was around one-quarter (23-29 per cent) ($p < 0.001$).

Were extra classes associated with good learning outcomes?

Overall most children could read, write and multiply correctly: 89 per cent, 75 per cent and 86 per cent respectively (see Table 7). When confounding factors (region, household wealth, father's education, mother's education, household size, child ethnicity and child mental health as measured by the Strengths and Difficulties Questionnaire (SDQ)) were kept constant, having extra classes was not significantly associated with eight-year-old children's writing and numeracy

(shown in Figures 1, 2 and 3). However, children taking extra classes after school were more than twice as likely to be able to read correctly than children who did not have extra classes (OR=2.2; $p<0.05$).

Table 7. Literacy and numeracy of eight-year-olds

Learning outcome index	Total	%
Reading*		
Cannot read anything	43	4
Can read letters only	34	3
Can read words only	45	5
Can read sentence	872	88
Writing		
Cannot write sentence**	82	8
Wrote with difficulty or errors	170	17
Wrote without difficulty or errors	741	75
Numeracy***		
Multiply incorrect	107	14
Multiply correct	663	86

* Sentence = It is hot in summer; ** Sentence = I like dogs; *** $2 \times 4 = ?$

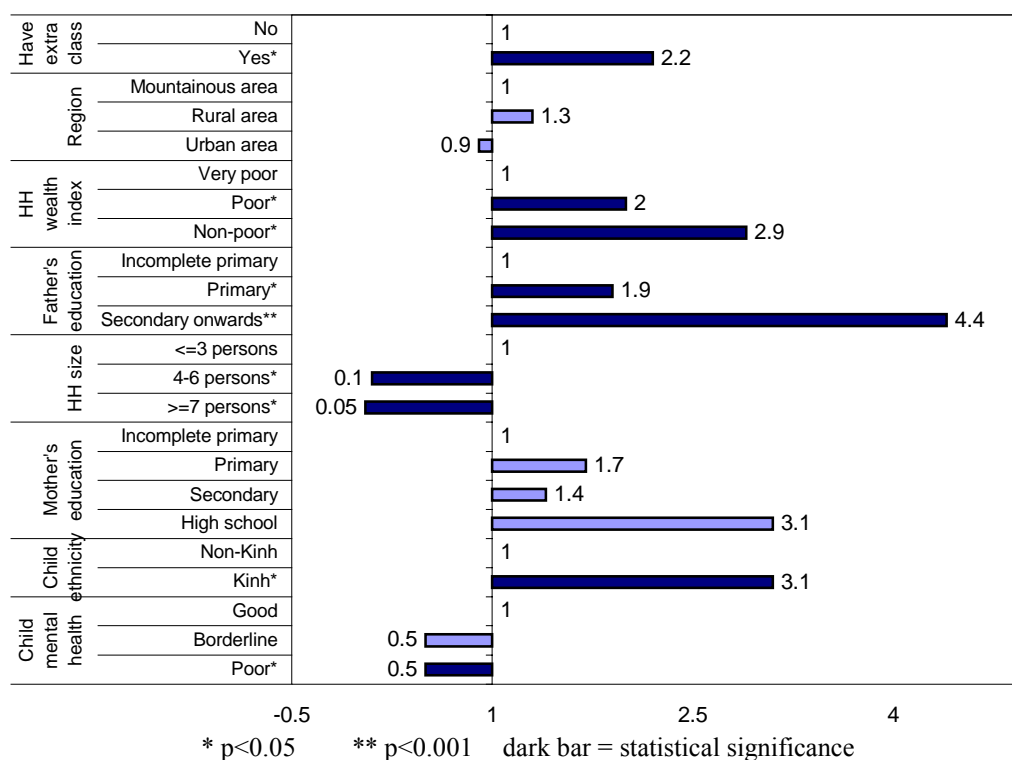


Figure 1. Logistic regression estimates of predictors of correct reading

So, if extra classes were not generally associated with learning outcomes, what was? Child mental health status was significantly associated with all three learning outcomes. Children with poor mental health were 42-58 per cent less likely to perform literacy and numeracy tasks correctly ($p<0.05$). Household wealth had a significant impact on reading and numeracy skills, with children from wealthier families more likely to read and multiply correctly. Household size is also significantly associated with learning outcomes, as the more people there are in the household the lower the chance the child can read or write correctly. However, this effect was very slight.

Other factors, such as parental education, ethnicity and region were found to have significant effects on a single outcome only. Children whose fathers completed primary and secondary school were almost twice and four times respectively more likely to read correctly. They were almost three times more likely to write correctly if their father had completed secondary school

($p < 0.001$). No significant association between father's education and child numeracy was found. Children whose mothers had completed primary school were nearly twice as likely to read correctly although statistical significance was not found. No significance was found for writing or numeracy. Kinh children were three times more likely to read correctly than non-Kinh children, which might be explained by the fact that reading materials in school were in Kinh and not their mother tongue. They therefore had to make more effort to learn to read than those learning in their mother tongue. No significant difference was found regarding writing or multiplication. Regarding region, children living in urban areas were twice as likely to be able to multiply correctly than children living in mountainous and rural areas ($p < 0.05$). The study did not find a significant effect between region and child reading and writing abilities when other factors were controlled.

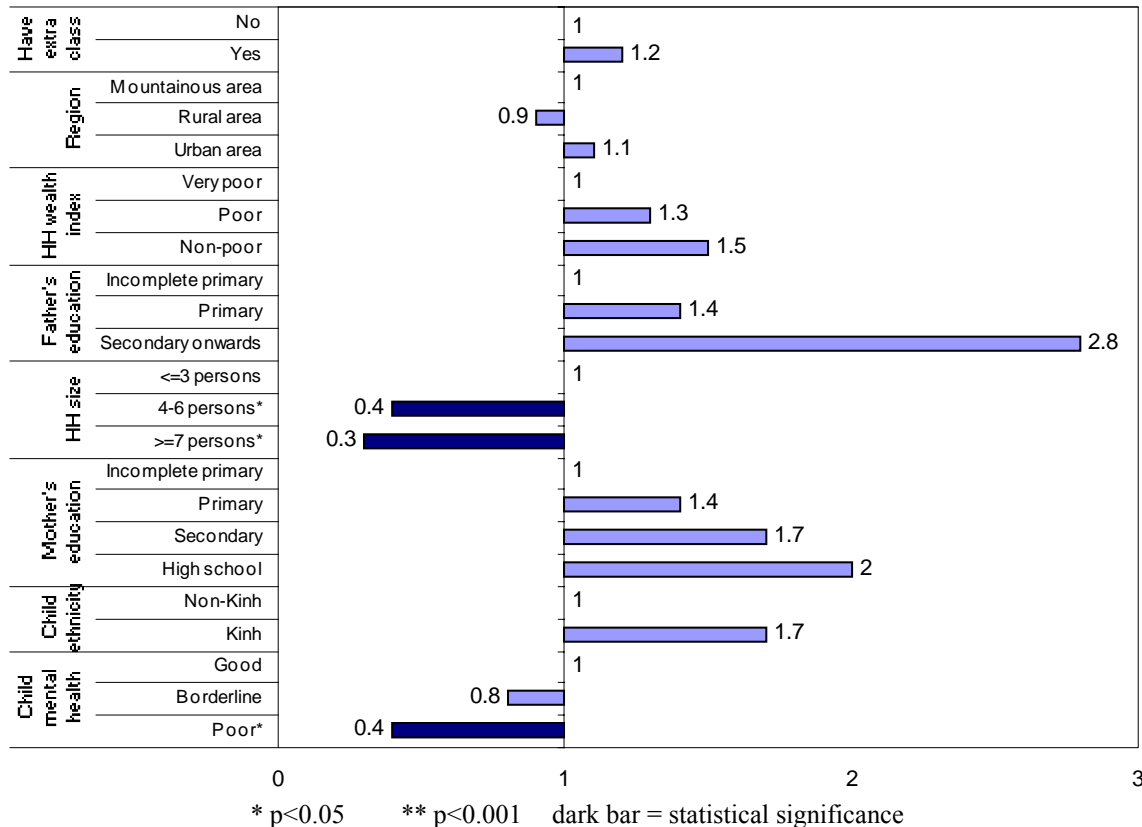


Figure 2. Logistic regression estimates of predictors of correct writing

DISCUSSION

Although the government launched *Decree No. 242-TTg* in 1993 banning the proliferation of extra class provision, and circulars (Government of Vietnam, 1993) providing guidance on the control of extra classes, such high prevalence (46 per cent) of children taking extra classes after school is very serious. However, a limitation of this study is that we did not ascertain whether children were taking extra classes in order to catch up with their peers and because they were exceptionally talented students, or for one or more of the illegal reasons considered in the introduction. Thus, we cannot identify the true rate of illegal classes occurring in this sample. Nevertheless, the high prevalence of extra classes might reflect the fact that full-day schooling had not yet been widely implemented in Vietnam, and society in general, and parents in particular, were spontaneously adjusting to overcome the weaknesses of the current primary education system.

So what are the weaknesses of the system? A transparent, standardised system of pupil assessment based on age and appropriate goals has not yet been developed. Therefore the situation has created what might be regarded as 'false' educational needs, whereby children have to take extra classes

in order to attain the same level as classmates of the same age, under pressure from teachers and parents. Nevertheless, extra classes were not found to have a significant association with child learning outcomes in writing and numeracy. The improvement in reading rates associated with extra classes arguably did not compensate for the associated pressure on the child, the lack of time for recreation, and the lack of time for self-education.

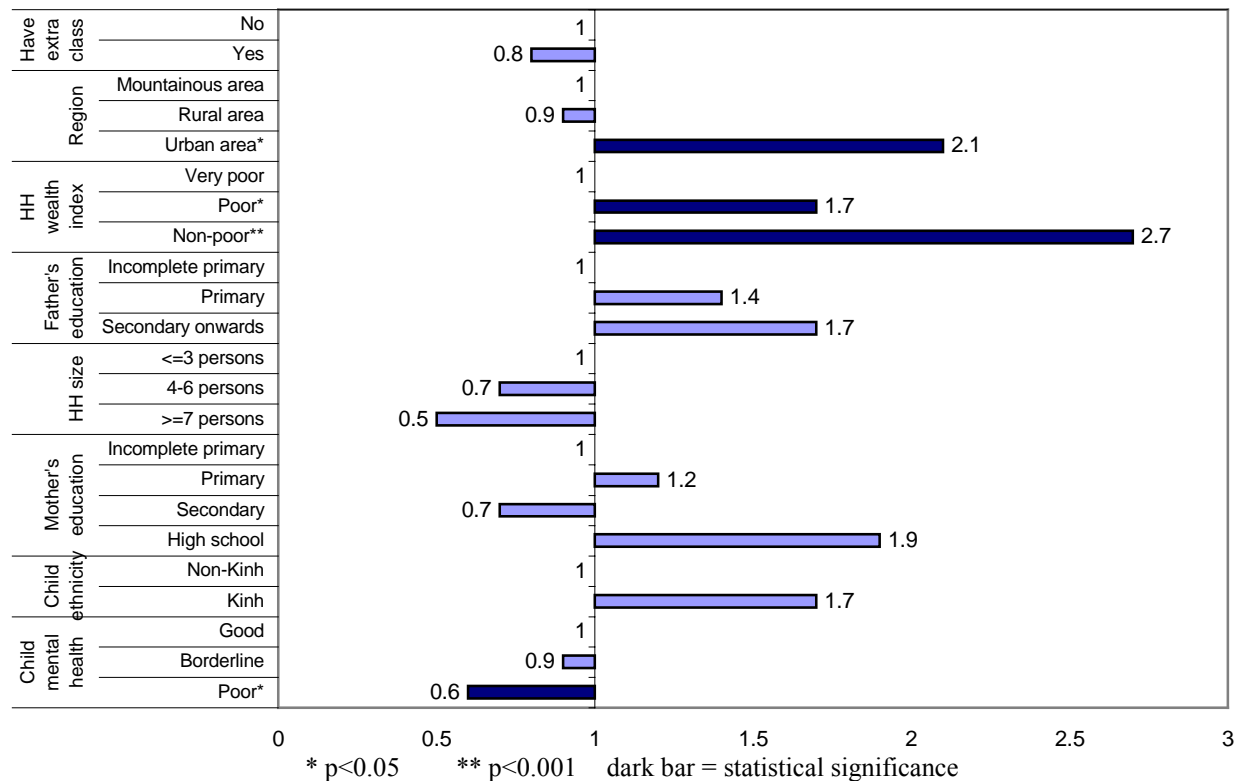


Figure 3. Logistic regression estimate of predictors of correct numeracy

To eliminate extra classes, first, social perceptions of extra classes and their effectiveness need changing. It is necessary to help parents understand and engage with the government’s education policy, understand Ministry of Education and Training (MoET) requirements and the true value of extra classes. In order to do that, there should be more independent research results conveyed to the public via various channels. It is also vital to do research in which children’s voices about whether extra classes do or do not help children learn better should be gathered and disseminated to the public. Second, the government in general and the education sector in particular could perhaps focus on full-day schooling implementation for primary children and a promulgation of a transparent, standardised system of pupil assessment based on age and textbook. In addition, the MoET and the government need to manage teaching in both public and private schools, establishing high cash penalties or dismissing from the education sector anyone who insists on providing illegal extra classes for cash generation. While it is debated whether teachers continue provision of extra classes at home due to low salaries, it is worthwhile to review and develop an appropriate teachers’ salary and incentive scheme in order to ensure that teachers receive an adequate income from legal academic classes.

This study suggests that extra classes may be necessary for ‘catch-up’ children but should not be the norm for a generation of primary children. This will reduce costs and pressure, not only on children but also on their parents. Once the artificial extra classes are controlled, extra classes might truly help vulnerable and slow children to catch up with their peers and pass grades. The broader finding that poor children suffer poorer learning outcomes calls for more equity in both the provision and the quality of primary level education.

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The impact of ICT on learning: A review of research

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Since its introduction to the education arena in the 1960s, computers have both intrigued and frustrated teachers and researchers alike. The many promising prospects of computers and its applications did not materialise, and research into their effectiveness in learning has left many unanswered questions. The methods used in educational research of this nature in the past and present have evolved over the years. Quantitative studies such as meta-analyses are still widely used in the United States while recent large-scale research in United Kingdom used a combination of quantitative and qualitative methods. Findings from these research studies have indicated small positive effects and consequently a need for more in-depth and longitudinal studies into the impact of ICT on learning in the future.

ICT, qualitative analysis, quantitative analysis, meta-analysis, learning

INTRODUCTION

With the introduction of computers, the precursor of our modern-day ICT, and the promising potentials of computer-based instruction and learning, many researchers and funding agencies were led to invest much of their resources to investigate the possibility of computers replacing teachers in key instructional roles (Roblyer, Castine and King, 1988). Moreover, the 'Everest Syndrome' (cited in Roblyer et al., 1988, p. 5) also resulted in many believing that computers should be brought into the education arena simply 'because they are there' and the resultant perpetuation of the myth that students would benefit qualitatively from computers by simply providing them with the software and hardware.

However, this initial enthusiasm and novelty effect began to diminish as the realisation that the fulfilment of the promises and beliefs was not forthcoming, became increasingly evident.

Reynolds (2001) in his keynote presentation on 'ICT in Education: The Future Research and Policy Agenda' lamented that

.... we are trapped in a cycle of classic innovation failure – a low quality implementation of a not very powerful new technology of practice produces poor or no improvement in outcomes, which in turn produces low commitment to the innovation and a reluctance to further implement more advanced stages of the innovation...that are more likely to generate the improvement in outcomes that would produce the commitment to ICT utilisation. (Reynolds, 2001, p.2)

SCOPE OF REVIEW

This review seeks to examine and understand the methodology used by researchers to study the impact of ICT on learning. The findings from these research studies will help to evaluate its effectiveness on students' learning outcomes and implications for education and further research. Most of the studies reviewed are limited to the United States and the United Kingdom, where

research in this field has been more consistent and well documented. Two periods of research have been suggested in this review.

- (a) Research findings and their implications from 1960s to 1980s;
- (b) Research findings and their implications from 1990s to 2000s, and future research.

METHODS OF ANALYSIS

The Qualitative Approach

In-depth case studies of small groups of learners are usually the norm in qualitative methods of research. Detailed records of ICT-related activities, as well as the learning taking place, are essential as they are necessary for the identification of relationships between them. However, because of the group size being investigated, it is often difficult to generalise any findings from such studies as they are not representative of the whole school population or community.

The Quantitative Approach

The quantitative approach often involves an experimental (or treatment) and a control group. The experimental group is directly involved in the ICT-related learning activities while the control group learns using the traditional method. Both groups are tested before and after the experiment and sometimes, a delayed test may be given to determine the retention rate of the learning. One of the limitations of the quantitative approach is that other factors, such as a novelty effect involving increased enthusiasm of teachers and students, may be unconsciously introduced to confound the results of the experiment.

The Quantitative-Qualitative Approach

In combining both qualitative and quantitative methods, a greater degree of accuracy and validity in the results of studies is obtained, thus strengthening the findings and implications put forward by the researcher. Two methods of this combined study have been advocated. The first method involves the conducting of a large-scale quantitative study, followed by case studies of in-depth investigation (Becta, 2001; Cox, 1993). The second method is a well-established approach known as meta-analysis. In this method, a large number of published case studies of similar characteristics are collected and comparative analysis made to identify relationships between these variables. Since its inception, researchers have consistently used this method to investigate and evaluate data in their research. This method is described in greater detail in the next section.

THE META-ANALYSIS METHOD

The meta-analysis technique was pioneered by Glass (1977) and later adopted by many reviewers (Cohen, 1981; Kulik, Bangert and Williams, 1983; Roblyer, 1988) in their research. Meta-analysts (Kulik et al., 1983) normally used a quantitative approach to their studies incorporating three main tasks:

- (a) objective procedures to locate studies;
- (b) quantitative or quasi-quantitative techniques to describe study features and outcomes; and
- (c) statistical methods to summarise overall findings and to explore relationship between study features and outcomes.

The procedures involved, as used by Kulik and his associates (Kulik, Kulik and Cohen, 1980), are briefly described.

1. A large number of studies that examined the effects of computer-based instructions are collected from different databases.
2. Guidelines are used to sieve through the studies collected and those that fail to meet the criteria are removed. Each study is counted once even when it is presented in several papers.
3. Variables and categories for describing features of the study are developed; Experimental and control groups are taught during the same period and objective examinations are used as the criterion of student achievement. Attitudes toward computers, subject matter and instruction are based on self-report responses to questionnaire items or scales.
4. To quantify outcomes in each area of study, the *Effect Size (ES)* is used. The effect size is defined as the difference between the means of two groups divided by the standard deviation of the control group.

$$\text{Effect Size} = \frac{\bar{X} - \bar{C}}{SD_c}$$

where \bar{X} is the mean of the experimental group, \bar{C} the mean of the control group and SD_c is the standard deviation of the control group.

An extract of the results obtained in the study by Kulik and his colleagues (Kulik et al., 1980, p. 23) is shown in Table 1.

Table 1. Means and standard errors of achievement effect sizes for different categories of studies

Coding Categories	Number of Studies	Effect Size	
		Mean	Standard Error
Managing	11	0.33	0.12
Tutoring	11	0.36	0.18
Simulation	5	0.49	0.33
Programming	8	0.20	0.08
Drill and Practice	11	0.27	0.11

In order to include the impact of the given effect's size, Cohen (1977, p.184-185) gives the following guidelines for effect size:

ES of 0.2 or less = small effect

ES of 0.5 – 0.8 = medium effect

ES of 0.8 or more = large effect

5. Finally, the direction and significance of differences in instructional outcomes between the control and experimental groups were also examined and scored using a four-point scale (see Table 2).

Table 2. The four-point scale

Scale	Difference Outcome	Statistically Significant
1	Favoured Conventional Teaching	Yes
2	Favoured Conventional Teaching	No
3	Favoured Computer-Based Instruction	No
4	Favoured Computer-Based Instruction	Yes

6. As correlation between the effect size and the four-point scores is usually high, regression equations are used for 'plugging' effect-size measures for cases with missing data.

RESEARCH (1960s – 1980s)

Many studies were conducted in the past to evaluate the effectiveness of computers in the learning environment. The earliest took place in the 1960s and 1970s when researchers introduced pupils to educational software in a university environment (Cox, 2003). In those studies, learners did not use ICT in a normal classroom setting or within their subject curriculum, but were using software specifically designed to address specific conceptual difficulties in subjects such as science or mathematics. Other studies in the 1970s measured the impact of learning through traditional pre- and post-tests using experimental and control groups. Their performance was usually assessed by the conventional end-of-year examinations.

Box Score Method

In the early years of research, there was no reliable procedure for the reviewing of studies (Roblyer et al., 1988). As such, the so-called box score method was the only available method and it involved the following steps:

- collect all the experimental and evaluation studies;
- examine each study to determine the significant difference between the experimental and control studies;
- count the number of studies which did and did not find such differences.

In the area of instructional computing, the box score method of summarising results was especially problematic where differences in treatment effects were rarely large enough to reject the null hypothesis and most studies tended to show non-significant differences. Edwards et al. (1975) completed a review on computer-assisted instruction using the true box score. They located some 30 studies and coded them for type of CAI, subject area, grade level, supplemental or replacement use, and results. Their findings indicated that CAI was more effective at elementary levels, and for supplemental use. It was also equally effective individual tutoring and programmed instruction, and found to reduce learning time.

Major Studies (1960s – 1980s)

Unlike today, computers were not as widely available in the early days of microcomputers. In spite of this limitation, a few major researches were advanced especially in the area of technology-intensive programs. Some of these studies are highlighted below.

The Los Angeles Unified School District Study

The Los Angeles Unified School District used the Computer Curriculum Corporation (CCC) program for its study in six of its schools in 1976. The CCC curricula used included drill and practice activities in mathematics (Grades 1-6), reading (Grades 3-6) and language arts (Grades 3-6). Pre- and post-tests were used to measure achievements. Of the six schools, four received computer-assisted instruction while two acted as control. Within the CAI schools, alternate groups of students either received CAI or acted as controls (did not receive CAI).

The schools under study had to use the system for drill 10 minutes each school day. Over 2000 students were involved in the study for a three-year period. The final results showed effect sizes of 0.45 for mathematics computational skills, 0.10 for mathematics concepts and applications and 0.15 for reading and language.

Project IMPAC

Four different set-ups were used in this project known as IMPAC (Instructional Microcomputer Project for Arkansas Classrooms) (McDermott, 1985). The set-up was to allow the use of a computer by each student for a certain period of time each day or week. The arrangements were as follows.

- Three types of software were loaded into four microcomputers. Students used the four microcomputers from three to ten days in a ten-day cycle for about 12-20 minutes.
- Eight microcomputers in a network were placed in classrooms where teachers worked with two or three mathematics groups. Two comprehensive mathematics packages were used. The usage by the students was similar to the first group.
- Twenty-four microcomputers were placed in a classroom. Students were brought to the classroom and used the computers for 15-25 minutes each day for eight days out of ten. Students used the same software as that used by the second group.
- Eight computers were networked and a locally-developed software package was used to monitor student progress. Computer-aided instruction was used to supplement the traditional mathematics program. The same time schedule was used as that used by the second group.

Effect sizes of 0.02 to 0.62 were reported for the study, with the most favourable results coming from the last group where traditional instruction was supplemented by computer-aided instruction.

Minnesota Technology Demonstration Program

This was a major two-year study of microcomputer use with Grade 4 to 6 students in Minnesota schools. Over 20 per cent of Minnesota school districts were involved and both microcomputer and video-based technologies were used. The computer to student ratio was very favourable and computer software was selected and used extensively and systematically based on skill needs (Morehouse, 1987).

The final results indicated that the average effect sizes achieved in mathematics, reading and language were -0.09 to -0.31 , a rather disappointing finding after much initial enthusiasm and optimism from the participating teachers.

Meta-analysis studies by Kulik

In 1983, Kulik and his colleagues (Kulik et al., 1983) conducted a meta-analysis of 51 independent evaluations of computer-based teaching in Grades 6–12 and found that computer-based teaching raised students' scores on final examinations by approximately 0.32 standard deviations, or from the 50th to the 63rd percentile. Smaller, positive effects on scores were also evident on follow-up examinations several months after the instructions. In addition, they also discovered that students developed positive attitudes toward the courses that they were taking and learning time was substantially reduced with computer-based instruction.

In an updated analysis of the effectiveness of computer-based instruction, Kulik and Klulik (1991) conducted findings from 254 evaluation studies based on studies prior to 1990. The outcomes measured were:

- student learning;
- performance on a follow-up or retention examination;
- attitude toward computers;
- attitude towards school subjects;
- course completion; and

- amount of time needed for instruction.

A total of 248 of the 254 studies reported results from CBI and control groups on examinations given at the end of instruction. In 202 of these studies, the students in the CBI had the higher examination average while 46 of them showed that students in the conventionally taught class had the higher average. The difference in the examination performance of the CBI and control students was reported to be significant in 100 studies.

The average effect size was 0.30 with a standard error of 0.029, again confirming his earlier findings. This means that the performance of the CBI students was 0.30 standard deviations higher than the performance of the control students. In other words, the average student from the CBI class would outperform 62 per cent of the students from the conventional classes.

Past Reviews, Findings and Implications

In their review, Roblyer et al. (1988) made comparison studies before and after 1980 and presented their findings. In the pre-1980 studies, nearly all the estimated 200 studies indicated positive evidence that computer-based treatments offered some benefits over other methods, although a clarification was that there were few clear disagreements among the reviews. A summary of the findings indicated:

- reduction in learning time;
- limited improvement in motivation toward learning;
- computer-based treatments were generally effective in mathematics and reading/language;
- computer-aided learning (CAI) was more effective as a supplement at lower grade level;
- slow learners and under-achievers seemed to gain from computer-based methods than more able students.
- computer-based methods are generally more effective at lower grade levels. Effectiveness of computer-managed instruction (CMI) seems to increase at higher grade levels while CAI effects seem to decrease at higher levels.

For the post-1980 review (Roblyer et al., 1988), positive effects were for achievements in every analysis of the 85 studies except for ESL, problem-solving CAI, achievement in females and attitudes toward computers as instructional media. The review concentrated on five main areas as shown below.

- *Attitudes* – Only three studies with available data were used in the review and all showed a consistent positive trend towards computers.
- *Content Area* – Computer application was most effective for Science, followed by Mathematics, Cognitive skills and Reading/Language.
- *Application Type* – Analyses were made for Reading and Mathematics due to sufficient numbers of data and both were found to be equally effective.
- *Grade Level* – Of the three levels, effectiveness of CAI was highest for college/adult level (ES = 0.57), while that of the elementary and secondary levels recorded effect sizes of 0.32 and 0.19 respectively.
- *Types of Students* – There was indication of greater effectiveness of computer application with lower-achieving students than with regular, on-grade students though the difference in effects was not significant.

Recognising the need and urgency for research in this field as its priority seemed to be losing grounds, Roblyer et al. (1988) called for a change in the perception about the value of behavioural research in several ways.

- Educational organisations must change their perspectives on research, accept it as a requirement for development and growth, and give it a funding priority along with hardware and software.
- Funding agencies must accept the need for more and better research in instructional computing methods, provide the funds to support it, and solicit ongoing research projects to answer key questions.
- Practitioners must begin to rely on the results of research to indicate the validity of their beliefs and hypotheses, and insist that their organisations provide the data that are needed.

Further research on different areas was also encouraged in the light of the findings. These areas of research are listed as shown:

- application in various skill and content areas;
- computer applications in ESL;
- word processing use;
- creativity and problem-solving with Logo (a programming language) and CAI;
- effects of computer use on attitudes and drop-out rate;
- effects of computer use on achievement of males vs females.

RESEARCH (1990s – 2000s)

Much educational research on ICT has been conducted over the past ten years, with more large-scale studies evidently from the United States and the United Kingdom though there are reports of research in different parts of Europe. Literature reviews in this field are important not only to educators but to policy makers who are usually reluctant to fund large-scale longitudinal studies. Yelland (2001) reported the need for such funding in Australia to support a variety of research studies which should include a mixed-method research design (Yelland, 2001, p. 36).

Such research would recognise positive effects and identify any negative influences. In this way we could determine how best to promote effective learning so that outcomes are improved.

American Studies

Though American educational research has always been in the forefront, its educational system has been heavily criticised by the American public over the past several decades (Christmann, 2003). Contributing significantly to the criticism of the public schools is the dismal placement of the nation's mathematics and science students within the global hierarchy, for example The Third International Mathematics and Science Study (TIMSS). In response to the public outcry and criticisms, the schools are incorporating CAI into their curricula in efforts to enhance student achievement.

In order to answer the question, "What differences exist between the academic achievement levels of elementary students who were exposed to computer-assisted instruction, and those who were not exposed to this instruction during consecutive years?", Christmann (2003) conducted a meta-analysis of 1800 studies for students (in grades K through 6) adopting the following criteria.

1. They were conducted in an educational setting;

2. They included quantitative results in which academic achievement was the dependent variable and microcomputer-provided CAI was the treatment.
3. They had experimental, quasi-experimental or correlational research designs.

The sample sizes had a combined minimum of 20 students in the experimental and control groups.

Only 39 out of the 1800 studies qualified for the final inclusion in the research. A total of 8274 students were involved, with sample sizes ranging from 20 to 930 and a mean sample size of 122 students. The result of the test recorded a mean effect size of 0.342, confirming that higher scores were attained by students receiving CAI, though this effect is considered small (Cohen, 1977).

In another meta-analysis study on the effectiveness of CAI on student achievement in secondary and college science education was compared to traditional instruction, Byraktar (2001/2002) reviewed 42 studies between 1970 to 1999. In calculating the effect size, she used the formula devised by Hunter and Schmidt (Hunter, 1990) where a pooled standard deviation is used instead of the standard deviation of the control group as developed by Glass (1977).

In the final analysis, only one of the 42 studies showed no difference between CAI and the traditional instruction group ($ES = 0$). The range of the ES was from -0.69 to 1.295 . The mean effect size was 0.273 which can be interpreted as an average student exposed to CAI exceeding the academic achievement of 62 per cent of the students in the traditional classroom.

Waxman and his associates (Waxman, 2003) from the University of Houston synthesised recent research on the effects of teaching and learning with technology on student outcomes. This quantitative study sought to investigate the following questions:

- How extensive is the empirical evidence on the relationship between teaching and learning with technology and student outcomes?
- What is the magnitude and direction of the relationship between teaching and learning with technology and student outcomes?
- Are there certain social contexts or student characteristics that affect the relationship?
- Are there particular methodological characteristics that affect the relationship?
- Are there specific characteristics of the technology that affect its relationship with student outcomes?
- Are there specific characteristics of instructional features that affect technology's relationship with student outcomes?

The synthesis included quantitative, experimental and quasi-experimental research and evaluation studies during a six-year period (1997-2003). The study also focused on studies that have teaching and learning with technology in K-12 classroom contexts where students and their teachers interact primarily face-to-face, compare a technology group to a non-technology comparison group and have reported statistical data that allowed the calculation of effect sizes. Using these criteria, the study was trimmed down from an initial size of 200 to 42. The final study contained a combined sample of about 7,000 students with a mean sample number of 184. The mean of the study-weighted effect sizes across all outcomes was 0.410 ($p < 0.01$), with a confidence interval of 0.175 to 0.644 . This result indicated that teaching and learning with technology had a small, positive, significant effect on student outcomes when compared to traditional instruction.

British Studies

In Britain, the National Council for Educational Technology (NCET) and its successor organisation, British Educational Communications and Technology Agency (Becta) have taken

large and bold steps in such educational research. During the mid-1990s, the United Kingdom government invested in a large-scale evaluation of integrated systems (Cox et al., 2003). The first report released by NCET was positive and found that children had made learning gains in mathematics, although not in reading. A second report identified the transferability of learning gains. The final report made an important reservation that the gains did not appear to be automatically transferable. The researchers also reported that the software used was mainly seen by pupils and teachers as being successful in teaching core mathematical and English skills but not all such successes were measurable through the subsequent tests or examinations (Wood, 1999). Effects on motivation and behaviour were marked but there was no evidence that they transferred to other context.

Two more large-scale projects by Becta, *Impact* and *Impact2* were initiated to examine the impact on ICT and attainment by students.

Impact Project

This United Kingdom project developed a range of assessment methods based on those used by previous large-scale projects, as well as new ones which were specifically designed to measure attainment in conceptual understanding and intellectual processes (Watson, 1993). These included:

- different subject- and topic-based tests, conducted over two years, testing pupils' subject knowledge at the beginning and end of the period;
- a series of linked case studies to investigate the effects of teachers' pedagogies on pupils' use of ICT and the consequent learning outcomes; and
- a study of the uptake and use of ICT by all the teachers and pupils in the study, which involved new data-collection instruments, including pupils' record sheets (collecting data on the types of ICT use and where this occurred).

In this study, there was evidence of a positive contribution to attainment in English, with a statistically significant effect of using word processing for pupils aged 8-10 years but only a partial non-significant effect for pupils aged 12-14 years. The pupils' English was assessed through various essay-writing tasks, which were graded by two independent English teachers. The quality of the essays was also assessed through measuring the rates of cohesion and coherence in the pupils' texts and the errors in spelling. The main finding from the study of primary pupils was that the frequency of use of ICT in their English lessons affected their achievements in English. There was a positive contribution from the use of word processing in the 'high IT' primary classes. When pupils composed directly with word-processing facilities, they were more prone to summarise and remove redundant information. At the secondary school level, the results were less conclusive, partly because of poor returns on the English essays and because of the limited use of ICT in English lessons.

In mathematics, pupils aged 8-10 years and 14-16 years in classes which were using Logo (a programming language) and subject-based mathematics software achieved statistically higher scores in tests than those pupils who were taught similar concepts through traditional methods. The results provided significant evidence of a positive impact of ICT on pupils' learning in mathematics where ICT were being integrated into the mathematics curriculum. The project's mini-studies provided additional evidence of positive effects of ICT on attainment in mathematical reasoning using Logo and boolean logic skills using databases.

ImpaCT2 Project

ImpaCT2 was one of the most comprehensive investigations into the impact of ICT on attainment conducted in the United Kingdom (Harrison, 2001). This large-scale evaluation study, was funded by the Department of Education and Skills and managed by Becta. The study extended over three years (1999-2002) and its purpose was to make an independent evaluation of the impact of ICT on children's achievement in a representative sample of schools in England.

ImpaCT2 was a longitudinal study involving 60 schools in England and its aims were to:

- identify the impact of networked technologies on the school and out-of-school environment;
- determine whether or not this impact affects the educational attainment of pupils aged 8-16 years;
- provide information that would assist in the formation of national, local and school policies on the deployment of ICT;
- devise methods of assessing pupils' attainment; and
- devise a framework for measuring the ICT environment.

This study combined both traditional and new research methods on a very large sample of more than 2000 pupils. Two preliminary studies were carried out in 1999 to determine the appropriate methods for measuring the impact of ICT.

The sample studied was 2,179 pupils in 60 schools, of which 30 were primary, 25 secondary and five were special schools. The selected schools represented pupils from different socio-economic groups in the urban, suburban and rural areas of England. The schools were divided into two groups: one group having a high quality of ICT provision and the second group having an average ICT provision. In each school, teachers selected 25 pupils from each key stage (KS) as a representative sample of the children in their schools in terms of ability, gender, ethnicity and socio-economic status. Data were collected on 25 pupils from each key stage.

- KS2 (Year 5 in 1999/2000);
- KS3 (Year 8 in 1999/2000);
- KS4 (Year 10 in 1999/2000).

Three strands of analysis were incorporated into the study:

- Strand 1 : analysis and interpretation of national test data in relation to school rating for ICT;
- Strand 2: development and use of innovative research methods to reveal how pupils use ICT out of school; and
- Strand 3: independent Triangulated Case Studies.

In Strand 1, historical test data for individual pupils was extrapolated to indicate predicted performance. Actual performance was then compared with the predicted test results. The purpose of this analysis was to measure whether effective use of ICT by a school could enhance pupils' attainment. In Strand 2, teacher researchers, pupil researchers and link (professional) researchers gathered data on ICT activities outside the school. In addition, a pupil questionnaire and a concept mapping task were used to gather information and data from the pupils involved in the project. In Strand 3, an independent team of researchers from the University of Leicester carried out 15 case studies of a representative sample of primary, secondary and special schools. The techniques involved the use of video diaries and electronic journals of ICT practice created by pupils and teachers.

The study reported mixed results for the effects of ICT on pupils' attainment in English. At the primary level, there was a statistically significant impact of ICT on the KS2 English tests but not at KS3 or KS4 (Harrison, 2002). Case studies also showed the predominant use of ICT in English was for word processing (Comber, 2002).

Evidence from the study showed that ICT had a positive relationship to pupils' learning of mathematical skills and the results varied according to the amount and type of use of ICT in the mathematics curriculum. High users of ICT at KS3 outperformed, on average, low users of ICT in mathematics, but differences at KS4 were slight. However, this aspect of the research was designed to establish whether correlation existed between ICT use and attainment and not to establish causal relationships.

The relationship between ICT use and attainment in KS2 was least marked in science, failing to reach statistical significance. However, findings at both KS3 and 4 indicated statistically significant positive associations between the level of ICT use and pupils' attainment and showed an enhanced performance.

Findings and Implications

Meta-analysis studies of America schools generally showed a positive trend in the achievement of students when ICT is employed (eg Christmann, 2003, Bayraktar, 2001/2002, Waxman, 2003). In her studies, Bayraktar (2001/2002) found that computers were more effective when used in simulation or tutorial modes and CAI was more effective when computers were used individually by students. She suggested that tutorial and simulation CAI programs could be used in science classrooms to enhance student learning and classrooms should have sufficient computers for students to work individually. Furthermore, the studies showed that CAI was more effective when used as a supplement to traditional instruction rather than as a substitute. Therefore, the use of ICT in conjunction with other teaching strategies could be more beneficial for student learning. Another important finding revealed that teacher-developed programs were more effective than commercial software programs. Consequently, more attention should be devoted to specific educational objectives and curriculum goals when designing software for higher levels of effectiveness.

In ImpaCT2, the findings (Harrison, 2002) indicated that a diversity of pupils were learning with ICT. There was evidence that some pupils were gaining benefit at all the key stages investigated. Evidence from the qualitative strands of the research strongly suggested that impact on the curriculum was greatest when pupils' use of ICT was fully integrated across the curriculum as a whole through both classroom and home-based activities. Although the findings from the study covered many areas, only aspects relating to the learning and ICT are listed as shown.

- Positive effects on school achievement for higher usage levels of ICT (based on pupil estimates of ICT activity) were found both at the level of the individual pupil and at the level of the school, although these were not large.
- The relationship between levels of ICT usage and effectiveness was not consistent across all key stages and subject areas at the school level.
- In none of the 13 comparisons was greater use of ICT associated with poorer outcomes, whether in terms of relative gains or in terms of examination results
- Pupils are engaging in innovative uses of technology often outside the school context and are acquiring a complex range of skills and literacies in networked ICT, including a range of on-line social and communication skills.

- Many pupils have developed a complex understanding of the role of computers in the world today including a wide range of equipment and locations in which such technologies are used.

In view of these findings, some issues are being considered in the school context (Harrison, 2002).

- The acceptance that networked technologies in schools are inevitable and beneficial is almost universal among teachers. However, many of them are as yet unsure as to the impact of ICT on attainment, although they acknowledge other benefits such as increased motivation and improved behaviour. ICT is perceived to be particularly beneficial for pupils with special educational needs.
- Schools should concentrate their attention on using ICT in the teaching of curriculum subjects as an aid to improve attainment.
- Strategies for effective use of ICT resources, particularly searching on the Internet and use of ICT to support homework are still in development.

FUTURE RESEARCH

There is clear evidence from the present findings that ICT has a positive, although small effect on the learning of students. Most researchers appear optimistic about the roles that ICT will play in the school environment in the future though some have their reservations. In his concluding remarks, Christmann (2003) wrote:

.... more research is needed to test the lofty expectations that many have CAI as the basis for educational achievement. Otherwise, CAI may become another misunderstood, overbought, under-used, and, eventually, a large discarded tool.

Indeed, with their updated knowledge and acquired experience on ICT, researchers are even keener to investigate thoroughly its effectiveness on learning, acknowledging that its continuing existence in schools is inevitable. Increasingly, there appears to be an underlying call for large-scale and longitudinal study of ICT and its impact on learning worldwide.

Based on evidence gathered from published research studies, especially in the context of ImpaCT2 findings, Cox (2003) in her report to the Department for Education and Skills, Becta, recommended five key areas of priorities for future research.

1. A need for more long-scale studies in order to:
 - measure attainment which is sustained over a long period (at least two to three years);
 - find out what specific uses of ICT have on the learning of concepts and skills in specific topics and subjects;
 - monitor and assess the whole learning process;
 - compare the effects of different uses of ICT on the learning of the same subject;
 - measure the effects of the use of ICT on the curriculum, and consequently on the learning of the pupils; and
 - identify appropriate methods for measuring the effects of specific use of ICT to take account of new ways of learning and new knowledge.
2. Research needs to be conducted to measure how informal learning experiences contribute to the whole learning process and thereby affect learners' achievements.
3. New methods of measuring attainment need to be developed.
4. More research needs to be conducted into the effects of specific uses of ICT on pupils' approaches to learning generally, on their meta-cognitive skills and on their long-term learning strategies.

5. A more extensive review of the literature would provide more substantial evidence of the effects of specific uses of ICT on pupils' learning.

Australian Research Perspective

Over recent years, there were various Australian initiatives and research in the area of ICT, generally qualitative in nature. In 1999, a commissioned study (Downes, 2001) was conducted on the educational use of the internet with children eight years and under. The data for the study were obtained through literature review, a one-day workshop, telephone discussions, two observation/discussion sessions with children, a focus group of parents and telephone and/or email discussions. Findings indicated the need for sound pedagogical framework in the use of digital resources so as to ensure their effective use with young children.

In addition, Netdays Australia 2000 (Carr, 2002) was a case study involving 60 teachers and 342 schools around Australia and 15 classes in overseas countries. Its aim was to examine the teacher's role in an online curriculum project. The data provided by the teachers were gathered through three surveys and a detailed report from 14 teachers who successfully implemented the online project. The main learning outcome for students was to recognise, promote and celebrate cultural diversity. However, there were no guidelines in assessing students in the online projects and teachers had to develop their own criteria for the evaluation of their students' work. Six pedagogical traits were identified from the study.

- Teachers saw themselves as learners with their students and managers of their students' learning.
- The technology matched the needs of the students and the project.
- The teachers structured the activities so that support was provided in different areas as the project grew.
- The teachers were totally committed to the project.
- The teachers had in place common management strategies.
- The students felt ownership of the project.

In a joint investigation by the Deakin Centre for Education and Change, The Institute of Koorie Education and the Institute of Disability Studies at Deakin University, Blackmore and her colleagues (Blackmore et al., 2003) reported that there was a lack of evaluation of effective practice using ICT in schools. Although 'no research was undertaken in schools' (Blackmore et al., 2003, p. i), their report was developed through:

- workshops with a reference group that developed the conceptual framework and identified key words,
- focused discussions between researchers in specific areas,
- contact with teacher networks,
- contact with ICT policy personnel in state educational systems,
- reference list of 1000 items, and
- 200 websites.

The report also suggested that "there is still little evidence about how it (ICT) impacts on cognitive learning outcomes" (Blackmore et al., p. 209/210).

Paris' (2004) latest work involved 52 Year 10 students from South Australia. The study was to examine students' attitudes towards online web assisted learning (OWAL). Using data collected through questionnaires, one of the findings was that students showed a strong positive tendency towards OWAL compared to paper assisted learning, that is the use of text.

However, these Australian studies do not seem to address the basic question, "How can we measure the effectiveness of ICT on students' learning outcome?" Consequently, there would appear to be a major need for an approach to the studies of ICT in Australia that emphasise both the quantitative and qualitative aspects. The findings would then lead to more effective teaching and learning for students, which is the chief aim of education.

Yelland (2001) stressed the need for an Australian research on the impact of ICT on learning, especially with regard to literacy and numeracy outcomes and the concept of multi-literacies that incorporate the use of ICT. This need arises from the fact that the majority of influential studies relating to ICT originate from the United States and more recently the United Kingdom. She felt that a quality Australian-based research study would inform educational practice and improve outcomes for all students in Australian schools. Furthermore, there must be a search for ways to improve learning and educational outcomes that include the use of appropriate technologies as an integral part of learning, not as an add-on to existing practices that were in place before ICT was invented. In addition, a longitudinal study to complement research in literacy and numeracy research would be beneficial. This study would document the effective use and integration of ICT and link them to a variety of outcome measures.

Further Research

Recently, there has been an increased interest in neural network and learning. The brain, which is the centre of learning, memory and recall, plays an important part in the whole learning process. It is therefore important that further research should also be focussed on these areas:

- (a) interdisciplinary research on how the brain learns and how ICT can be used effectively in the learning process;
- (b) the use of ICT to stimulate the memory process, leading to effective learning;
- (c) innovative computer softwares or programs and other ICT tools that help students to think creatively and critically.

It is interesting to note that many students are attracted to simulation and video games, and they tend to spend hours playing them in arcades and at home. What are the features of these games that make them so irresistible to students? In fact, the game developers are way ahead in terms of the technology used compared to that which is available in schools. It is no wonder that students find the software used in schools boring and uninteresting! Research into this area may include:

- (a) a study on the features of video games that make them attractive to the players and how some of these features may be incorporated into educational softwares;
- (b) an extended study on the effectiveness of these new educational programs on learning;

Many research studies, especially meta-analyses, have made findings that showed that ICT has small effects on learning outcomes and sometimes negative effects have been found. Qualitative research on how to improve the effective use of ICT through innovative methods, possibly incorporating a variety of ICT tools should be investigated as pilot studies. Such studies should be ongoing such that feedback can be obtained and methods modified to refine the teaching and learning process.

CONCLUSIONS

Using the analogy of an ecosystem the school can be considered as a place where “dynamic interactions of species adapt to one another within the system” (Zhao, 2003). Zhao further emphasised the fact that any invading species may need to adapt to the ecosystem it enters but it can change the ecosystem and its native species.

The introduction of ICT in schools can be likened to that of the invading species to the ecosystem. There will be a time of adjustment and adaptation by the principals, teachers and students as each seeks to find its place in the new learning environment and interacts with the new technology. In fact, the ICT development in schools generally passes through four phases, namely the emerging, applying, and transforming phases (UNESCO, 2002). The emerging phase is characterised by the purchase of computer equipment and software with teachers and administrators exploring the use of ICT in the school. In the applying phase, ICT is used to replace existing tasks. In the infusing phase, schools would have acquired a range of ICT and teachers begin to explore new ways of using ICT for their personal and professional practice. Finally, the last phase is realised when ICT becomes an integral part of the school system. Thus, the impact of ICT will be felt as it permeates throughout the whole school system, changing the methodology of teaching, the physical setting and the learning process.

Therefore it is pertinent that ICT contributes positively to the learning in schools and for it to be effective, it requires the conscious effort of all the species in the school ecosystem, that is the principal, teachers, parents and students to make it work.

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BOOK REVIEW

ICT in Schools – or How ICT Can Create New, Open Learning Environments¹

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School is an inseparable part of the society and therefore any development or change that takes place at the macro level can be transformed into the micro world of school environments. However, this supposition is not always in line with the prevailing reality. On the one hand, the outside world has dramatically undergone tremendous progress with the help of information and communication technologies (ICT); but, on the other hand, most schools are still relatively anchored in the past and sometimes even resistant to ICT. Consequently, these two virtually unified worlds are experiencing a wide disparity in the use of ICT, resulting in a phenomenon called a 'digital divide'.

Information and Communication Technologies in Schools. A Handbook for Teachers or How ICT Can Create New, Open Learning Environments offers clear perspectives of how to resolve the problems presented above. This handbook critically depicts the reality of the modern world, which is obviously sustained by the boundless contributions of ICT in harnessing advancement, and schools that are still operating in their traditional ways. It seems that the authors of this handbook are building a bridge, travelling back and forth with innovative thinking, in order to remove the gap between the two realms. Inspired by the concept of 'Education for All' (EFA) launched by UNESCO, this book spells out the use of ICT by addressing issues on conceptual frameworks and practical guides of how to transform schools' traditional practices toward the implementation of ICT without destroying and losing their existing values.

The book, a collaborative work of a number of contributors from Russia and initiated by the Division of Higher Education, UNESCO, has one main objective – to focus on ICT implementation in schools. Therefore, across the whole content of this book, the writers consistently attempt to transfer innovation in every aspect of society (within which learners, teachers, and other members of society communicate and interact), into school environments, especially learning and teaching and the school operation in general, through the application of ICT. As a handbook, it embraces an extensive range of topics such as, for instance, knowledge-based society, globalisation of information, multimedia application, new literacy, Zone of Proximal Development, school collaborations, educational technology of the mind, information objects, and many other crucial issues. It also provides readers with a wealth of perspectives dealing with the work of transforming schools. It sometimes moves from a historical background of how history impacts on conditions today, from conceptual frameworks to down-to-earth strategies and policy for ICT implementation in schools, and from sociological issues to

¹ *Information And Communication Technologies In Schools. A Handbook For Teachers Or How ICT Can Create New, Open Learning Environments* (edited by Jonathan Anderson, published by UNESCO, Division of Higher Education, Paris, 2005, 240 pp.)

mathematical fundamentals of information science. Fortunately, all of these issues are discussed so systematically that readers can readily see the nature of the problem

The first chapter unfolds with an extensive and profound explanation of how ICT has played significant roles in every aspect of society and the ever-pressing need for ICT application in educational settings. This chapter provides a pivotal message aimed at evoking readers' awareness of the changing world and the potential of ICT in responding effectively to the challenges of society in the 21st century. An excellent overview of the transformation of the world from agricultural, manufacturing, and service sectors, to a converging knowledge sector and how it impacts on education is discussed in a lively way. This chapter also makes an important point, namely, that awareness of the advantages of information globalisation with the use of advanced ICT, which sometimes is a doubled-edge sword, impacts on the individual, society and even wider operating systems.

Other important aspects investigated in this first chapter are the need for learners to be well equipped with skills that are needed in "a technologically dominated socio-economic milieu" (p.18). ICT have the capabilities of converging the values of traditional heritage and modernity, which diminish many established dichotomous aspects in education, such as technology versus human spirit, and vocational versus liberal education. With the application of ICT that can effectively fulfil the most complex needs of learning, the writers confidently believe that these separations will no longer be sustained. These and other dichotomies are truly considered false with the emergence of ICT in the field of educational practice. In the words of the handbook, "the only true education is one where all arts, crafts, sciences, and technologies are linked and facilitate mutual cognitive development, productive creativity, and personal growth" (p. 24), and ICT provide the tools for knitting these elements together.

Further, this chapter elaborates a flexible application of ICT across levels of educational development. Three fundamental and deep questions about schemes for schooling are raised: (1) what should learners be required to know and do in order to succeed in the 21st century; (2) what should teachers be required to know and do in order to help students acquire desired knowledge and abilities; and (3) what role can ICT play in helping both teachers and learners perform these new tasks? These problems and the answers to them really bring readers to the main theme of this book – "How ICT Can Create New, Open Learning Environments". The book focuses on the importance of using learning strategies and learners need of "...concrete, visualized, experiential, self-initiated, hands-on, and real-world learning opportunities" (p. 25) through the use of advanced ICT such as computer networking, which in turn can bring learners to the world of new literacy. This requires experience that can penetrate borders of schools and society toward involving global information and collaboration.

Chapter 2 delineates in detail basic information about ICT systems: namely, components, inputs, processes, and outputs, serving somewhat like a manual for readers who may have little prior knowledge about ICT matters. This chapter helps readers to understand how complex ICT systems work and has developed over time. It also describes key functions of ICT that can fulfil basic needs of learning and teaching. Therefore, this chapter would be extremely beneficial for those who are new to ICT concepts, terminologies, commonly used abbreviations, as well as the specification and other basic operations of computers and their programming.

Elaboration of the basic concepts of learning and teaching activities, the contradictory demands that traditional schools have failed to meet as the consequence of historical backgrounds are well presented in the third chapter of this book. For the sake of school transformation, the authors put forward a new paradigm for understanding pedagogy in the 21st century by introducing several ground-breaking perspectives such as multiple intelligence, multiple conditions of learning, creative thinking, heterarchy, constructivism, and learning by designing. With this philosophical

basis, the practice of teaching and learning is shifted from emphasising “teacher-centred to learner centred” (p. 10), where teachers are no longer the central sources of information and transmitters of knowledge but act as facilitators for student learning. Hence, the role of learners changes from one of receiving knowledge and information to being actively engaged in their own learning. Finally, the chapter outlines the use of ICT in schools that promises teachers and learners a much more communicative and interactive process of learning and teaching as they provide activities of learning and communicating by different ways, means and dimensions, such as object making, observation, reflection, and imitation as well as information searches and questioning.

Chapter 4, “ICT in Learning and Teaching” begins with a critical evaluation of educational practice today, which is identified as alienated from the development of the outside world, resulting in a technological inequality. It tries to convince readers that using ICT in schools is essential. ICT can not only improve the quality of our educational practices but also help educators do things that have not already been done. This chapter argues that incorporating ICT into the process of learning and teaching can develop any basic learning activities better. One important suggestion is to observe schools and think about what opportunities there are so that “...we can recognize that schools without computers are different, and that different applications of ICT are possible.” (p.123). The approach advanced is viable because schools are located in different settings and contexts. These conditions therefore suggest different types of ICT to be used. Fortunately, with “ever widening range of information technology options from which to choose...grouped into four broad categories: traditional technologies, computer-based technologies, new-generation technologies and converging technologies” (Anderson, 1999, p. 462), schools wherever they are in the world are capable of adapting ICT implementation. This chapter moves further and deeper when posing an approach to the new literacy and the application of ICT in more complex educational processes such as foreign language learning and scientific research.

Chapter 5 explains the most practical issue of placing ICT in school contexts, which can differ in terms of educational settings and capabilities. It explains clearly how to transform traditional practices in school into ones that could fulfil the challenges of this turbulent century. This chapter also argues that ICT can in fact support a whole range of teaching and learning activities and it can be integrated more pervasively into every aspect of a school’s operation. Therefore, it further accentuates the importance of placing ICT in the school curriculum so that it can be “...treated as interdisciplinary, integrative, and cross-curricular” (p. 183). Other critical concerns involve dealing with ownerships, the arrangement of ICT in the classroom, technical and economic considerations, teacher development, and barriers to ICT.

Chapter 6, titled “The Mathematical Fundamentals of Information Science”, examines the areas of mathematics used in the operation of information processing in an attempt to give a brief insight into understanding information processing in technological, biological and social systems, and their implications for our life. Descriptions of mathematical concepts used in the area of ICT are linked practically with real life events and environments. The focus in this chapter is clear: it facilitates readers’ understanding of the logic behind systematic, and transferable ICT operations, which is so important in real life.

Chapter 7 looks at all the previous discussions and seeks to assemble major arguments to put new ideas into operation in schools. It provides readers with ways of identifying indicators of ICT implementation in schools as the basis of ICT use and policy for teachers and educators, as well as leaders in education. It looks at complete dimensions of ICT development: leadership and vision, people, technology and practice as a continuum, and then gives practical suggestions for planning ICT integration in schools.

After examining the different facets of this book, it is not an exaggeration to say that this reading is a highly commendable source for teachers at every level, teacher educators and their pre-service teachers, as well as for policy makers in education. For teachers, it can serve as an instigator to begin an experiment in their own classrooms. For teacher educators, it can provide a broader framework for equipping pre-service teachers so that they can keep pace with the advance of ICT applications in classroom contexts. And for leaders in education, it can instigate new ideas of how to integrate ICT in the current educational practice for future development and innovation.

Of course, this book is not the sole model for ICT innovation in schools, as acknowledged by the writers. ICT implementation is a universal issue in education, while schools are located in various settings and at different phases of development; thus the many different aspects stressed in the implementation are feasible in some circumstances. Therefore, a very important matter in one educational landscape could be a trivial or ordinary matter in other places. By way of example, this book does not address the problem of security, which is a huge concern in many developed and developing countries. However, this book is an extremely valuable and a most relevant resource for readers seeking new, important, and enlightening ideas in the field of education.

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BOOK REVIEW

The Untested Accusation: Principals, Research Knowledge, and Policy Making in Schools¹

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Since the earliest days of university sponsorship, education research has been demeaned by scholars in other fields, ignored by practitioners, and alternatively spoofed and criticised by politicians, policy makers, and members of the public at large. (p. 1)

A totally nonsensical claim!

Those who favour the view that educational research has no impact are totally unaware of the progress and the advance of educational research today, according to Biddle and Saha in an important book. A great many research studies have been carried out that have resulted in important innovations in the various sectors of education. One example is the revolution in curriculum development and teaching methodology.

From the evidence advanced in this investigation conducted through a comparative research by interviewing 120 school principals in the United States and Australia, the authors of *The Untested Accusation* argue strongly that educational research has had great impact among users of research knowledge involved in policy making in schools. This body of research is supported by evidence that most principals are exposed to a variety of research sources ranging from newsletters and professional journals to meetings and seminars. Another finding supporting this argument is that most principals frequently cited research sources in their work, and are able to recognise examples of knowledge based on research that they had read or used.

Aims of the study

The main objective of Biddle and Saha in their study was to challenge the view that educational research has weak methods, vacuous contributions, minimal or non-existent impact, feckless characters and lack of evidence. Secondly, they sought information about how generated-research knowledge is disseminated and diffused to principals and what types of sources most principals read and cited. The study also investigated principals' attitudes toward the value of research knowledge and sought to find out if the principals had a deep understanding of that knowledge. Finally, the study investigated whether or not research knowledge had an impact on principals' thinking and policy-making in schools. The study was conducted with a sample of 120 school principals in the United States and in Australia.

Key findings

The findings reported in this book fall into five main categories.

¹ By Biddle, B. J. and Saha, L. J., published by Ablex Publishing, London, 2002, pp. 292.

Principals' exposure to knowledge source

In the first section, the authors investigated how research knowledge is diffused and transmitted to users in the education community, especially the school principals in the two countries. The study found that school principals used various types of sources for acquiring professional knowledge that they then used regularly and frequently. A second finding was that principals were exposed to a wide range of different knowledge sources. Principals from both countries acquired most of their ideas about research knowledge from secondary sources, for example, meetings and experiences designed for educators. Further, most principals adopted a scholarly stance when seeking and acquiring professional knowledge by consulting professional journals regularly and they frequently cited these journals as their sources of knowledge.

From the frequency of citation in both countries, professional journals were cited more often than other sources. However, there was a significant difference in the frequency of citation between the two countries where professional journals and workshop organised by others were more often cited by the principals in the United States, whereas professional books, regional and national bulletins, other professional people, professional meetings and long term interests were most often cited by school principals in Australia. These differences in citation frequency were statistically significant. These significant differences might be a result of different social context and by the way the two countries structure and organise their education.

Principals' opinions about research and innovation

The authors report that generally most principals made positive judgement about generated-research knowledge and defined themselves as regular and enthusiastic users of that knowledge. Secondly, the results of the study suggest that most principals say that they learnt personally from research knowledge and used it to influence their colleagues or help persons such as teachers, parents and students. However, they were also aware of the poor communication between researchers and the principals, and the problems of dissemination and diffusion of research knowledge.

Most principals also held positive thoughts about innovation, and the results of the study did not support those critics who portray school principals as conservative and rule-driven. The assessment of the value of knowledge given by both American and Australian respondents was generally at high levels of 44 per cent and 49 per cent respectively. It was striking that 83 per cent American principals and 74 per cent Australian principals reported that they had learned from research knowledge.

Research knowledge that principals volunteered

A key finding in this section of the study suggests that most principals in both countries retained examples of useful knowledge associated with educational research in their thinking and found it easy to talk about examples of research knowledge. Secondly, the principals tended to have noticeable interest in various examples of useful knowledge from educational research. Indeed, they were able to recognise from four to eight examples of research knowledge that had influenced their thinking.

Most principals showed a deep understanding of the educational research knowledge by retaining some details associated with salient and relevant research knowledge. However, the American principals retained slightly more research knowledge than the Australian principals. It was assumed that most American principals had completed postgraduate course that were associated with a higher level of research knowledge.

Research knowledge that principals recognised

The results of the study show that the principals retained many examples of research knowledge in their thinking and, that they also tended to remember examples of research knowledge that covered many topics. With respect to the finding that American principals recognise more examples of educational research knowledge than did the Australian principals, it was argued could be a result of the wider exposure of the American principals to higher education than the respondents in Australia.

Principals' reported use of research knowledge

The findings in this last section clearly indicate that generated-research knowledge had a great impact on the whole educational community, and particularly on school principals. Then, if the principals played vital roles in the school decision-making, it was very likely that principals were powerful agents in dissemination and implementation of the generated-research knowledge. The results of this study also show that the implementation of research knowledge takes many forms, such as in innovation in staff development, in teachers' motivation, and in classroom supervision techniques. It was concluded that research knowledge had great potential for affecting and influencing the decision-making and practices within a school.

Conclusions

There is no reason to support the widespread claims that research has had minimal impact on education as they were untested by the evidence according to the authors of this book. Biddle and Saha present strong evidence that school principals in both the United States and Australia have wide exposure to generated-research knowledge through various secondary sources, frequently and regularly cited the research sources, retained and had a deep understanding of research knowledge. In addition, respondents from both countries show positive judgement of the value of research knowledge and were affected in their thinking and decision making in the schools by that knowledge.

Therefore, on the evidence presented, there seems little reason not to accept the view that educational research has played a significant role in shaping and building the knowledge and skills of school principals. However, there are always still problems associated with such a study.

First, it is well known that principals in the past were exposed to a variety of knowledge sources, but often failed to examine the types of knowledge and the quality of the sources. In order to see the impact of the knowledge in school policy making, the study should also have categorised the types of knowledge acquired from different sources and examined more closely whether or not the acquired knowledge was still relevant to a principal's work.

Secondly, the study succeeded in confirming that most principals were able to retain and recognise the effects of research knowledge on education, but the study was lacking in evidence to show how well school principals understood the salient knowledge. This study should also have questioned principals about their policy making in schools that had been affected by the generated-research knowledge. In other words, the study should have investigated and categorised the products of the research knowledge. It was also unfortunate that the study did not investigate the process of knowledge dissemination from principals to those teachers and students in their schools to see how the generated-research knowledge affected the policy making and the outcomes in their school.

It is also natural that most principals are always busy with a heavy workload and this could prevent them from reading various source of knowledge like professional journals. This situation might result in limited access to knowledge about educational research. Thus, decision making

could be based more on their experience and intuition, and might not be affected by the generated-research knowledge.

Finally, this study might not be able to generalise its findings to principals from developing countries for several reasons. First, developing countries are seriously lacking in research utilisation centres that are supposed to be the agents for knowledge dissemination to potential users of research knowledge. Secondly, the western countries where this study was carried out have sophisticated information and communication technology as the main agent of disseminating research knowledge and the use of this technology is unfortunately not discussed in this book. Hierarchical leadership has caused principals in most developing countries to depend on the policies and the authority of the top leadership in their national education systems. As a result, principals' exposure to research knowledge might depend on knowledge that is heavily biased by political interests.

'Theory is in the end...the most practical of all things' John Dewey (1929)

This book should be read not only by principals and school administrators throughout the world, but also by research workers who generate new knowledge.