Education Policy, Reform, and School Innovations in the Asia-Pacific Region

PART III:

LANGUAGE EDUCATION

Turning from Teaching in English to Teaching in Mother Tongue: Social Realities and Contradictions in Post-1997 Hong Kong

Timothy Wai Wa Yuen
The Hong Kong Institute of Education, Hong Kong

Introduction

After the political handover in 1997, the Hong Kong Special Administrative Region Government released the Medium of Instruction Guidance (MOI Guidance). The MOI Guidance aims at promoting the use of mother tongue (Cantonese in verbal language and Modern Standard Chinese in written language) in secondary schools and reducing the use of mixed code (a mixture of Chinese and English). The MOI Guidance was much resented when it was released and has remained highly controversial. This paper reviews the MOI Guidance and the controversies it arouses from a social perspective, paying particular attention to how the policy has met with the complexities in the social landscape and the reaction of the stakeholders when their interests are affected. It argues that language policy change, just like any other elements of education reform, should be grounded on careful examinations of social realities, especially on how vested interest will be affected. Apart from being a localized discussion of how language policy has become a complicated and contentious issue, it is hoped that this article can help reflection about the social complexities against which education reforms are carried out, particularly at a time when the Asian Pacific Region has seen waves of education changes.

Teaching in Mother Tongue: A Historical Account

Secondary schools teaching with Chinese medium of instruction (CMI) were for a long time the mainstream in Hong Kong whilst schools teaching with English medium of instruction (EMI) remained a minority. In 1958, for example, CMI secondary schools still accounted for 55% of the total number of secondary schools in Hong Kong. However, the scenario changed rapidly in the 60's and 70's when EMI schools quickly expanded in number and became predominant. In 1979, only 23% of secondary schools used Chinese as the medium of instruction. What caused the Chinese medium schools to lose ground? The most common cause attributed to it is that of colonialism and deliberate plans of the former colonial government in favor of EMI. This explanation, which is difficult both to verify and falsify, needs to be critically examined. To begin with, CMI secondary schools retained their mainstream status till 1950's against the fact that the colony was founded as early as 1842. The rise of EMI secondary schools did not result from specific government policy and directives specifying the adoption of English as the official medium of instruction in schools (see Notes 1). Particularly noteworthy is that CMI secondary schools' demise followed closely the political changes that happened in the mainland after the end of WWII. The Communist takeover in 1949 and the outbreak of the Korean War in 1950's led to the subsequent closing of the border and put an end to the once popular path of further study and career development in China, which were pursued by

graduates of CMI secondary schools in Hong Kong. The comparative numbers of CMI and EMI secondary schools in terms of school number and student enrollment are given in Table 1 and Table 2 below.

Table 1: EMI and CMI Secondary Schools in Hong Kong (1958-1989)

Year	Number of EMI secondary schools	% of secondary schools being EMI schools	Number of CMI secondary schools	% of secondary schools being CMI schools
1958	74	45%	89	55%
1969	230	66%	120	34%
1979	333	77%	97	23%
1989	235	65%	126	35%

Source: Lai, F. K. (1994). Language streaming and English standard, *Modern Educational Bulletin*, 32, 5-7.

Table 2: Number of Students Enrolled in EMI and CMI Secondary Schools

Year	EMI secondary schools students			CMI secondary schools students		
	Male	Female	Total	Male	Female	Total
1952	12000	4000	16000	10000	7000	17000
1961	35000	18000	53000	15000	14000	29000
1971	100000	67000	167000	25000	25000	50000
1981	No major gender difference		370000	No major gender difference		50000

Source: Adapted from Luk (2003). *Hong Kong's Education Stories: From Banyan Tree to Computer*, p 160-162.

Lai (ibid) explains that the growth of EMI schools (Table 1) at this period was mainly due to the development of an export-led economy in Hong Kong and the increase of jobs in both the civil service and the commercial sector that required ability to communicate in English. The relatively heavier presence of female students in CMI schools in the period 1960's and early 1970's (Table 2) on the other hand further underpinned the idea that parents' choice of EMI schools for children was largely utilitarian in nature and was based particularly on the need of the job market. As girls were not expected to play an active role in the labor market in the 1950's and 1960's, parents were more willing to send their daughters to the CMI schools for the sake of the cherished conservative ethos of such schools. This was only reversed gradually due to the increased participation of women in the labor market in the 1970's. Thus, it seems the colonialism notion may only be accepted up to the extent that the colonial government did not rein in the market when demand showed a strong preference for EMI places and this preference was mainly due to economic consideration. Evans, S. (2000) made an interesting note of the laissez-faire policy:

> The climb down over the language circulars set the tone for language policy in education in the post-war years, for although the colonial government consistently recommended the use of Chinese as the MOI at secondary level it failed to formulate and implement a clear language policy. (p.189)

From this point onward, we may also need to recognize that market demand, particularly in terms of parental wish based on utilitarian calculation, can be important in matters such as the choice of teaching medium in schools.

Another strand of development in the post-war period was the rapid expansion of educational provisions in Hong Kong. In 1978, 9-year free and compulsory education was first provided. The development of massive education changed the formerly elitist nature of schooling and allowed the less academically oriented students to study in secondary schools. This in return brought in the mismatch between the teaching medium and the linguistic competence of the students. Many of these students could never have made their way to the secondary schools before (see Notes 2). In 1982, the report of a visiting panel commissioned by the government concluded that most secondary students could not effectively learn in English. In the subsequent reports (report no.1 to 6) published by the prestigious Education Commission (EC) between 1984 and 1996, there were repeated calls to encourage secondary schools to teach in mother tongue. The mixed code popularly used in many of the EMI secondary schools was particularly highlighted for criticism (EC Report 4, 1990). Meanwhile, the government adopted various measures to foster the use of mother tongue. These comprised persuasion and offering support to schools teaching in Chinese. It should be understood that throughout the entire process, the government had refrained from enforcing compliance through issuing of decree and the choice of teaching language was left to schools' discretion. Besides, schools were also allowed to develop their own approach to mother tongue teaching, for example on a subject by subject basis or a class by class basis. Tsui (2004) explained that at the time before the release of the MOI Guidance in 1997, 94% of students were studying EMI secondary schools. The figure for primary students was almost the reverse, with 93% of the primary students enrolled in schools teaching in Chinese. This unparalleled development, also reported by Luk (op cit), underlined the difficulty to learn effectively in English in secondary schools, especially in the case of the less academically oriented students and students whose families were less in touch with English.

An Outline of the Medium of Instruction (MOI) Guidance

In 1997, the Education Department of Hong Kong issued the MOI Guidance to secondary schools. For the first time, an administrative decree was issued to secondary schools concerning the choice of teaching medium. The MOI Guidance aims at promoting the use of mother tongue and discouraging the use of mixed code in secondary schools, particularly junior secondary level (secondary year one to three or S1-S3).The Guidance explains the benefits from mother-tongue teaching against improvements in learning and students' preference.

MOI Guidance stipulates (MOI Guidance):

1. Most secondary schools should adopt mother tongue teaching with their S1 intake starting from 1998-9 school year and progressing each year to a higher level of secondary study.

2. Upon reaching S4, some schools may want to switch to English as MOI for certain subjects. If so, they should demonstrate that their teachers and students are able respectively to teach and to learn in English. For S6 and 7, schools should be free to make MOI choices.

3. However, the Government also realizes that some schools are quite successful teaching in English. Thus, these schools may continue with English as MOI if they make an application and can prove that they can satisfy the following requirements:

- *Student ability:* Not less than 85% of the S1 intakes of the school in the past 3 years should belong to Medium of Instruction Grouping Assessment (MIGA) Groups I and III. The MIGA grouping reflects students' abilities to learn in relation to the choice of teaching language. It is based on students' internal test scores in the last two years of primary education as adjusted by their primary school's performance in territory-wide test (see Notes 3).

- *Teacher capability:* This is assessed against principal's assessment, certification of teachers and Inspectors' report etc.

- *Support strategies and programs*: This is assessed against availability of English enhancement courses and other assistance the school can provide to students etc. (p. 7-9).

MOI Guidance Launched Against Resentment

The MOI Guidance was finally put into practice in the school year 1998-9. With the efforts of the Education Department, it's Inspectors, the Vetting and Appeal Committee, a whole set of activities ranging from advertisement and persuasion, to outright use of power were arranged. The result is only 114 out of more than 400 secondary schools managed to retain their English school status. If educational change is understood only in compliance terms, the Guidance is beyond doubt a success. However, if educational change should ultimately be understood against popular acceptance, the story may need to be further explored in a different way.

Though the adoption of mother tongue as teaching medium in secondary schools had been promoted for a long time, the Guidance was released against a bitter wave of criticism, regrets and resentment from among the stakeholders. There was much resentment from former EMI schools that were compelled by the government to become CMI schools. School principals complained that the change was arbitrarily forced on

them. The criteria of assessing their eligibility to remain English schools were unreasonable as the criterion about student ability only took into account the linguistic abilities of intake i.e. students whom the schools had not taught before. This completely disregarded the ability of schools to prepare the students to learn effectively in classes taught in English. Even MIGA's validity in reflecting linguistic competence was in doubt as it was founded partly on the Academic Aptitude Test (AAT) carried out in the end of primary six. The AAT, however, covered Chinese Language and Mathematics only (see Notes 4). How far it could deal with students' English proficiency was in doubt. There were also concerns particularly on the loss of quality intake as parents found the schools had not been able to maintain their EMI school status. Some schools responded in an interesting way to the change compelled on them. A school, for example, tried to minimize the impact of the Guidance by measures which included distributing massive amount of notes in English and setting papers in both languages for pupils to choose. Teachers thus would need to spend extra time to help students manage the English materials and this resulted in need of frequent addition of supplementary classes. Finally, the school was given a surprise visit by the Education Department which formally objected to the practice and requested the school to comply with the designated language (Ming Pao Daily, 1999, April 21).

Neither were the traditional CMI schools happy about the change. The retaining by about a quarter secondary schools of their English school status was to them the defacto conferring of superior status, as it required best student intake to be an EMI school. This privilege was matched by earmarking the CMI schools as inferior schools and their graduates as weaker students. This could lead to discrimination in further study and job prospect. Tsui (2004) explained:

> And many of the CMI schools were resentful that they had seemingly become second-class schools and their students, second-class students. In early 1999, questionnaires administered by the Chinese as a Medium-of-Instruction Support Centre at the University of Hong Kong to all CMI schools (307 in total) showed that CMI schools had suffered a reduced intake of better ability students, and 32% indicated that the academic standards of the students they took in had declined. (p. 99)

Even for schools which successfully applied for retaining their English school status, ill feeling could arise against the way the Education Department (ED) monitored their daily operation. Inspectors were dispatched to pay surprise visits to some of the schools to ensure that they really taught in English and no Chinese or mixed code happened in class. These surprise visits, construed widely as fault-finding missions, were markedly different from the normal pre-informed, politely conducted advisory visits in both nature and tone. Schools felt that Inspectors were launching surprise attacks on them with the aim of fault-finding to abolish their English school status. A principal said in an interview that the surprise visits simply did not respect the schools in concern and were in stark contrast with the ED's promotion of respect to the teaching profession (Ming Pao Daily, 1998, November 11).

While student enrollment of the newly converted CMI secondary schools continued to drop, the waiting line for admission to the EMI schools gets longer. A survey

carried out by Caritas Community Centre between June and July, 1998 reported that 75% of parents would like to send their sons and daughters to the English schools. In order to successfully compete for places in the English schools, 85% of the parents would persuade their children to work harder while 60% of the parents would pressure their children to spend more hours in study. 40% would hire private tutors and 7% would go as far as moving to areas where more English schools are nearby (Hong Kong Standard, 1998, August 24).

Students studying in schools which failed to retain their EMI status were bitter about the conversion their school had to face. In one example, the student association of a secondary school immediately took to the press to air their rage. They worried about the possible downgrading of their school and complained that ED had not respected their willingness and ability to pursue their study in English. The principal of the school further expressed that the school suffered from a sharp drop in application once it was known their English school status was lost (Sing Tao Daily, 1997, December 4).

As for the feeling of the general public as a whole, a survey conducted by the Hong Kong Institute of Asia-Pacific Studies of the Chinese University of Hong Kong revealed that 70% of the respondents did not agree to the policy of separating schools into Chinese and English schools (Hong Kong Economic Times, 1998, December 3).
On the other hand, as studying in EMI schools became a privilege, some keen-eyed analysts quickly pointed out that there was a serious problem of uneven distribution. The difference between the EMI school places differed very substantially across the 18 districts of Hong Kong. In the district of Wanchai, for example, the ratio was as high as 58% while that of the islands was as low as 4.5%. In general, the urban districts fared much better than their rural counterparts. Tsang W.K. of the Chinese University of Hong Kong studied the regional difference in EMI school places and concluded that the difference was not in line with distribution of students capable to learn in English. In fact, the difference dovetailed only with the geographical distribution of prestigious schools which drew the most brilliant students (Oriental Daily News, 2008, March 15).

The MOI Guidance: Ideals and Social Realities

Functionalists see that organization of society needs to work for the good of all members of the society by improving the standard of their living through division of labor and specialization. Specialization improves social output level and hence a better living standard results. In the functionalist paradigm, society is a body and the social institutions are the different parts that make up the body. Every institution (part) is providing a useful function so that the society (the body) can survive and grow. In case a major problem surfaces, the institutions will adapt and there will be changes and an increased amount of social division of labor in order to overcome the problem. Education helps the people to meet the requirements of modern society by giving them the necessary skills and values. It also carries out screening functions to fit students to the roles their abilities can carry (Feinberg & Soltis, 1991; Reid, 1994).

Viewing from the functionalist perspective, the MOI Guidance may be construed as a move to differentiate between the roles of Chinese-medium schools and English-medium schools, with the former trying to cater for those who can learn effectively in English and the latter for those who do not. This helps overcome the language mismatch problem created when secondary education in Hong Kong becomes universal and the less able have made their way to secondary schools. By prescribing the conditions a school needs to meet if it is to teach in English, the MOI Guidance further implies that only schools which can effectively teach in English will do so and they will only do so to students who are ready. Studies conducted by the government, inclusive of "Views of Secondary 1 students on the MOI used in schools (1994)", "Research on change of MOI in secondary schools (1994)" and "A comparison of pupils' Hong Kong Certificate of Education Examination results between schools using Chinese as MOI in all subjects and schools using Chinese as MOI by subject (1994)" have been cited to support the MOI Guidance as they point out that mother tongue teaching is preferred by secondary one students and will lead to better learning results.

So, what is wrong with the MOI Guidance given that it could help students to learn better? The policy also moved in tandem with the calls for reforms by the Education Commission, a widely representative advisory body on educational matters. The answer given here is a simple one: "It hampers the vested interest of many concerned stakeholders." Schools converted to CMI schools resent against the policy because the policy took away the freedom they formerly had, namely to choose the medium of instruction they deem fit. This is particularly painful for schools that have long been teaching effectively in English despite the fact that they do not take in the prescribed proportion of "high-performing students". In fact, the MOI Guidance only affected the public sector schools while schools in the private sector are given free choice in their teaching language. This in return has made the public sector schools that lost their EMI status increasingly difficult to attract students at a time when the school-going population is in the decline. The harm to the CMI schools can be more real than nominal as the landscape schools face is changing rapidly from a shortage to a surplus of school places. This can be understood by the fall in birth rate in Hong Kong as shown in Table 3 below.

Table 3: Birth rate in Hong Kong (1993-2005)

Year	Number of Births	Crude Birth Rate
2005	57300	8.3
2002	48 209	7.1
1999	51 281	7.8
1996	63291	9.9
1993	70 451	12.0

Source: Census and Statistics Department, Hong Kong.

The MOI Guidance, by prescribing that only schools with brighter students can teach in English, is to the public the de facto list of Hong Kong's quality schools. As such it

constitutes negative labeling on schools that are not on the list and hence can be detrimental for those schools in attracting students, at a time when school closure is an emerging risk. In fact school closure has already hit primary schools very badly since late 1990's. The number of primary schools in Hong Kong dropped from 779 in 2000/20001 to 674 in 2005/2006. The wave of birth rate decline is bound to hit the secondary schools which fall within the jurisdiction of the MOI Guidance. This negative stigma to CMI schools, side product of the MOI Guidance, has extended to the students who may come up with the impression that they have been taken as *second class* students by going to a school that is not able to retain its English school status. The following two quotes best illustrate this point:

> It is therefore apparent from all this that Chinese-medium schools have long had a lower status, in terms of social recognition if not in students' achievement. This social prejudice against Chinese-medium schools as second-class schools has its colonial as well as social and economic roots, which cannot be corrected overnight. The HKSAR government finds it easy to reverse the language policy by forceful means but it is not easy to remove the inferiority label of Chinese-medium school from the minds and hearts of the parents (Lai & Byram, p. 324).

> Primary children of high banding in the scholastic aptitude test and school results will enter English-medium schools to go on with their secondary education whilst those of low banding are forced to study in Chinese-medium schools. English-stream students are labeled as 'able' students and Chinese-stream students as inferiors. An EMI school is a 'gifted entitlement' (Lai & Byram, p. 323).

Grievance of affected parents is aggravated by the concern that their children will suffer in terms of both further studies and career development as English is perceived as an important international language. The fact is that Hong Kong is an international city and English is popularly used in the business field. In academics, English is a common teaching language in Hong Kong's tertiary institutes. The parents' concerns about their children not being able to catch up with English language in CMI schools are not completely groundless.

Tsang Wing Kwong conducted a longitudinal study comparing performance of CMI and EMI students. He concluded that advantage enjoyed by Chinese-medium school students in some subjects diminished after their completion of the Hong Kong Certificate of Education Examination (HKCEE). Students from English-medium schools performed equally well in science and social studies subjects in the Hong Kong Advanced Level Examination (HKALE). More importantly, The study also found that the English abilities of Chinese-medium school students lagged behind their peers in English-medium schools the whole time. This had an adversary impact on the CMI students' chance to pursue their university study (Hong Kong Economic Times, 2008, March 15). Actually, if we go back to the study entitled *Research on Change of Medium of Instruction in Secondary Schools* released by the government in 1994, we would find that the change of instructional medium from EMI to CMI has improved students' performance in Chinese and the three content-based subjects, namely Science, History and Geography, but EMI students could do just as well in Mathematics and excelled in English. As this point was not given much emphasis in the report, does it mean that this is the price CMI schools have to pay?

Although the government has already tried to improve the English proficiency of students in the Chinese-medium schools by means such as additional English language teachers, library grant for additional English reading materials and other teaching aids etc., however, students who do all academic subjects in Chinese are likely to suffer from a loss of English proficiency. Lai and Byram (2003) stated their strong position as follows: "However if the aim of the education system is to produce students with a high level English language proficiency, then English medium instruction can achieve that aim. Chinese medium instruction will not." (p. 330).

Some people, by adopting a conflict theorist perspective, have associated the policy with bias against the poor. Conflict theorists basically believe that society is marked by systematic class exploitation. Though the rigid capitalist versus working class distinction is blurred in modern societies, it is believed that public policies are made to favor the rich as the government is largely an agent of those with wealth. Education helps the rich by ensuring that the children of the poor will inevitably be losers and thus will remain at the bottom of the society (Anyon, 1980; Bourdieu and Passeron, 1977; Rist, 1970). The MOI Guidance should not, but unfortunately, has been perceived to have made such association.

First, under the policy, the traditional elitist schools which are closely intertwined with the upper and middle classes are entitled to teach all subject areas in English to their students. Secondly, the arrangement is also seen by some as being an inexpensive way to help the business sector to secure quality English proficient human resources from EMI schools with the most capable students in English language training. Choi (2003) made a point-blank remark in this regard as shown in the following: "This policy, which provided for the selection of the best primary school graduates for monolingual education in English, was designed to be a cost-effective way of training in English skills for those who had the economic and cultural capital to benefit from it." (p. 673).

Besides, private schools and Direct Subsidy Scheme schools (see Notes 5) are exempted from mother tongue teaching and thus English education apparently becomes a privilege money can buy and this gives affluent families an edge as they can buy an opportunity of English education for their next generation, and hence a brighter future prospect becomes an ascribed entitlement.

Could There be a Better Alternative in this Social Landscape?

A better alternative here is construed not from an administrative sense that takes into account compliance rate alone, but instead is understood against social harmony and improved relationship between the government and major stakeholders, whilst keeping the promotion of mother tongue teaching in sight. The MOI Guidance has been reviewed since its adoption in 1997. In the public document released by the Education Commission, stricter requirement will be made on the English proficiency of teachers teaching in EMI schools. They are now required to have achieved at least a grade C in English Language at Hong Kong Certificate of Education Examination, or a grade D in Use of English at Hong Kong Advanced Level Examination to be eligible for teaching in an EMI school.

Besides, as the Academic Aptitude Test was abolished, the results of a new territory-wide assessment, known as Pre-Secondary One Hong Kong Attainment Test, are used to adjust the internal scores of primary school graduates to facilitate the language banding process.

These adjustments are largely technical and will not have the effect of resolving the disputes the MOI Guidance has brought about. On the contrary, by raising the threshold required to attain the English- medium school status, the gap between CMI secondary schools and EMI secondary schools will further widen. Some critics were made that all schools should become CMI schools and teach in mother tongue in junior secondary level. This is a straight forward answer to the problem that serves equal treatment on one hand but will just lead to another dead end on the other. Making all schools CMI schools takes away the right of those schools that are able to teach in English and the right of students who can benefit from it. Apart from minimizing students' exposure to English, it is also bound to go roughshod against the prestigious EMI schools.

It is argued here that a more flexible and school-based approach should be adopted in policies governing medium of instruction in schools. It is proposed here that schools should be allowed to choose the right language (Cantonese, Putonghua and English) on a subject-by-subject basis. It would result in a language mix relating to the subjects a school offers. Some subjects may be taught in English, some Cantonese and even some in Putonghua. The actual number of subjects offered in a specific medium of instruction can be different between schools and even between years for the same school as the linguistic abilities of students differ. Certainly, some schools may choose to teach all in English or all in Chinese. The proposal is made based on the following reasons:

- The labeling effect pertaining to the present MOI Guidance will be gone as the EMI schools versus CMI schools dichotomy will not exist.

- Some subjects may be more logical to be taught in English when compared to other subjects and hence they may be offered to students whose English proficiency may not be high in the beginning.

- Schools know better than anyone about its readiness to conduct teaching in English or Chinese and their judgment should be respected.

It should not be worried that schools will make irresponsible choice in teaching language. This is not just to be understood against the confidence on professionalism of schools but also against the fact that schools are now functioning in a system very different from that when the idea of mother tongue teaching was first promoted. Schools need to prove their abilities to improve on academic performance of students according to the output indicators already in place. Schools have to care about academic achievement of the students to attract parents in an age of student shortage. Going EMI on a full-scale basis when students are not ready will only lead to disasters in public examinations and the school in concern will lose the patronage of parents. If this bilingual or trilingual policy is to be adopted, sufficient language bridging courses should be offered at the end

of primary education as well as before the beginning of secondary education so as to enhance students' readiness. This is exactly where government resources and efforts are most needed.

Conclusion

One should respect the good intention the authority held in implementing the MOI Guidance when students were reported encountering second language difficulties in junior secondary level. Composers of the MOI Guidance considered the use of both Chinese and English in the junior secondary classroom to be uniformly detrimental. Much more researches should be done here to ascertain the claim, without which the social suspicions relating to the language policy would remain. Penington (1998) sensibly differentiated between language alternation and mixing. Butzkamm (1998) proposed that mother tongue under certain conditions can work as a language lubricant in a class taught in second language, especially for beginners. In this light, the mixed code issue might well be a solution instead of a problem. Another logical jump inherent in the MOI Guidance is the assumption that a bifurcation approach enforced through top-down power-coercive strategy is the most appropriate when reality has proved that such a policy is likely to be slammed at by risk-felt stakeholders. These logical jumps unfortunately have fuelled most of the resentment and led some to view the language change from a conflict perspective.

A policy aiming at changing the teaching medium from English (an international language) to Cantonese (a local dialect instead of Putonghua, the national language of China) (see also Notes 6) is much more than a change in the mode of delivery as it involves the vested interest or perceived vested interest of the stakeholders. A sensible probe of the linguistic situation in Hong Kong should not overlook that the city may be more diglossic than bilingual with English being used as a form of high language in commerce, court, bureaucracy, and also as boundary marker of social status. Colonial history might have a role behind this. But, even after Hong Kong's reunification with China in 1997, the social reality remains that English, the lingua franca that bridges Hong Kong to the world, is crucial for the international city, both for its continuous prosperity and for its role as China's window to the world. English thus is a cultural capital. Using an administrative decree to compel the use of mother tongue in most of the schools only add to the scarcity of this cultural capital and is likely to encounter resistance of the market, from those rendered the 'have not" under the policy, namely CMI schools and students. This is made more complicated by the fact that the landscape of education in Hong Kong is changing rapidly. The building up of a private school sector and the declining school population have made public sector schools, which are affected by the MOI Guidance, increasingly difficult to be attractive to parents and students.

In this light, this article argues that a more flexible policy that respects school's judgment and caters for students' and parents' concern and preference, may be more appropriate. It is encouraging that the government under Mr. Donald Tsang is looking at the language policy again and modifications may be possible in the near future, Discussion in this chapter suggests that the changes to come are likely to be more

acceptable if they result in : (i) undoing the labeling effect the MOI Guidance has come along fine; (ii) respecting the professional judgment of schools and enlisting their support rather than mere subservience; (iii) ensuring that English, one of the cherished cultural capital, can be equally accessible to different social groups and in schools of different sorts.

Finally, apart from being a localized discussion of how language policy has become a complicated and contentious issue, it is hoped that this chapter can help reflection about the social complexities against which education reforms are carried out, particularly at a time when the Asian Pacific Region has seen waves of education changes. The author argues in particular that educational changes do not take place in vacuum and should not be guided only by laudable intention. Instead, it should be informed with detailed analysis of the social landscape and how vested interest of different stakeholders may be affected. Wisdom of the frontline and sensible balance of social interest may well be the defining attributes of such a desirable policy.

Notes

1. On the contrary, as early as 1935, the government published the Burney Report that stated " Education policy in the Colony should be gradually reoriented so to secure for the pupils, first command of their own language sufficient for all needs of thought and expression, and secondly a command of English limited to the satisfaction of vocational demands".

2. It should be noted that though there was often a feeling about falling English standard of students, some academics pointed out that the perception was simply a fallacy. Joseph (1996) argues that such worry of falling English standard was mass hysteria against the fact that more people had access to English due to expansion of education.

3. MIGA Group I refers to students who are able to learn effectively in both Chinese and English. MIGA Group I students are primary graduates whose average scores in primary five and six in both Chinese and English taught subjects (adjusted by Academic Aptitude Test (AAT)) are in the highest 40% territory-wide. MIGA Group II refers to students who learn more effectively in Chinese. MIGA group II students have adjusted average scores in both Chinese and English taught subjects below the highest 40%. MIGA Group III refers to students who learn better in Chinese but may also learn effectively in English. MIGA Group III students have adjusted average scores in either Chinese or English taught subjects in the highest 40% while the other ranks not lower than 50%. When the AAT became defunct in 2000, first old AAT results of the schools were used and starting from 2005, another territory-wide test known as the pre-Secondary 1 Hong Kong Attainment Test has been adopted for adjustment purpose.

4. In fact it was only until the adoption of Pre-Secondary One Hong Kong Attainment Test in 2005 that an English element is added to the territory-wide test used to work out the MIGA.

5. Direct Subsidy Scheme schools are non-profit making schools that charge tuition fees and receive government subsidies at the same time if their tuition fee is within a prescribed limit.

6. It should be noted even in Guangzhou of China where Cantonese originated, teaching in Cantonese, the vernacular language, is forbidden by law.

References

Anyon, J. (1980). Social class and the hidden curriculum of work. *Journal of Education , 162* (Winter), 67-92.

Boudieu P. & Passeron J. (1977). *Reproduction in education, society and culture*. London: Sage.

Butzkamm W. (1998). Code switching in a bilingual history lesson: the mother tongue as a conversational lubricant. *International Journal of Bilingual Education and Bilingualism, 1*(2), 81-99.

Choi, P. K. (2003) The best students will learn English: Ultra-utilitarianism and linguistic imperialism in education in post-1997 Hong Kong. *Journal of Education Policy*, *18*(6), 673-694.

Education Commission (1984). *Education Commission Report No 1*. Hong Kong: Hong Kong Government.

Education Commission (1990). *Education Commission Report No 4*. Hong Kong: Hong Kong Government.

Education Commission (1996). *Education Commission Report No 6*. Hong Kong: Hong Kong Government.

Education Department (1994). *Research on Change of Medium of Instruction in Secondary Schools*. Hong Kong: Hong Kong Government.

Education Department (1997). *Medium of Instruction Guidance for Secondary Schools*. Hong Kong: Hong Kong Government.

Education Department's Education Research Team (1994). Grouping arrangement in language of teaching, *Modern Educational Bulletin*, 32, 1-4.

Evans, S. (2000). Hong Kong's new English language policy in education. *World Englishes, 19*(2), 185-204.

Executive Summary of Review of Medium of Instruction for Secondary Schools and Secondary School Places Allocation. Available at http://www.e-c.edu.hk/eng /reform/consultation.html

Feinberg, W., & Soltis, J. (1991). *School and society.*. New York: Teacher College Press.

Hong Kong Economic Times (1998, December 3). 70% respondents doubt mother tongue teaching. *Hong Kong Economic Times*, p A22.

Hong Kong Economic Times (2008, March 15). Mother tongue teaching a hindrance to university entrance. *Hong Kong Economic Times*, p A20.

Hong Kong Standard (1998, August 24). Only 4pc of parents want Chinese schools says survey. *Hong Kong Standard*, p A02.

Joseph, E. J. (1996). English in Hong Kong: Emergence and decline. *Current Issues in Language & Society*, *3*(2), 166-180.

Lai, F. K. (1994). Language streaming and English standard. *Modern Educational Bulletin*, *32*, 5-7.

Lai, P. S., & Byram, M. (2003). The politics of bilingualism: A reproduction analysis of the policy of mother tongue education in Hong Kong after 1997. *Compare 33*(3), 315-334.

Luk (2003). *Hong Kong's education stories: From banyan tree to computer*. Hong Kong: Stepforward Multimedia Ltd.

Ming Pao Daily (1998, November 11). Surprise visits enrage schools. *Ming Pao Daily*, p. B13.

Ming Pao Daily (1999, April 21). Education officials in surprise visit object to the use of two languages in the same script. *Ming Pao Daily*, p. B14.

Oriental Daily News (2008, March 15). English- medium schools places unevenly distributed, *Oriental Daily News*, p. A31.

Pennington, M. C. (1998) Colonialism's aftermath in Asia: A snapshot view of bilingualism in Hong Kong. *Hong Kong Journal of Applied Linguistics, 3*(1), 1-16.

Reid, I. (1994). *The sociology of school and education*. London: Paul Chapman.

Rist, J. (1970). Student social class and teacher expectation: The self-fulfilling prophecy in ghetto education. *Harvard Education Review*, *40*(3), 441-451.

SingTao Daily (1997, December 4). Uproar of students whose schools lost English school status. *SingTao Daily*, p A15.

Tsui, A. (2004). Medium of instruction in Hong Kong: One country, two systems, whose language? In J. Tollefson and A. Tsui (Ed). *Medium of instruction policies: Which agenda? Whose agenda?* Mahwah, N.J.: Lawrence Erlbaum Associates. Chapter 5, 97-116.

English Immersion Teacher Evaluation and Feedback Form (EI-TEFF): Collaborative Development Process

M. Barbara Trube
Ohio University-Chillicothe, USA

Xiaodan Huang
Shawnee State University, USA

Introduction

The English language immersion project was created in the Xi'an area, a western part of China, in 1997, as an experimental language teaching innovation. In response to the increasingly urgent need of improving English language learning by students, especially their oral communication skills, education researchers in Xi'an were teamed with academics from Canada to study, and later adopt, the "Canadian model" of English language immersion. English language learning trends worldwide include beginning instruction during early education and care programs (Nunan, 2004). The basic pedagogical concept is to begin second language learning at an early age, and to have the young student "immerse" in the total target-language environment at least for half of the school day. With such rich language stimuli, students learn intuitively not only the use of the second language but through which acquire the subject knowledge and skills. Immersion programs have been found to establish a strong foundation in listening and speaking skills prior to reading and writing (Genesee, 1995). The Xi'an project began with a handful of kindergartens and, in 1998, was implemented in primary schools in additional Chinese cities (Guangzhou, Ningbo, Wuhan) (Knell et al, 2007). Programs have since been adopted into several dozen elementary and middle schools in Xi'an and other urban areas in China. The project, now officially named the China, Canada, United-States English Immersion (CCUEI) Collaborative, is a nationally recognized key research project in China. CCUEI attracts regular visits from project-member partners and interested scholars from overseas for teaching observations, workshops, and conferences. Its work currently extends to curriculum development and program evaluation. Successful experiences with the English language immersion project in China has led researchers and practitioners toward an increasing interest in finding a systematic, data-driven support to measure the effectiveness of English immersion (EI) teaching practices. The CCUEI Collaborative research agenda specifies that a teaching evaluation instrument be developed and implemented across all EI schools and classrooms to help collect data on teaching effectiveness (Qiang, 2003). Such data, used scientifically, would better inform researchers of the EI teachers' needs, as the basis for planning professional development activities, as well as for the purposes of program evaluation. The intention of this article is to report the process of developing an evaluation instrument for observing, assessing and providing feedback to (EI) teachers, as part of the response to the need for building a standardized evaluation system for the CCUEI EI program. We will describe the underlying assumptions of the design of the English Immersion Teacher

Evaluation and Feedback Form (EI-TEFF) and the pilot study of the first version of the form in the Xi'an area. Based on the data analysis of the pilot study, we will then present our recommendations leading to a revised version of the EI-TEFF instrument.

Assumptions of the EI-TEFF Design

Documentation revealed overarching themes of effective EI teaching, learning and assessment strategies and techniques, designing and planning for effective EI environments, and acting as a professional EI educator. Several questions, embedded within the themes, motivated the development of the instrument and the assignment of domains and criteria of the EI-TEFF. Theses questions included: (1) What factors do EI teachers consider when planning for effective instruction? (2) How does the environment support effective EI teaching and learning? (3) What factors make up effective EI instruction? (4) What is the professional role of the EI teacher? In the present study, themes and questions about EI teaching and learning effectiveness emerged from two main categories of sources.

The first source involved data collection between 2002 through 2005 by authors of this article during classroom visits, model teaching demonstrations, workshops and conversations. Documentation of authentic EI experiences included the following: anecdotal records; informal and formal recordings of interviews with teachers and program administrators; observation-and-feedback session notes with teachers, observers, coaches and mentors; analyses of videos and photographs of teaching events; and a synthesis of reports from Xi'an EI teachers and administrators about the topic of good EI practices.

The second included a review of the literature about research-based resources of formal evaluation systems by CCUEI Collaborative members. Among these were the *Praxis III: Teacher Performance Assessments* (2002) Educational Testing Services. USA: New Jersey; the *Immersion Teaching Strategies Observation Checklist*, American Center for Immersion Education (ACIE), (Fortune, 2000); the *Essential Knowledge and Skills of Beginning Teachers* (Ovando & Trube, 2001); and the *Global Guidelines for Early Care and Education*, Association for Childhood Education International (ACEI, 2002). Additionally, research about effective pedagogy was shared by scholars and researchers collaborating on the development of the EI-TEFF. In April 2005, CCUEI EI administrators, supervisors, mentors, teachers, contributors and consultants reviewed findings from authentic data collection in EI classrooms and programs, as well as literature on effective teaching practices. Collaboration leading to the development of a draft version of the EI-TEFF occurred at the First Annual Symposium of the CCUEI in Xi'an. The first version of the instrument included four performance domains (see Appendices): Domain A - Planning and Preparation of Lessons (with nine items); Domain B - Classroom Environment (with six items); Domain C - Instruction (with fifteen items); and Domain D - Professionalism (with two items).

The Pilot Study

A pilot study, lead by a CCUEI Collaborative member, was conducted using the original draft version of English Immersion Teacher Evaluation and Feedback Form (EI-TEFF). The purpose of the pilot was two-fold: to gather input from the evaluators regarding the appropriateness of the evaluation items for evaluating EI teaching; and for head or lead teachers to use as a mentoring guide. Xi'an was used as the piloting site because it has the most EI schools with the longest history of EI teaching n China.

Method

The pilot study was conducted in eight elementary schools in Xi'an during October and November of 2005. A research associate in Xi'an coordinated the study with a brief training session with the evaluators. The instrument was written in English with Chinese language translation added to the original form. A total of 34 teachers were observed and evaluated with 58 forms completed (five teachers in two schools received multiple evaluations for the same class they taught). In seven out of eight participating schools, the evaluations were done by peer EI teachers in the same school. In only one school, the form was filled out by the immersion head teacher or mentor teacher. The completed forms were sealed and sent to the authors of this article for anonymous analysis. No individual names, neither for the evaluator nor the teacher, were revealed in the analysis process.

Quantitative Data Analysis

Each completed form was coded with an identification number for the teacher and the school. The text rating for each evaluation item was translated into a numerical value: Unsatisfactory = 1, Basic = 2, Proficient = 3. The numerical rating was then keyed into a Microsoft Excel file, in order for the raw data to be run by each teacher performance domain, by school, by individual teacher or head teacher, by evaluator, or by each evaluation item, as needed for analysis.

The following four charts show the overall mean score for each evaluation item by each performance domain:

Figure 1: Item Average Domain B: Environment

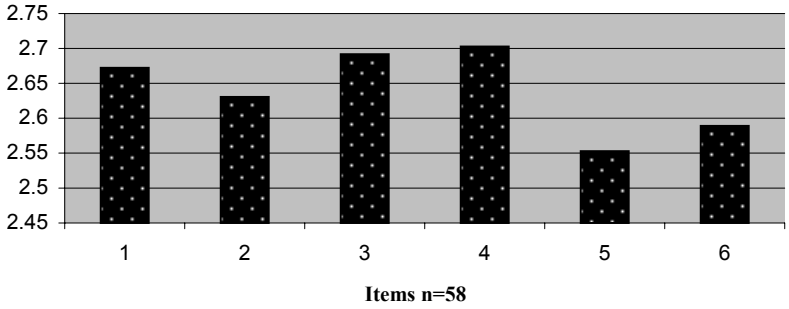


Figure 2: Item Average Domain C: Instruction

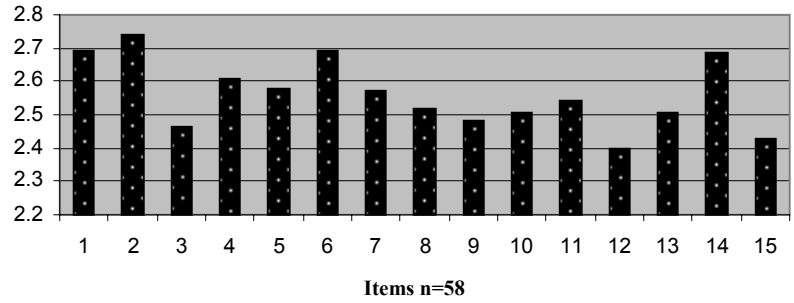
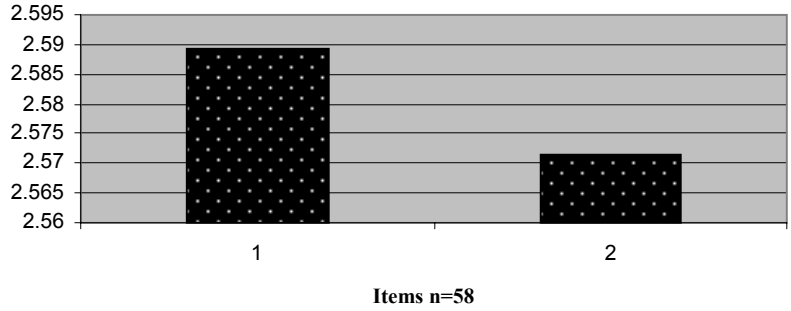


Figure 3: Item Average Domain D: Professionalism



There are four teachers in two different schools who were evaluated by multiple observers (4-8 variations) for the same lesson. The following four charts show results of eight evaluations for one example teacher by each performance domain. Some discrepancies can be observed among the evaluators, suggesting a need for improving inter-rater consistency.

Figure 4: Single Teacher Multiple Evaluations (46-53)

Domain A

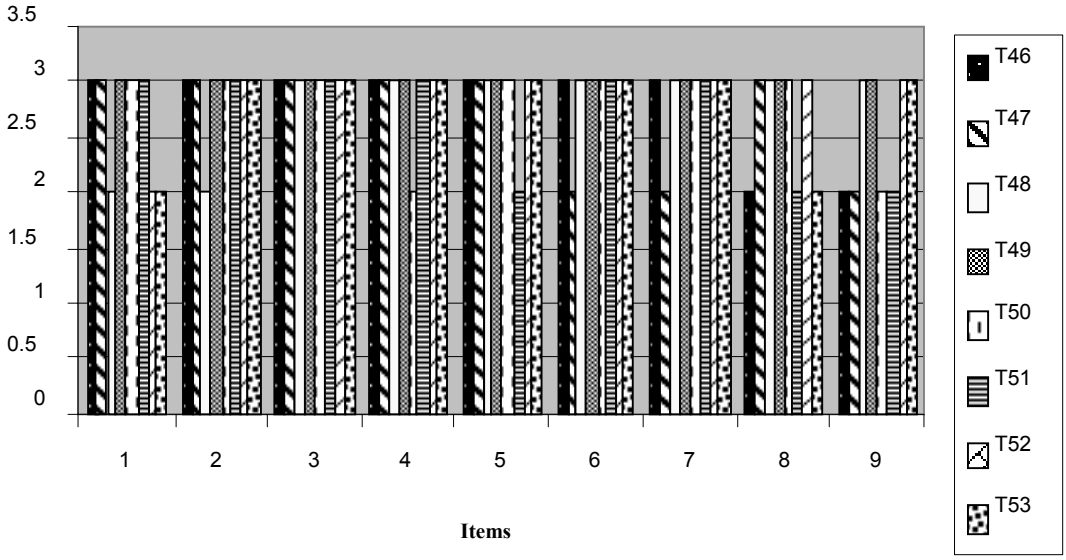


Figure 5: Single Teacher Multiple Evaluations (46-53)

Domain B

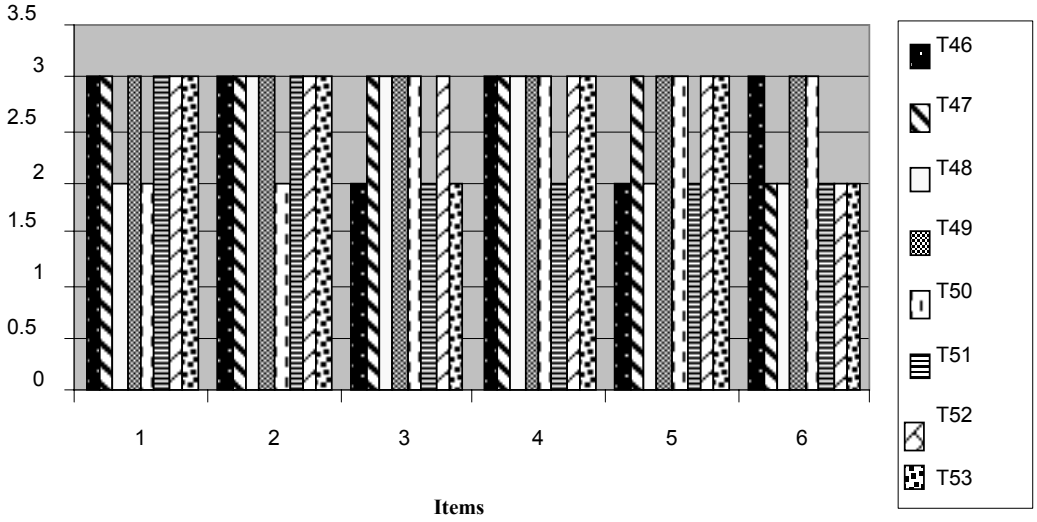


Figure 6: Single Teacher Multiple Evaluations (46-53)

Domain C

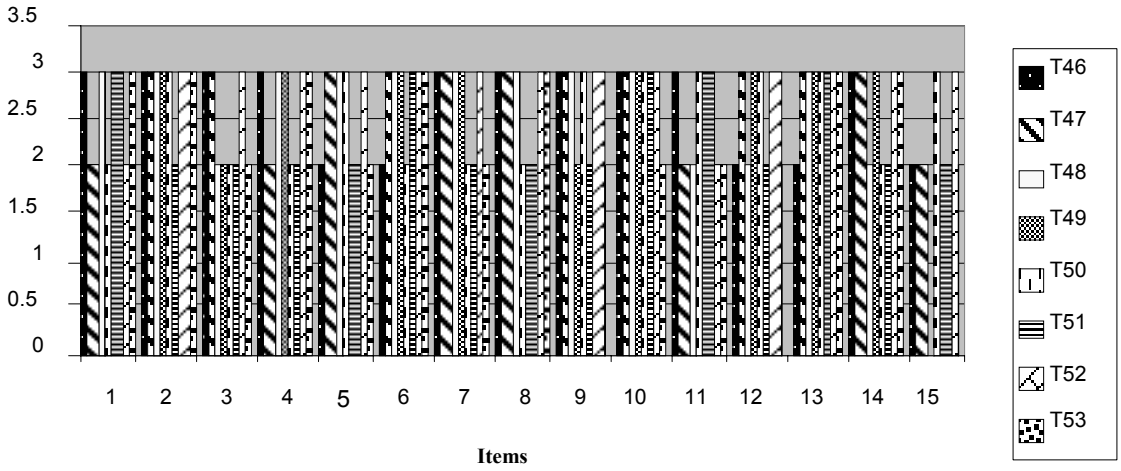
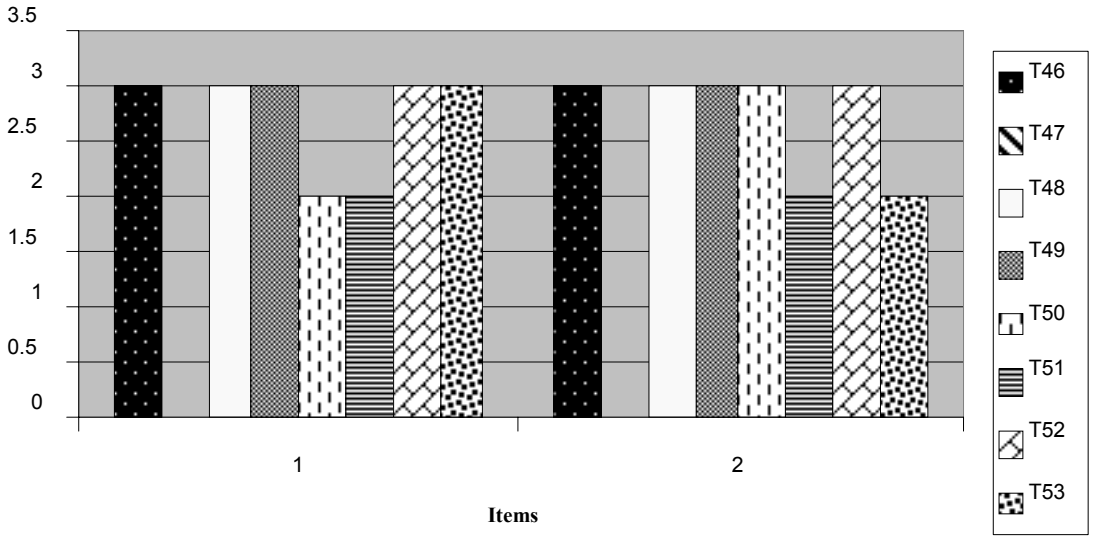


Figure 7: Single Teacher Multiple Evaluation (46-53)

Domain D



Although the instrument was originally designed to be used by mentor teachers (head or lead teachers) to observe and evaluate EI teachers for purposes of improving teaching and learning and evaluating the program, most schools participating in the pilot study had EI teachers evaluate each other. We thought it would be interesting to compare the mean score results between the peer evaluation group and head-teacher group. The following five charts show the comparison by item and by domain. As indicated in these charts, the mentor teacher evaluation rate is consistently lower than peer evaluation across all items and in all four domains. With the small sample size, interpretations for the difference may be inconclusive, but at least it may indicate the need for a shared understanding of expectations in using this evaluation instrument.

Figure 8: Mean Score Comparison: Mentor vs Peer Domain A

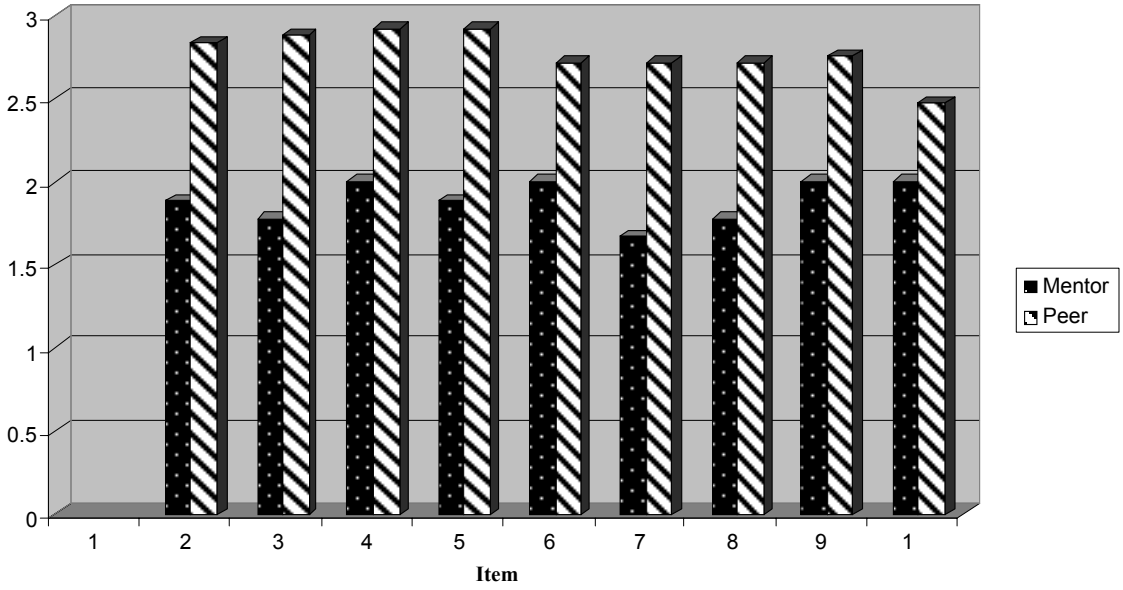


Figure 9: Mean Score Comparison: Mentor vs Peer Domain B

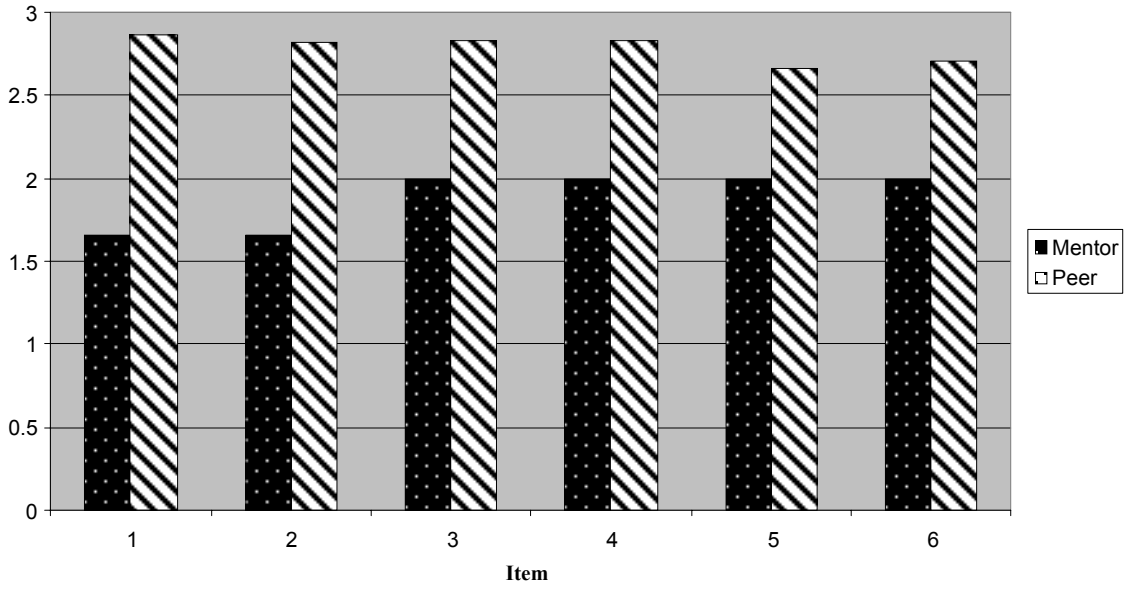


Figure 10: Mean Score Comparison: Mentor vs Peer Domain C

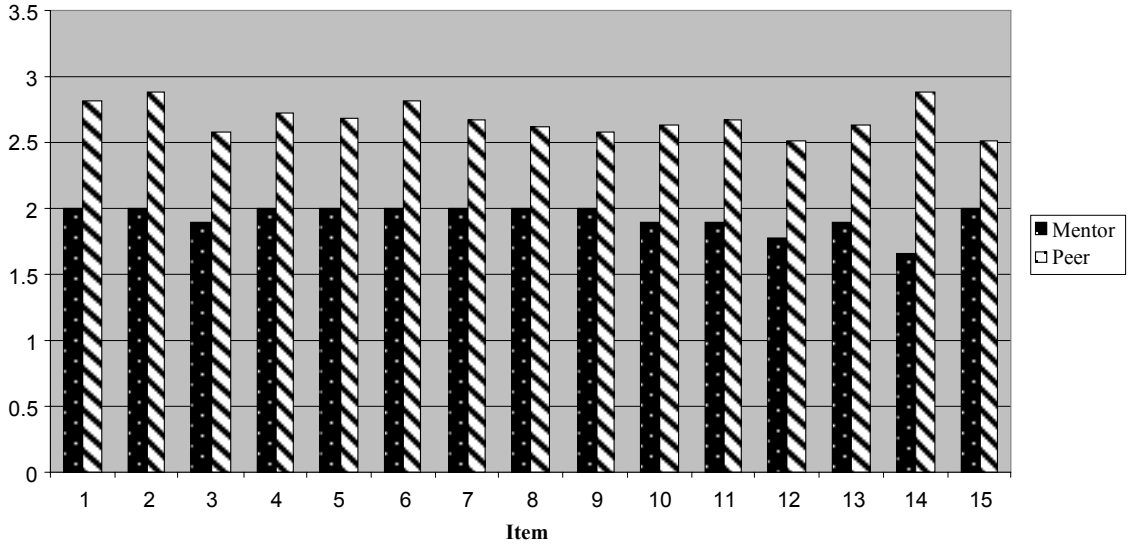


Figure 11: Mean Score Comparison: Mentor vs Peer

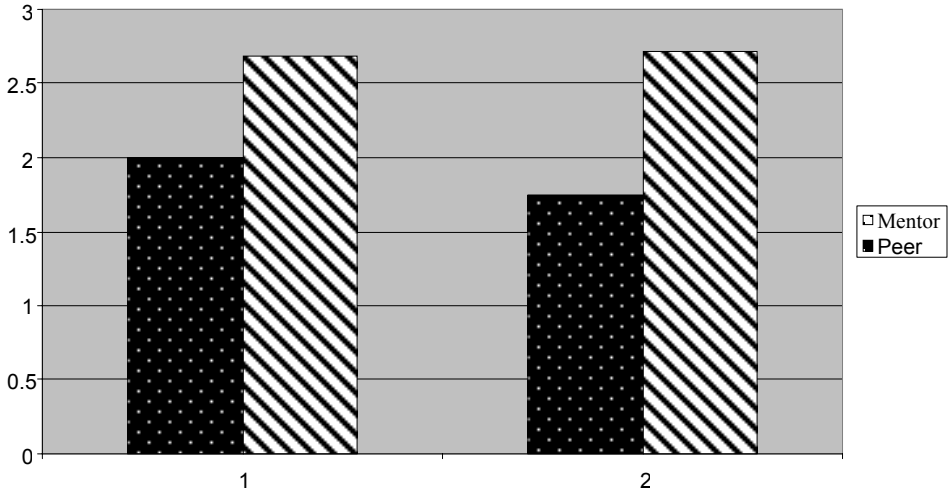
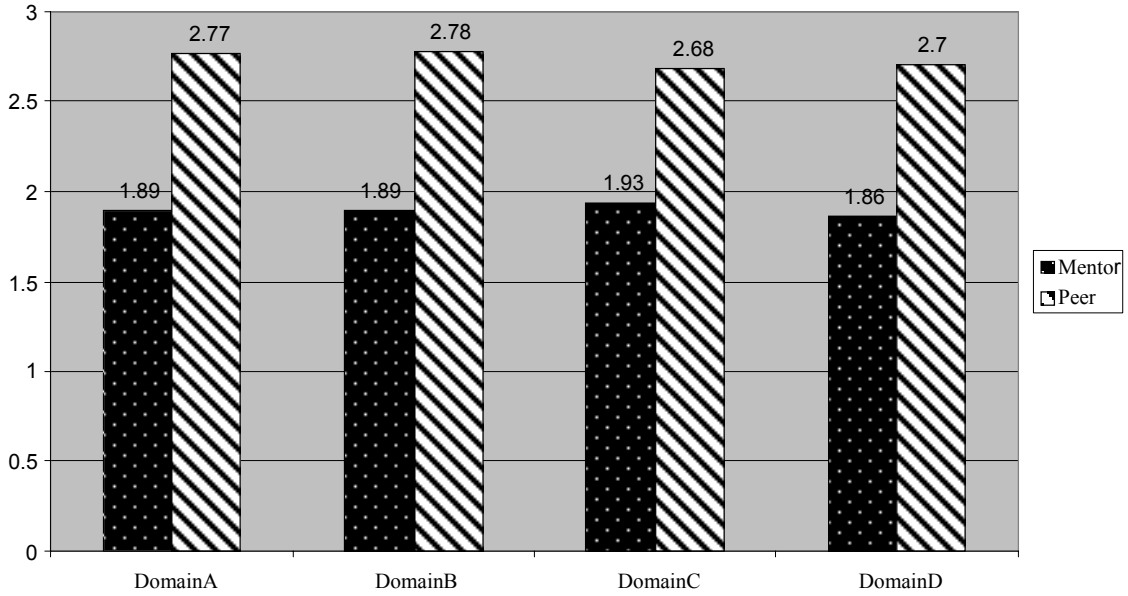


Figure 12: Domain Mean: Mentor vs Peer



Analysis of Evaluator Comments

Most evaluators made some observation comments in at least one domain. Only four (4) out of 58 total evaluations came back without any comments. Comments on 15 evaluations were written in English, with the rest in Chinese. The Chinese version was translated into English by one of the authors. Care was taken to make the English translation stay faithful to the Chinese original.

All comments were individually coded. Key words in each evaluation item were identified as codes, and were numbered to correspond to the exact same evaluation item. For example, Code A1 reflects Item #1 under Domain A, with the key words of "familiarity with students." The purpose of adopting such a coding system should give us a twofold benefit: to understand the evaluator's overall view on the teacher's performance in each evaluation domain, and to detect, from the comments, any concerns regarding the instrument and suggestions for improving items. The comments are briefly summarized by each performance domain as follows:

Domain A: Planning and Preparation of Lesson

Out of nine items in Domain A, items receiving most comments included A3 (lesson organization around theme, 19 comments), A6 (methods, 13 comments), A8 (materials, 9 comments), A7 (activities, 8 comments), and A2 (goals, 6 comments). In contrast, items receiving fewer comments include A5 (content transition, 0 comment), A4 (identifying objectives, 1 comment), and A1 (familiarity with students, 3 comments).

Both positive and negative comments were made, as shown in the sample below:

For Item A6 (methods design): The teacher intentionally creates or selects teaching methods that are appropriate to student and are aligned with the goals of the lesson, sample comments:

"The design of this lesson is suitable for higher level students, using questioning method to allow students to participate in activities, …"
"Clear teaching objectives, flexible methods, …"
"Teacher could arrange for a better variety of methods to help students understand."
"…should enrich instructional method, offer feedback to students…"

In general, evaluators are positive about each teacher's ability to design and organize the lesson according to the goals and the theme (16), and choose proper methods (9) and materials (9). Several suggested more variety of methods (4) and the use of computer-based materials (4).

Domain B: Classroom Environment

Domain B has six items, of which Item B2, on encouraging student engagement, received the most comments (27). Item B1 on teacher-student relationships, received the second most comments (13), and Item B4 on student behavior had 13 comments. Surprisingly, a few items (B5 on material variety, and B6 on classroom display of materials) received very few comments. Item B3 on instructional routines and procedures had several (3) comments.

In responding to Item B1, (The teacher builds a relationship with students and creates rapport with and among students and creates a non-threatening classroom environment that is respectful of learners.), many observers (16) wrote positive comments about "the good relationship with students" and "active classroom atmosphere" during the lesson.

Also positive are most comments (22) for Item B2, (The teacher creates a classroom with appropriate motivational and instructional strategies which successfully and actively engage all students in the learning process and promotes fairness.). Sample comments for Item B2:
"Students showed enthusiasm, active."
"Active classroom atmosphere, students were actively engaged in learning under the teacher's guidance. Students engaged in a series of creative activities."
"Teacher used mostly lecturing methods. Students were passive learners."

Many comments blended the items on student engagement (B2) and student behavioral discipline (B4) together. Several evaluators attempted to bring teacher's attention to classroom discipline matters while encouraging student participation in the activities. For example:
"The classroom was engaging but the teacher needed to pay attention to student classroom behavior when they were participating in activities."

"Good classroom discipline. Teacher can organize effectively the instruction. Suggest adding more small activities to make the classroom even more active and engaging."

Domain C: Instruction

With as many as 15 items on various specific aspects of lesson delivery in Domain C, comments spread across items and were, at times, difficult to code clearly. It may be due to different evaluators' interpretations of the items, or it may be that the differences between and among some items are too subtle and therefore difficult for evaluators to discern. For example, Items C3 (activities to make learning accessible to students), C5 (teacher makes content comprehensible to students by using body language, etc.), C12 (high-interest, student-centered activities), and C13 (out-put oriented activities) are all about activities, therefore, observers' comments may refer to any one or a combination of any of these items.

Having said that, Item C3 received most comments (16), Item C12 received 6 comments, Item C5 received 5 comments, and Item C13 received no comments. Some sample comments are selected as follows:

"The teacher should ask students to do more activities to learn more knowledge." (C3)
"Uses all knows of ways to help students to understand." (C3)
"The teacher should design more activities around the theme and use multimedia materials to give visual and auditory input to enrich learning." (C3)
"Supply more chances for kids to practice in the class activities." (C3)
"Teacher's body language is not rich enough, should be improved to help student understand." (C5)
"Good use of body language, clear and vivid expressions." (C5)
"Teacher is student center, making students participate." (C12)

Some comments (4) were made on teacher's English language instruction ability (C4). For example:

"The teacher has good and clear pronunciation…"
"Pronunciation is so clear, language is proper, …"
"Teacher's language pronunciation and intonation should have more variety."

Notably, some items, C13 (teacher use of output oriented activities), C14 (communicating language expectations) and C15 (continuing evaluation) received none or only one comment.

Domain D: Professionalism

Domain D has only two items, with D1 focusing on teacher reflective practice, and D2 on teacher collegiate relationships. Although many comments (39) were made for this domain, only a few responded to the two items (3 for Item D1 and 2 for Item D2). The explanations may be, first, it may be difficult to observe teacher reflection and

collegiate relationship during a lesson; and second, the Chinese translation of the items may not convey the concept properly enough to make them easy to understand and answer. In fact, some evaluators wrote, "Don't understand the question, cannot evaluate."

Most comments were about teacher's academic content preparation, language skill ability, and attitude in the class. For example:

"The teacher has solid professional skills, should show more enthusiasm in instruction."
"The teacher has made progress in content knowledge, shows a better confidence…"
"The teacher speaks standard English and uses elegant body language."
"She loves her job and kids, it can bring strong support for her…"

Those comments suggest a helpful direction in revising the items. New items about academic content preparation and English language preparation, and about teacher attitude in the class, may be valuable additions to this domain.

General Comments

The section of general comments on the instrument is for the evaluator to offer suggestions on the professional development needs for the teacher, as the result of this evaluation. Twenty three (23) evaluations included some comments about the need for profession development in the following areas:

(1) Enhance English language expression skills: (12) sample comments:
" XXX should go on study English about this aspect."
"Enhance English professional skills in listening, oral expressing and reading."
(2) Improve teaching methods: (15) sample comments:
"Pay attention to all students, use different materials."
"Design the content and activities according to student needs."
(3) Enhance academic content preparation: (9) sample comments:
"Need to still make progress in major skills, knowledge,…"
"Make progress in major skills and open the views of knowledge,…"
(4) Build environment: (3) sample comments:
"Establish a more active environment for class… use activities such as role play…"
"Think more effective ways to manage classroom."
(5) Attitude: (4) sample comments:
"Show more enthusiasm."
"Adjust attitude to … [be] adequate student centered."
(6) Peer teaching observation: (12) sample comments:
"She should often listen to other teacher's lessons. Study again."
"Study each other and often observe the classes and discuss their problems…"

Further Data Collection

CCUEI collaborative researchers from Beijing, Hong Kong, Guangzhou, Xi'an, and the authors of this article in the USA, collaborated via e-mail from fall 2005 through spring 2006 to review and clarify the English and Chinese language used in the EI-TEFF instrument. The analysis of the pilot study, both on the numerical rating for each evaluation item and on evaluators' narrative comments, shed much light on understanding how the EI-TEFF was interpreted as it was put into use in kindergarten and primary programs. The analysis generated discussions among members of CCUEI collaborative for the revision of the instrument. Feedback from CCUEI collaborative members and data from the pilot were synthesized by authors of this article. Further use of the revised instrument, located in the Appendix of this article, is underway. The EI-TIFF has been disseminated throughout CCUEI programs and feedback is being collected to arrive at consensus about the instrument for evaluation and feedback to EI teachers.

Conclusions and Recommendations

The purpose of this article is to report the process of developing an evaluation instrument for observing, assessing, and providing feedback to (EI) teachers, as part of the response to the need for building a standardized evaluation system for the CCUEI EI program. Careful review of the early version of the instrument by each item and revisiting relevant research have led to the following recommendations: (1) Revise the EI-TEFF instrument with the intention of clarifying the language of the evaluation items in each domain to avoid as much ambiguity in interpretation as possible across items and performance domains; (2) Provide training on the use of the EI-TEFF instrument to ensure a shared understanding among CCUEI Collaborative programs, thus improving inter-rater reliability; (3) Design a systematic method for collection of EI-TEFF data in order to assess and plan for professional development needs, and for the purpose of program evaluation; and (4) Field testing of the revised EI-TEFF.

Instrument Revision

Synthesis and analysis of comments from members of the CCUEI Collaborative and teachers who participated in piloting of the CCUEI have led to a revision of the EI-TEFF instrument based on the following considerations:

- Review domain titles for A, B, C and D to better reflect the evaluation intent in each performance domain.
- Review items in domain A, B, and C, to ensure no ambiguity among Planning (A), Environment (B) and Instruction (C), to avoid potential misunderstanding or repetition.
- Reduce the number of items in Domains A, B and C, to make the evaluation work more strategic.
- Add new items to Domain D: 1) on teacher preparation in content, 2) on teacher

preparation in the English language; and 3) on teacher attitude. Also, revise writing of items to ensure clear language to improve understanding about the professional demeanor domain.

Research supports the belief that having the ability to teach appropriately in the discipline area is the mark of a professional educator. Therefore, proficiency in the academic content area, as well as English language proficiency, is reasonable expectations under the domain addressing the teacher's professional demeanor.

- Revise the Chinese translation to ensure the Chinese version communicates accurately the intent of each item.
- Add an additional rating level of "Outstanding" on the evaluation scale for each item. Data revealed discrepancies among teacher's rating scales and written comments. By creating a four-point scale, the instrument provides an additional way to appropriately evaluate and offer feedback to teachers. The four points and the criteria for their value follow:

1. Outstanding: High quality performance that exceeds the requirements contained in the job description as expressed in the evaluation criteria.
2. Proficient: Quality performance that meets the requirements contained in the job description as expressed in the evaluation criteria
3. Basic: Minimal performance which requires assistance in order to produce high quality results
4. Unsatisfactory: Performance has not met the requirements contained in the job description as expressed in the evaluation criteria

Training for Use of the EI-TEFF

Discrepancies were revealed between teacher's rating scales and written comments on some items. Some evaluators stated they did not understand the language related to some items. In order to reach a clear understanding and inter-rater reliability with use of the EI-TEFF instrument, training on the use of the instrument is recommended. Training will provide a common understanding that a teacher and a mentor can understand and agree upon related to particular items in the EI-TEFF. Research indicates trained observers using a particular system can demonstrate a high level of agreement (Wallace, 1991). As part of the training, a written manual needs to be developed for lead teachers and mentor teachers. Protocol for a feedback session following the evaluation needs to be available for the mentor teacher. A copy of the feedback form should be given to the teacher and the original retained by the mentor teacher for purposes of planning professional development and providing input for program evaluation.

Building an Assessment System

An assessment system with a distinct feature EI teaching philosophy is recommended. The CCUEI program will benefit from a systematic approach to collecting and analyzing teacher performance data and using data for the purposes of professional development and program improvement. Research in teacher education as well as the second language learning provides amply support for having such a system. The EI-TEFF will serve well as an evaluation tool as part of the system. Proper structure and administrative support need to be created and organized (Finney, 1996).

Field Testing of the Revised EI-TEFF

Field testing of the revised instrument EI-TEFF was initiated in fall 2007 in several locations in China. Preliminary data was collected in December 2007 from teachers, mentors and administrators in four primary schools and one middle school in Xi'an. Ongoing data collection is in progress and will continue through 2008. CCUEI Collaborative members from Xi'an, Guangzhou and USA will review data in late 2008.

Appendix

English Immersion Teacher Evaluation and Feedback Form
浸入式教育课堂教学评测反馈表

Teacher's Name_____ Grade Level_____
教师姓名 年级
English Immersion Content Area_____
浸入式学科课程
School _____Time Beginning/Ending_____
学校名 起始时间/结束时间
Evaluator_____Date_____
评测人 日期

Domain A: Lesson Preparation
教学准备

Indicator Number	Indicator: (U = Unsatisfactory; B = Basic; P = Proficient; O = Outstanding) 指标: (U =不满意； B =基本满意； P =满意； O = 优秀）	U	B	P	O
A.1	The teacher has a written lesson plan meeting English immersion teaching requirements. 教师（在课前）备有合格的英语浸入式书面教案。				
A.2	The teacher is familiar with relevant aspects of students' background knowledge and experiences. 教师熟悉学生有关的多方面背景知识和阅历情况。				
A.3	The teacher plans learning goals and objectives, including English language objectives, in the content area according to student needs. 教师根据学生的情况计划合理的学科知识和英语语言教学目的和目标。				
A.4	The teacher plans lesson that connects to previous learning, current content and content of future learning. 教师的教学计划将已学的和现学的内容及将要学习的内容承上启下，互相联系。				
A.5	The teacher plans theme- and/or project-based methods and activities according to lesson goals and objectives. 教师根据教学目的和目标围绕内容主题计划教学方法和活动。				
A.6	The teacher creates or selects appropriate instructional materials and resources, including technology, according to lesson goals and objectives. 教师根据教学目的和目标创造和选择相应的教学素材和资源，包括电脑材料。				
A.7	The teacher creates or selects evaluation strategies that are appropriate for the students and that are aligned with the objectives and goals of the lesson. 教师根据学生的情况和教学目的目标创造和选择合理的教学效果考评方法				
Comments: 评语：					

Domain B: Classroom Environment
课堂环境

Indicator Number	Indicator: (U = Unsatisfactory; B = Basic; P = Proficient; O = Outstanding) 指标: (U =不满意；B =基本满意；P =满意；O = 优秀）	U	B	P	O
B.1	The teacher builds a good relationship with students, and creates a fair and non-threatening classroom that encourages participation. 教师建立良好的师生关系，营造公平和轻松的课堂环境，鼓励学生参与课堂活动。				
B.2	The teacher establishes and maintains consistent classroom and instructional routines and procedures. 教师建立并保持可靠的教学步骤和日常课堂活动程序。				
B.3	The teacher establishes and maintains consistent rules of conduct for student behavior and clearly communicates expectations. 教师设立并保持一贯性的学生行为标准，并将其明晰告知学生。				
B.4	Teacher creates a rich English language environment by displaying words, phrases, written text, visuals and real objects throughout the classroom 教师建立丰富的英语语言环境，充分利用教室内展示教学词汇，课文，图片及实物。				
Comments: 评语：					

Domain C: Instruction
课堂讲授

Indicator Number	Indicator: (U = Unsatisfactory; B = Basic; P = Proficient; O = Outstanding) 指标: (U =不满意；B =基本满意；P =满意；O = 优秀）	U	B	P	O
C.1	The teacher clearly communicates content-learning goals and objectives to students. 教师明确向学生说明学科知识的教学目的和目标。				
C.2	The teacher clearly communicates expectations of English language use in the content area to students. 教师明确向学生说明英语语言的学习目的，以确保学科内容的学习效果。				
C.3	The teacher models accurate use of language, articulates and enunciates clearly. 教师授课时示范语言表达的准确性，吐字清晰，发音标准。				
C.4	The teacher uses different modes of language expression to help students understand the content of learning (body language, facial expressions, gestures, vocalizing, and intonations). 教师使用多种方法帮助学生理解教学内容（体型表达，面部表情，手势，不同的语音语调等方法）。				
C.5	The teacher uses a variety of activities to involve students in the learning process (small group, cooperative learning, role plays, simulations, dramas, presentations). 教师使用多种活动调动学生参与课堂教学过程（小组活动，合作学习，表演，体验，戏剧，及报告法）。				
C.6	The teacher uses questioning and responding methods to enhance student enthusiasm for engaging in higher-order thinking skills and using English language. 教师使用提问启示法提高学生独立思维的能力和英语学习的积极性。				
C.7	The teacher uses class time effectively, maintains the flow of the lesson and adjusts learning activities as the situation demands. 教师有效利用课堂时间，保持教学进度，适时调整教学活动安排。				
C.8	The teacher monitors learning of all students by frequently checking for understanding and providing feedback before, during and after instruction 教师在授课前，授课中，及授课后及时检查学生的理解程度，提供反馈以帮助所有学生达到学习效果。				
Comments: 评语：					

Domain D: Professional Demeanor
职业表现

Indicator Number	Indicator: (U = Unsatisfactory; B = Basic; P = Proficient; O = Outstanding) 指标: (U =不满意；B =基本满意；P =满意；O = 优秀）	U	B	P	O
D.1	The teacher is well prepared in the content area of teaching. 教师本身具有合格的专业背景，能胜任所教学科。				
D.2	The teacher is well prepared in the English language for teaching in the content area. 教师本身具有合格的英语语言能力，作为工具从事学科教学。				
D.3	The teacher is positive, enthusiastic and accepts constructive feedback. 教师具有热情向上的职业态度，正确接受建设性意见。				
D.4	The teacher establishes and maintains good professional relationships with other teachers to share teaching insights and coordinate learning activities for students. 教师与同事建立并保持良好职业关系，共讨教学事务，合作组织学生的学习活动。				
D.5	The teacher reflects on the lesson, identifies and actively participates in professional development activities to improve teaching. 教师反思教学讲授情况，积极参与业务提高活动，以改进教学。				
Comments: 评语：					
Plan for Professional Development Based on Observation Feedback 根据评估结果为教师制定的业务提高计划					

References

Finney, R. E. (1996). *Foreign language education in elementary schools: Revitalizing and maintaining a workable program*. (MSE) ED408842

Fortune, T. (2000). Immersion teaching strategies observation checklist. *American Council on Immersion Education (ACIE) Newsletter: The Bridge*, November, 1-4.

Genesee, F. (1987). Integrating language and content: Lessons from immersion. *Educational Practice Report, 11*. McGill University.

Knell, E., Qiang, H., Pei, M., Yangpin, Chi., Siegel, L.S., Zhao, Lin, & Zhao, Wei (2007). Early English immersion and literacy in Xi'an, China. *The Modern Language Journal*, 91, iii, (2007) 0026-7902/07/395-417.

Nunan, D. (2004). The impact of English as a global language on educational policies and practices in the Asia-Pacific Region. *TESOL Quarterly*, *37*, 589-613.

Qiang, H. (2003). *Curriculum integration in elementary English immersion teaching model: A research proposal* (China Educational Science Planning Center Approval #DHA030145)

Ovando, M. O. & Trube, M.B. (2000) Capacity building of beginning teachers from traditional and alternative certification programs. *The Journal of School Leadership*, *10* (4) 315-328.

Trube, M. (1997). *Role of the principal in capacity-building teachers from alternative licensure programs.* Dissertation abstracts, The University of Texas at Austin.

Wallace, M. J. (1991). *Training foreign language teachers: A reflective approach*. Cambridge University Press.

Preschoolers' Verbal Interaction and Letter Identification Skills: Television Cartoon Characters as Visual Aids

Gennievie R. Ada
Miriam College, Philippines

Introduction

In today's generation, television has been a part of every child's world. Children literally grow into these patterns of behavior. Some people view television negatively, stating its harmful effects, such as children's exposure to violence, sexuality, misrepresented self-image, vulgarity, commercialization, and disturbing images (http://www.changingchannels.org/mediaed.htm). Many researches have also found a high correlation between viewing violence on television with aggressive behavior of children (Torr, 2002). In addition, the excessive hours spent on watching television take time away from reading, creative hobbies and activities, homework, and even playing with friends (Graham, 2008**;** Unnikrishnan, 1996). On the other hand, others recognize the advantages brought about by this phenomenon. Television can be viewed as a powerful learning tool and a highly influential form of media (Torr, 2002). It is also an effective way of instructing and educating because of its ability to hold attention. It is a strong conveyer of information, knowledge, and ideas. The use of television can contribute importantly through educational programming to children's scholastic achievement, as exemplified by gains in knowledge of letters and numbers (Singer, 2001). Some parents feel that exposure to television has broadened their children's horizons, added to their knowledge, and made them curious about many things (Graham, 2008; Unnikrishnan, 1996). Also, some programs may demonstrate positive forms of behavior such as generosity, tolerance, cooperation, and other modes of behaving that promote constructive social interaction (Singer, 2001). Whether watching television is advantageous or not, it is true that the television set, by occupying a central and almost permanent position in our homes, seems to be already part of the family. As an experience, therefore, it has enormous impact on children, especially those below six years of age. Children, especially the younger ones, begin to recognize programs, title tunes, television characters, and even commercial jingles. These are absorbed due to one's interest or mere repetition. We accept that television, like other aspects of our lives, can be beneficial only if moderated (Van Evra, 1998; Unnikrishnan, 1996).

Being teachers of young children carries with it a great responsibility of caring for and educating them. Children's exposure to television can be dealt with in different ways. Some schools offer media education, others teach lessons using multimedia, and so forth. This study, however, explores another possible way of taking advantage of the phenomenon of children's interest in television. With the task of teaching the basic skills in literacy, the study investigates how this can be done using children's television experience. Talk is a vital language art. Children learn through talking when they are curious and interested in the topic (Tough, 1977). Audio-visual materials, including pictures, can provide a high degree of interest and involvement of students. They give

rise to meaningful concepts such as words enriched by meaningful associations. The attention-getting power and the ability to arouse interest help students think about a subject in a more concrete way (Dale, 1959).

Taking into consideration the power of television, the importance of children's talk, and the advantages of audio-visual materials, this study aims to find out whether pictures of television cartoon characters are effective tools in improving basic literacy skills of speaking and learning of the alphabet.

Statement of the Problem

The study aims to find out if associating pictures with letters is an effective tool in teaching the alphabet to 3- and 4-year-old students. It further seeks to investigate whether using pictures of television cartoon characters as visual aids leads to greater verbal interaction and improved letter identification skill, as compared to using traditional pictures. Specifically, the researcher seeks to answer the following specific questions:

1. Do children verbally interact more when presented with pictures of television cartoon characters than with traditional pictures?

2. Does the use of pictures help children recall the names of letters?

3. Do they recall letters better when presented with pictures of television cartoon characters than with traditional pictures?

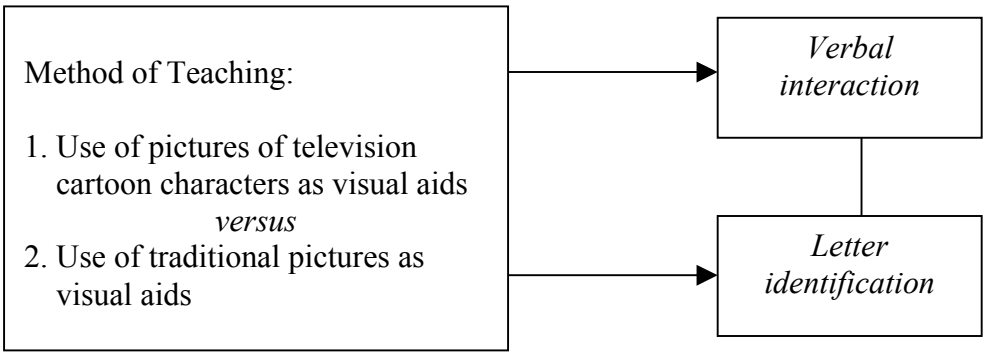
4. Is the frequency of verbal interaction of students significantly related to their scores in the letter identification test?

5. What kind of responses do children give when shown traditional pictures and pictures of television cartoon characters?

Conceptual Framework

Most young children are exposed to television. Using pictures of television cartoon characters as visual aids is a possible way to get children to verbally interact in class due to familiarity and interest in these characters. Associating the pictures with letters may also help children retain information (See Figure 1).

Figure 1: The Research Paradigm



The variables in the study include method of teaching, verbal interaction, and letter identification. These variables are conceptually and operationally defined as follows:

Method of Teaching

This is defined as the teacher's manner or way of instructing. The study uses two methods of teaching: using pictures of television cartoon characters as visual aids and using traditional pictures as visual aids. The visual aid is a picture flash card shown to the students in teaching a particular letter. Traditional pictures are the typical and usual pictures used to associate with the letters of the alphabet. For example, a picture of a cat for the letter C, dog for the letter D, and so forth. Pictures of television cartoon characters are taken from popular shows in Nickelodeon and Disney Channel.

Verbal Interaction

Interaction is conceptually defined as carrying out, taking part, or sharing in something. Verbal refers to something that is spoken or expressed in words. In this study, verbal interaction reflects the interest of the children as well as their motivation to speak in class. It is measured by the number of times a student speaks during class discussion.

Letter Identification

Learning is conceptually defined as gaining knowledge, information, skill, comprehension, or mastery through experience or study. An oral letter identification test is conducted to measure the ability of the student to name the letters employed in the study.

Hypotheses

The research hypotheses in this study are as follows:

1. Students verbally interact more when presented with pictures of television cartoon characters as compared to traditional pictures.

2. The use of pictures leads to improved letter identification skills of students.

3. The use of pictures of television cartoon characters is more effective for improving letter identification skills than the use of traditional pictures.

4. The frequency of verbal interaction of students is significantly related to their letter identification skill.

Method

Design

This study used a quasi-experimental research design. Specifically, the pretest-posttest nonequivalent-groups design was used. The participants came from intact classes. Two selected classes were randomly assigned to the treatment groups.

Setting

The study was held at Miriam College Child Study Center located in Katipunan Road, Quezon City, Philippines. The experiment was conducted on November 7, 2005 to December 9, 2005 inside the First Step classrooms. Having the experiment inside the classrooms enabled the researcher to observe the natural behavior of the participants during class time. The students were comfortable in the setting and therefore acted naturally during the experiment.

Participants

The participants of the study were students from the First Step level of the Child Study Center. First Step is the lowest level in preschool consisting of 3- and 4-year-old students. The population consisted of 116 students, divided into eight sections with 14 to 15 students per class. The sections were divided into two sessions. Sections FS-1, FS-2, FS-3, and FS-4 are were in the morning session (8:00 a.m. – 10:15 a.m.). Sections FS-5, FS-6, FS-7, and FS-8 were in the afternoon session (1:00-3:15 p.m.). Cluster sampling was used. The participants were chosen as a class instead of as individual students because familiarity and rapport were important factors in the study, especially because verbal interaction was to be measured. Pulling out students from their current class and letting them join another group for the experiment may hinder them from interacting and participating as they would naturally do with their classmates.

To control the extraneous effect that the class schedule might bring, only the morning session was used in the study, which was chosen through drawing lots. However, after obtaining the results of the pretest, it was found that only two classes were initially comparable in the morning session. The scores of the two other classes were either significantly higher or lower. Including them in the study might give invalid results. Therefore, the two comparable groups were automatically chosen and they were randomly assigned to the cartoon group and traditional group. Both classes had 15 students each.

Measures

To identify the letters to be included in the study, an oral test was conducted, which asked the participants to name the letters of the alphabet. The test was able to identify the letters that have yet to be learned by most students. The seven letters that were least familiar to the students were selected for the study. Tally sheets were used to list the frequencies of verbal interaction of all the participants in the two treatment groups, as well as to count the number of times a student talked and shared any idea, story, or thought about the topic. Only responses related to the letter or picture were counted. Frequencies were counted per student, per treatment group, and per day. Total frequencies were also obtained after the 19-day experimental period. Frequencies were treated as nominal data. An oral letter identification test was conducted to measure the ability of the student to identify the seven letters employed in the study. Flashcards of uppercase letters were used and no pictures were shown during the test. One point was given for each letter identified correctly. The test had a total of seven points. The same oral letter identification test was used as pretest and posttest.

Procedure

To implement the two methods of teaching, flashcards of 14" x 11" size were used for the experiment. Such size was big enough for the whole class to see. The half portion of the flashcard has a red and bold uppercase letter. The other half has a printed picture. The selection of letters to be included in the flashcards was based on certain considerations. The First Step program was aimed at teaching 6 to 7 letters per quarter since the 26 letters of the alphabet were divided into the four quarters of the school year. Since the experiment lasted for one quarter, 7 letters of the alphabet were the content of the study. To remove the extraneous effect that teaching effectiveness might bring, the 7 target letters of First Step for the current quarter were initially excluded in the study. An oral letter identification test on the remaining letters was conducted to identify the seven letters that were least familiar to the participants.

After having chosen the seven letters, television cartoon characters with the corresponding beginning letters were to be identified. Complete lists of television cartoon characters were available at the websites of Nickelodeon and Disney Channel. These were the two major cartoon channels on cable television. To ensure that the cartoon characters to be used in the flashcards were familiar to the students, pictures of

these characters were shown to First Step students and they were asked to identify the names of the characters. For the traditional group flashcards, the pictures selected were based on the words and pictures commonly depicted in preschool alphabet books. The seven letters used were the same for both the cartoon group and traditional group. All flashcard pictures were colored computer printouts for clear and recognizable images.

The seven letters employed in the study were the following: C, D, J, M, N, S, and T. Table 1 shows the corresponding pictures used for the cartoon group and traditional group flashcards. The flashcards were shown to the students in different days and weeks in such a way that all the letters were equally exposed for seven (7) times.

Table 1: Pictures Used in the Treatment Groups

Letter	Cartoon Group	Traditional Group
C	Clifford (Nickelodeon)	Cat
D	Dora (Nickelodeon)	Dog
J	Jasmine (Disney Channel)	Juice
M	Mickey Mouse (Disney Channel)	Milk
N	Nemo (Disney Channel)	Nest
S	Spongebob Squarepants (Nickelodeon)	Socks
T	Tigger (Disney Channel)	Truck

The experiment was conducted during the third quarter of the school year. Due to the holidays and scheduled activities of the school, the experiment was conducted for nineteen (19) school days. Familiarity with the teacher was an important factor in the study because children's verbal interaction was measured. An unfamiliar adult may hinder the children from participating as they would naturally do with their teacher. For this reason, the homeroom teacher of the class was the one who conducted the experiment.

Two treatment groups were involved; these were the cartoon group and traditional group. The cartoon group was introduced to the letters using pictures of television cartoon characters as visual aids. For example, the letter "D" was introduced together with a picture of "Dora". The traditional group was introduced to the letters using traditional pictures as visual aids. For example, the letter "D" was introduced together with a picture of a dog. During the experiment, the homeroom teacher showed flashcards to the students, identified the letter and picture, and asked the students to repeat the letter. The flow of the class discussion was done freely. The teacher allowed the students to give verbal comments about the picture or the letter. The researcher listed the number of times the students spoke during class discussions. All verbal utterances were recorded and transcribed for qualitative evaluation. At the end of the two-month experimental period, each student was given a letter identification test, which served as the posttest.

Results

Verbal Interaction of Cartoon Group and Traditional Group

Figure 2 presents the frequencies of verbal interaction of the cartoon group and traditional group per day. The total frequencies are summarized in Figure 3.

Figure 2: Verbal Interaction Frequencies per Day

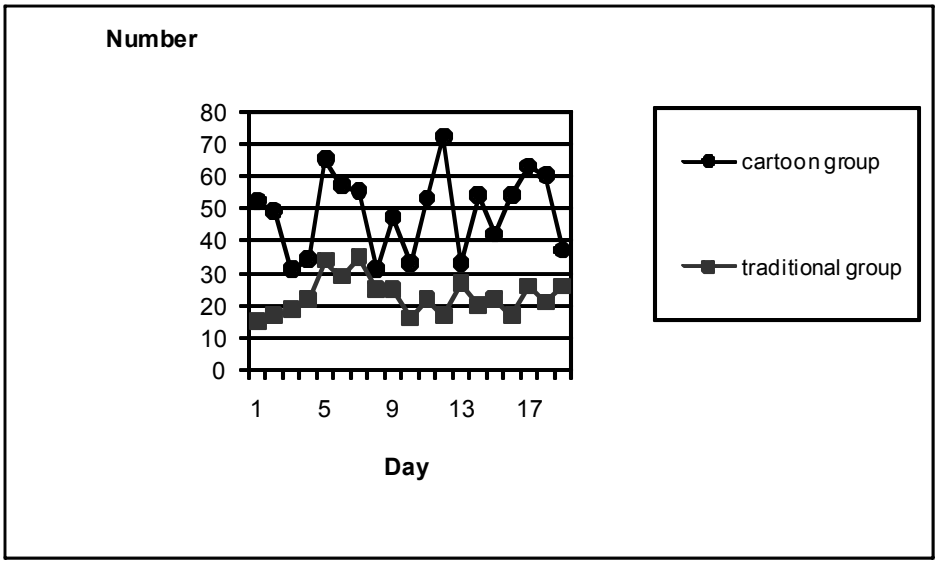


Figure 3: Total Verbal Interaction Frequencies

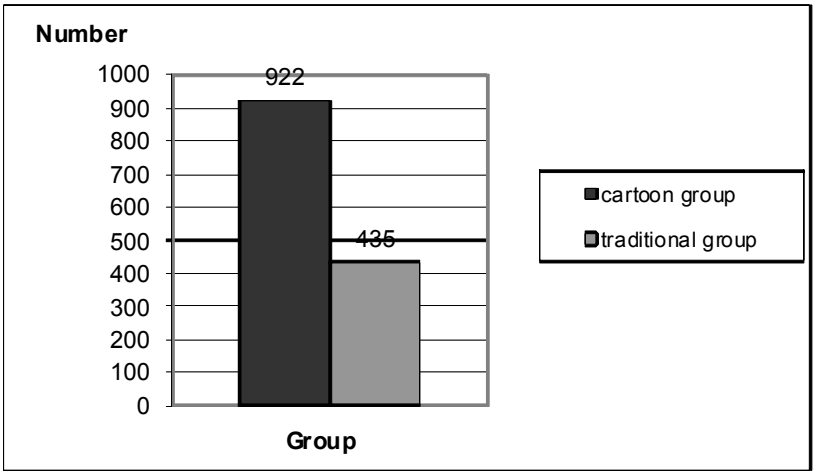


Table 2 presents the verbal interaction frequencies in the cartoon group and traditional group. The total verbal interactions, as well as the median, were obtained for both groups. The cartoon group median of 54 was greater than the traditional group median of 18. In addition, the Mann-Whitney *U* test was used to find out if the verbal interaction frequencies of the cartoon group and traditional group were significantly different from each other. The verbal interaction frequencies of the two groups were combined and ranked from lowest to highest. The summation of ranks for the cartoon group and traditional group are presented in Table 2. The obtained *U* of 67 was significant at .05 alpha level. The verbal interaction frequencies between the cartoon group and traditional group were significantly different. Students from the cartoon group verbally interacted more than those from the traditional group.

Table 2: Verbal Interaction Frequencies

	Cartoon Group	Traditional Group
n	15	15
Total	922	435
Mdn	54	18
∑R	278	186
U 67*		

*p<.05, one-tailed

Letter Identification of Cartoon Group and Traditional Group

The study aimed to find out if the use of pictures helps students recall the names of letters. The pretest and posttest scores were obtained and the *t*-test for change/gain was applied. This was done to both the cartoon group and traditional group (See Table 3).

Table 3: Gains of Scores

Cartoon Group			Traditional Group		
n	D	SD	n	D	SD
15	1.733	2.048	15	1.133	1.707
t	3.28*		t	2.57**	

*p<.005, one-tailed. **p<.015, one-tailed

The *t* value of 3.28 for the cartoon group and *t* value of 2.57 for the traditional group were both significant at .05 alpha level. Students from both treatment groups significantly improved their letter identification scores after the treatment. Both methods

were effective in improving the letter identification skill of students. However, the study also aimed to find out whether there was a significant difference on the effectiveness of the two methods in improving the letter identification skill of students. The *t*-test for two independent means was first applied on the pretest scores to ensure that the two groups had similar letter identification skills before treatment was given (See Table 4).

Table 4: Pretest Scores of Cartoon Group and Traditional Group

Cartoon Group			Traditional Group			
n	Mean	SD	n	Mean	SD	T
15	4.067	2.909	15	3.933	2.863	.13

The *t* value of .13 did not result to a significant difference at .05 alpha level. The pretest scores of the students from the cartoon group and traditional group were not significantly different. Therefore, the letter identification skills of the two groups can be assumed to be comparable before the experiment. Hence, the *t*-test for two independent means was again applied but this time using the posttest scores of the two treatment groups (See Table 5).

Table 5: Posttest Scores of Cartoon Group and Traditional Group

Cartoon Group			Traditional Group			
n	Mean	SD	n	Mean	SD	T
15	5.80	2.104	15	5.06	2.175	0.95

With an alpha level of .05, the *t* value of .95 did not result to a significant difference on the posttest scores between the two treatment groups. It was only significant at .20 alpha level, which is not considered acceptable in an educational research.

Relationship Between Verbal Interaction and Letter Identification Skill

To test the relationship between verbal interaction and letter identification skill, the verbal interaction frequencies and posttest scores of individual students were correlated using the Spearman rank correlation technique. Data from the cartoon group and traditional group were combined. The verbal interaction frequencies and posttest scores data were converted to ordinal values by ranking them from highest to lowest. The computed correlation coefficient of r_s=.76 was significant at .05 alpha level.

Verbal Responses

The verbal responses of participants were recorded and transcribed for the 19-day experimental period. The responses from the cartoon group are presented first, followed by the responses from the traditional group. The data were chosen according to patterns and critical moments. During the experiment, the homeroom teacher first covered the letter and only exposed the picture on the flashcard. After the students identified the picture, the teacher exposed the letter and asked the children to identify it. The class discussion was done freely by allowing students to comment on the picture or the letter. The teacher facilitated the discussion by acknowledging the responses of students or by asking questions.

(I) Cartoon Group

In the cartoon group, the teacher facilitated class discussion by acknowledging the responses of the students. This was done by saying "yes" or by repeating their responses. At times, the teacher started the discussion by asking what the students remember about the character. However, most of the time, comments were readily given by the students when they see the pictures.

Sample transcriptions:

T-teacher, S-student

S: Teacher Joy!
S: Spongebob!
T: Spongebob
S: S!
S: S!
T: His name begins with the letter..
S: S!
S: Teacher, S!
S: Jasmine, Jasmine
T: Yes, later
S: He lives in the water
T:Yes, he lives in the water
S: I watch Spongebob
T: You watch Spongebob
S: Teacher!
(Student shows her ID)
T: Tintin has a letter S in her name
T: Yes, Bettina?
S: His friend is Patrick
T: Yes, he's the friend of Patrick
S: Teacher Joy, letter S! (pointing to one's ID)
T: Yes, Earl has a letter S

S: Teacher
S: I have no letter S
T: Yes, Ysabel?
S: He's a sponge
T: Yes, he's a sponge
S: Teacher Joy
S: Teacher Joy, I have a letter S
S: Letter S
S: Like a snake
T: Yes, like a snake
S: Teacher, many letter S
T: Yes, we have lots of letter S around our classroom

During the students' first few encounters with the flashcards, they readily commented on the picture of the cartoon character. Usual responses showed children's familiarity with the cartoon characters. They said that they watch these cartoon shows at home. They also mentioned that they own things with such cartoon character. Upon seeing the picture, the students frequently named the friends of the cartoon characters. They also mentioned the lines that these characters often say on television. Students gave descriptions or information about the cartoon characters. They would even retell stories at times. The students noticed small details on the pictures of the cartoon characters. They would either tell the class or ask the teacher about such detail.

After being exposed to the flashcards a number of times, the children readily commented that there was a letter beside the picture of the cartoon character even if it was still covered. They tried to identify the beginning letter of the character. Some students readily identified the letter while some of them tried to guess or ask the teacher about the hidden letter. Upon seeing the letter, some students said that their names begin with the letter or that their names have such letter. They would look at their ID's or show their ID's to the teacher and to their classmates. If they do not have the letter on their names, they would also tell it to the teacher. Some students also added that the names of their parents or siblings begin with the letter on the flashcard. Students sometimes gave words that begin with the letter on the flashcard. They also looked for the letter on words posted around the classroom.

T: CJ has a letter C, very good
S: I have!
S: Also cat, also cat!
T: Cat also, very good Kim.
S: And cup
T: Also cup, very good.
S: Teacher Joy, the cow.

The students recognized that not all flashcards were presented everyday. Some students asked the teacher where the other cartoon characters were. They also commented that only few flashcards were shown during the day. Students asked what

and why questions about the cartoon characters. They also compared the characters with other people and objects that they see. The students showed interest in beginning letters. They asked the teacher about the beginning letters of different names and words aside from the cartoon characters shown during the day.

T: Yes Kim?
S: Teacher, I watch that in Disney channel
S: Teacher, why is he the biggest dog in the world?
T: Do you know why?
S: Big!
T: Because he just got big one day right?
S: Really really Big!
T: Yes, he got really really big
S: Teacher Joy, how come Clifford can talk?
T: Yes, how come Clifford can talk? Why did Clifford talk?
S: He's a dog.
S: Maybe he's a dog.
T: Is Clifford real?
S: No
T: Yes, maybe that's why he can talk.

(II) Traditional Group

In the traditional group, the teacher presented the flashcard and asked the children to identify the picture. The students responded by simply identifying it. No student described or gave additional comments on the picture. After identifying, the teacher exposed the letter and asked the students to name it. The students responded by identifying the letter. The teacher asked the students to think of words beginning with the letter on the flashcard.

T: Okay, what is this?
S: Truck!
T: Truck! Truck starts with what letter?
S: T
T: Let me see if you're correct… Are you correct?
S: Yes
T: Yes, okay. What other words start with the letter T?
S: Tent
T: Tent, what else?
S: Ten
T: Ten, what else?

The students gave one-word responses. They rarely gave comments in phrases or sentences. They tried to give names and words beginning with the letter on the flashcards. The teacher acknowledged the responses by repeating the words given by students. She repeatedly asked for more words to continue the class discussion.

T: What's this?
S: Milk!
T: Milk starts with what letter?
T: Mmmm, what letter is that?
S: M!
T: M, very good.
T: Any other word that starts with letter M?
S: Monkey
T: Monkey! Anything else?
T: Mmmm
S: Mom
T: Mom starts with letter M. What else?
S: Mama!
T: Mama starts with letter M.. anything else?
S: Nanay!
S: Moira
T: Moira starts with letter M
S: Nanay
T: Nanay starts with letter N. Anything else that start with letter M?
S: Window
S: Teacher
T: No…
T: Mmmmmm….
S: Book
S: Teacher, Dog
S: Mouse
T: Mouse, very good
S: Milk
T: We're finished with milk

Teacher initiated class discussion by asking questions to the students. When the teacher asked for words beginning with the letter on the flashcard, not all responses were correct. The teacher would tell the class whether the words given by the students were correct or not. However, the students tend to repeat words given previously, whether correct or incorrect. They repeated words given by their classmates during the day or on previous days. The teacher instructed the students not to repeat words that were already mentioned.

The teacher often made the sound of the letter to help the students give words that begin with such letter. She also gave out clues by describing objects that begin with the letter. She sometimes used previous lessons in class as clues to students. When the teacher asked for animals that begin with a particular letter, the students identified different animals that they could think of. When the teacher asked for names that begin with the letter, the students gave random names of their classmates. Instead of giving

words that begin with the letter, the students focused on the clues (animal, names of classmates, and so forth) mentioned by the teacher.

Comparison of Cartoon Group and Traditional Group Responses

It was observed that participants from both the cartoon group and traditional group were still having difficulty taking turns when speaking. They would often recite in class without considering whether some of their classmates were also talking. Most of the time, when students spoke, they addressed their responses only to the teacher as if they were not in the context of a group. However, this kind of behavior was facilitated by the teacher by reminding the students to speak one at a time or to raise their hands if they want to say something. The teacher also called names of students whom she wanted to talk first. When students were speaking at the same time, she reminded the class to listen to a particular student first.

Some students would lose focus in the class discussion. Students from the cartoon group exhibited this by having small groups and talking to each other instead of participating in the class discussion. Students from the traditional group exhibited this by talking to their classmates and playing with toys around the classroom. Most responses from both groups were related to the topic. The cartoon group participants commented on the cartoon character or the letter. The traditional group participants tried to give words beginning with the letter on the flashcard. However, there were few responses that were not related to the topic. These remarks were about oneself, one's things at home, or one's family**.**

Having mentioned the similar observations found in both the cartoon group and traditional group, there were also remarkable differences between the responses of the students in the two treatment groups. In all the experimental days, the class discussions of the cartoon group were always longer in duration compared to the traditional group.
In the cartoon group, most conversations were initiated by the students. The teacher sometimes asked questions to facilitate discussion but most responses were given even without these questions. The students readily commented on the cartoon characters upon seeing their pictures. They also said that there is a letter hidden beside the character and they tried to guess its beginning letter. They looked at their ID's and told the class whether their names have the particular letter. On the other hand, students from the traditional group responded only when asked by the teacher. No student commented on the picture on the flashcard. The teacher also had to ask questions repeatedly and give clues to get responses from students.

The students from the cartoon group sometimes gave words with the same beginning letter without the teacher asking them to do so. The teacher acknowledged their responses by repeating the words. The students from the traditional group, on the other hand, gave words when asked by the teacher. The teacher from the cartoon group facilitated class discussion by asking a few questions and acknowledging responses from students. The teacher from the traditional group facilitated class discussion by repeatedly asking the same questions and acknowledging words given by the students.

Lastly, responses from the cartoon group were words, phrases, and sentences. Responses were about the cartoon characters and the character things that they have at home. They also talked about the beginning letter. However, there were more responses about the cartoon character than the letter. Some responses were also in the form of what and why questions. In contrast, responses from the traditional group were mostly single words. The children tried to give words with the same beginning letter. Students sometimes repeated words that were already given by their classmates.

Discussion

The results of the study provide support to theories and previous studies found in literature. The discussion and interpretation are discussed in the same sequence as the results have been presented.

Verbal Interaction

As seen in the graphs, medians, and Mann-Whitney *U* test computation, verbal interaction frequencies were significantly higher in the cartoon group than in the traditional group. Students from the cartoon group verbally interacted more than those from the traditional group. The number of verbal interactions suggests the amount of interest and involvement of students. The duration of class discussion was also found to be longer in the cartoon group compared to the traditional group. Getting the attention, interest, and participation of students is important in teaching (Dale, 1959). The two groups were placed in environments very similar to each other except that one group was shown pictures of cartoon characters while the other group was shown traditional pictures. Therefore, the difference in the amount of verbal interaction, as well as duration of class discussion, may be attributed to the kind of pictures presented to the students. This result supports the claim of Dale (1959) that audio-visual materials, including pictures, can provide a high degree of interest and involvement of students. However, the degree of interest and involvement seem higher in the cartoon group because they were shown pictures that were familiar and interesting to them. Findings of the Center for Environmental Education (1990) say that cartoon shows on television have always been the most popular with young children because they boost interest and clarify concepts. This study proves that cartoon characters, even as still pictures, capture the interest of young children.

Aside from the frequencies of verbal interaction, there is also a notable difference on the kind of responses taken from students from the cartoon group and traditional group. Wittich (1968) enumerates some effects of pictures on people. Some of these are the ability to arouse interest, catch attention, stimulate discussion, raise questions, and supply information. These effects were more apparent in the cartoon group because they initiated conversation and gave responses with minimal prompting from the teacher. The students from the cartoon group also asked questions regarding the pictures on the flashcards. On the other hand, students from the traditional group gave fewer responses

during class discussion. They gave one-word responses and questions were not raised. The teacher also had to repeatedly ask questions to solicit responses from students.

Letter Identification

The *t*-test of change/gain showed that there was a significant difference between the pretest and posttest scores of students. This was true for both the cartoon group and traditional group. Both methods, regardless of the pictures used, were effective in teaching letters to students. Using pictures in teaching contributes to learning (Wittich, 1968) and makes learning more permanent (Dale, 1959). This is shown by the improved scores of both groups in the letter identification test after the experimental period. The findings conform to the study of Delos Reyes (2002) which concluded that the use of visual aids significantly influences recall of a lesson.

However, when *t*-test for two independent means was applied to the posttest scores of the cartoon group and traditional group, no significant difference was found between the two groups. This means that although students from the cartoon group verbally interacted more than those from the traditional group, both groups significantly improved their letter identification skills. Considering the responses from the cartoon group, it can be said that the students were able to associate the cartoon characters with their corresponding letters. When the teacher showed the picture of a cartoon character, the students identified, guessed, or asked its beginning letter. They understood the concept that each cartoon character on the flashcard had a corresponding beginning letter. They were able to learn the names of the letters through picture association. This is in support of Dale (1959) who argued that ideas are grasped better with the use of pictures because they give rise to meaningful concepts enriched by meaningful associations. On the other hand, it is difficult to conclude that students from the traditional group were able to recall the letters through associating them with pictures. This is because no response was given about the pictures during the experiment. No student commented about the beginning letter of the picture on the flashcards. However, the posttest scores revealed that although the students did not clearly associate pictures with letters, they too were able to recall the names of these letters. One possible explanation for this is that seeing and identifying the letters repeatedly may have helped the students retain the information. It should be noted that each letter was exposed to the students for seven times. Young children may absorb information due to their interest or from mere repetition (Unnikrishnan, 1996). Asking them to give words that begin with the letter may have also helped them in remembering the letter's name.

Relationship Between Verbal Interaction and Letter Identification Skill

The Spearman rank correlation showed that there is a significant relationship between verbal interaction frequencies and scores of students in the letter identification test. The positive correlation means that students with high verbal interaction frequencies tend to obtain high scores in the letter identification test. Participation and involvement are important factors to learning. If students verbally interact in class, the teacher would know that they pay attention and are interested in the class discussion. The teacher can

also assess whether the students understand the concept taught if they verbally respond to her. According to Tough (1977), for very young children, the teacher's only way to ensure that the child acquires the basic skills of literacy is through talk.

Verbal Responses

In both the cartoon group and traditional group, it was observed that most student responses were related to the topic. However, students had difficulty taking turns when speaking in a group. Participants in the experiment were at ages 3 to 4. According to Keenan (2002), preschoolers are able to take turns in conversations, make eye contact, and respond appropriately to their conversational partner's remarks. However, they are better at communicating in one-on-one situations than they are at communicating with a group. In addition, a study by Ervin-Tripp in 1979 revealed that preschoolers are more likely to interrupt others and be interrupted when speaking in the context of a group (Keenan, 2002). Therefore, the teacher plays an important role in facilitating class discussions. Students need the teacher's help to fully develop their speaking abilities. When student expressions are valued and accepted, they lose their fear of sharing their thoughts (Block, 1997). This is evident by the way the teachers from both groups facilitated class discussions. They acknowledged all responses given by students.

In both teaching techniques, the importance of using visual aids was clearly seen. However, it should also be noted that learning would not have taken place with the use of pictures alone. The responses from the students and the facilitation of the teacher were important in the learning of concepts. This supports the statement of Sands (1956) that although pictures can do much by themselves, explanations from the teacher and discussion from the class are still helpful. It is best that students be given a chance to point out their comments and ideas about the picture. In addition, Wittich (1968) noted that there is a significant increase in the effectiveness of picture communication when verbal explanation is supplemented. Words with pictures are usually better then either words or pictures alone especially for effective teaching.

One limitation of the study is the difference in teacher facilitation. During the experiment, the teachers of the two groups were instructed to present the flashcards by asking the students to identify the picture and the letter. Aside from the given instructions, the class discussions were done freely. Hence, the differences in the manner in which the two teachers conducted the class may have affected the amount and quality of responses given by students. In the cartoon group, the teacher asked fewer questions because the students often initiated conversations. In the traditional group, however, it was the teacher who initiated discussion because the children did not comment on the pictures. The teacher asked the students to think of words beginning with the letter on the flashcard. As a result, the students gave one-word responses of words with the same beginning letter. It should be noted that the teacher from the traditional group did not ask questions about the pictures on the flashcards, aside from asking the students to identify them. Therefore, the question arises about whether the students would respond or comment more if the teacher would ask questions about the traditional pictures. Such questions were not evident during the experiment. There is a possibility that asking more questions about the

traditional pictures on the flashcards may stimulate class discussion and elicit more responses from students.

The flow of the class discussions may also be interpreted using Flanders Interaction Analysis as a guide. The Flanders Interaction Analysis is a system used in coding spontaneous verbal interaction in classroom observation studies. The Flanders Interaction Analysis Categories (FIAC) consists of ten categories of communication said to be inclusive of all possible verbal interactions (Newman, 2001). The seven categories are under *Teacher Talk*, which can either be *direct* or *indirect influence*. Under *direct influence* are *lectures, gives directions*, and *criticizes or justifies*. These behaviors were not evident during the experiment. For both the cartoon group and traditional group, the teachers did not provide information or gave their own comments about the pictures or letters. Under *indirect influence* of the FIAC are *accepts feelings, praises or encourages, accepts or uses ideas of student*, and *asks questions*. The discussions were conducted in such a way that students were free to give verbal comments on the flashcards. The teachers for both the cartoon group and traditional group acknowledged all responses from students by saying "yes" or repeating what the students have said. In the traditional group, all words given by the students were acknowledged, whether correct or incorrect. Correct words were praised and incorrect words were corrected in a non-threatening manner. In the cartoon group, the teacher accepted the ideas of students about the cartoon characters. Teachers from both treatment groups asked questions to students. However, questions were asked more often by the teacher in the traditional group than that of the cartoon group. The same questions were repeated to be able to solicit responses from students.

Two categories from the FIAC, which are under *Student Talk*, include *responds* and *initiates*. In the cartoon group, students often initiated conversations. They would readily comment on the pictures of the cartoon characters or letters upon seeing the flashcards. Students would also respond when questions were raised by the teacher. However, comments initiated by students were more often observed than comments in response to teacher questions. On the other hand, students from the traditional group rarely initiated conversations. Most verbal interactions were in response to the teacher's questions. Students from the cartoon group *initiates* more than those from the traditional group. Also, there was more *Student Talk* in the cartoon group and more *Teacher Talk* in the traditional group.

Implications

Watching television, particularly cartoon shows, has become a large part of children's lives. Children spend most of their time in front of the television. Findings of this study may help educators find a way to take advantage, or find something positive in this phenomenon. In the study, it was found that using pictures of television cartoon characters as visual aids affects the amount and quality of verbal interaction of students. Children exhibit interest and involvement when shown pictures of television cartoon characters. This result may help teachers who have difficulty getting students to participate in class. Showing pictures that interest children encourage them to speak

during class discussion. It should be noted, however, that the participants of the study included only children exposed to television. The television cartoon characters are the ones familiar and interesting for them. For teachers of children who may not be exposed to television, it is still possible to encourage verbal interaction by showing pictures of things that are close to the children's experience. These things may not necessarily be television cartoon characters, but it is the job of teachers to find images that are common and appealing for the students.

With regard to improving letter identification skills of students, both methods were found to be similarly effective. One possible advantage of this result is specially addressed to students from the marginalized sector. For children who do not have access to television, they may still be taught letters effectively by using traditional pictures as visual aids. Children who are not familiar with television cartoon characters may still benefit because using traditional pictures have also been proven effective in teaching letter names.

Conclusion

As hypothesized, students from the cartoon group verbally interact more than those from the traditional group. The kinds of pictures that accompany the letters influence the amount and quality of responses from students during class discussion. Children exhibit more interest when shown pictures of television cartoon characters as compared to traditional pictures. The use of pictures leads to improved scores in the letter identification test. This study concludes that showing letters with accompanying pictures leads to improved letter identification skill of 3- and 4-year-old students. This holds true whether traditional pictures or pictures of television cartoon characters are used. However, the hypothesis that the use of pictures of television cartoon characters leads to higher letter identification skill as compared to the use of traditional pictures does not hold true in the study. Both methods are effective in teaching letters to students without significantly differing from each other.

In support of the hypothesis about the relationship of verbal interaction and letter identification skill, this study finds a significant relationship between the two factors. Students who verbally interact more in class show better letter identification ability. Verbal interaction is very important for young children. It is their only way of expressing their thoughts, feelings, and even abilities. Teachers of young children should, therefore, encourage participation and involvement from students because it greatly contributes to learning. Students verbally interact more when presented with visual aids that are familiar and interesting to them. Conversational skills of children ages 3 and 4 are still limited especially when in the context of a group. They have difficulty taking turns when speaking. Therefore, teacher facilitation is very important for a smooth flow of class discussion. Teachers are given the task to facilitate group discussion by asking appropriate and stimulating questions. Also, an effective facilitation is the one that encourages children to express themselves yet teaches them to respect others by waiting for their turn to speak.

Recommendations

This study presents the effects of using different kinds of visual aids in teaching the alphabet to 3- and 4-year-old students. Due to sampling limitations, it is recommended that future researches look into this topic using more participants to establish generalizability of results. In addition to the two experimental groups, a third group may also be included in the study, specifically a control group where letters with no accompanying pictures will be shown to students. The presence of a control group may further support the hypothesis that the use of pictures is the factor that makes a teaching method effective. Aside from television cartoon characters, other kinds of pictures, or other forms of visual aids may still be explored to test their effectiveness in encouraging verbal interaction and improving other cognitive skills. For a more profound qualitative evaluation on verbal interaction, the Flanders Interaction Analysis Categories (FIAC) may be used as a checklist during the experiment. Obtaining the exact percentages of communication categories and taking anecdotes may provide a more descriptive report on verbal interaction. Other verbal interaction systems, aside from FIAC, are also available for classroom observation studies.

It is every teacher's duty to broaden his/her knowledge, experience, and skills in teaching. For teachers, this study presents a possible way of encouraging participation and improving skills of students. It is recommended that teachers continuously explore teaching methods that are new, effective, and interesting for children. Media, specifically television, is a very powerful tool for giving information to children. Television cartoon characters are very interesting to the young audience. For parents and caregivers, it is recommended that children be carefully supervised with what they see on television. This is because information watched by children is highly retained by them. Television cartoon programs should be chosen for their potential to teach not just concepts, but more importantly, good values. In doing this, television experience will be beneficial instead of detrimental to young children.

References

Block, C. (1997). *Teaching the language arts* (2nd ed.). Massachusetts, USA: Allyn & Bacon.

Experiences of children's television, an anthology: excerpts from literature on children, television, and learning (1990). Ahmadabad, India: Centre for Environmental Education.

Dale, E. (1959). *Audio-visual methods in teaching*. USA: Henry Holt & Company, Inc.

Delos Reyes, D. (2002). *Effects of stories with accompanying cartoons on the comprehension and retention abilities of preschool children*. Unpublished Master's thesis. Graduate School, Miriam College.

Graham J., (2008). How Television Viewing Affects Children. *Bulletin #4100,* University of Maine Cooperative Extension. Available at http://209.85.173.104/ search?q= cache:HRUaMY0c3g4J:www.umext.maine.edu/onlinepubs/htmpubs/4100htm+ &hl=en&ct=clnk&cd=1&gl=us

Keenan, T. (2002). *An introduction to child development*. Thousand Oaks, California: Sage Publications Ltd.

Newman, M. (2001). *Flanders interaction analysis.* Available at www.hebes.mdx.ac uk/teaching/ Research/PEPBL/methpap6.pdf

Sands, L. (1956). *Audio-visual procedure in teaching.* New York: The Ronald Press Co.

Singer, D., & Singer, J. (2001). *Handbook of children and the media*. Thousand Oaks, California: Sage Publications, Inc.

The effects of television. Available at http://www.changingchannels.org/mediaed.htm

Torr, J. (2002). *Is media violence a problem?*. San Diego, CA: Greenhaven Press, Inc.

Tough, J. (1977). *Talking and learning: a guide to fostering communication skills in nursery and infant schools.* London: Robert MacLehose and Company, Ltd.

Unnikrishnan, N. & Bajpai, S. (1996). *The impact of television advertising on children*. New Delhi: Sage Publications, Ltd.

Van Evra (1998). *Television and child development*. (NJ: Lawrence Erlbaum Associates, Inc., Publishers.

Wittich, W. (1968). *Audio-visual materials* (4th ed.). New York: Harper and Row.

The Relationship of Featural Writing Skills with the Other Aspects of Early Writing in Preschool Children

Ria Deomampo-Sanchez
University of the Philippines, Los Baños, Philippines

Introduction

The writing developmental pathway may be imagined as a linear road where children's productions straightforwardly move from scribbling to conventional writing. Several studies show that children already know a great deal about literacy before they even begin formal instruction on reading or writing. Instruction then becomes a seamless activity rather than a beginning point. The attempts of the child to convey a message, either in scribbling or invented spelling, are therefore considered early writing attempts which arise depending on the child's experiences and stimulation. However, such an inference of linearity would be misleading. This is because writing does not only involve stages in terms of physical features but has a multidimensional nature. To better understand forms of children's writing, it is essential to also look at how it was done, read and thought about. According to Medrano (1997) early writing itself involves a lot of aspects. Children go through several writing stages known as featural writing skills. Writing also involves knowledge on conventions, reading of written composition, cognitive attention the child is giving on the written composition and the process of generating the written output. With all of the mentioned aspects of writing, featural writing skills may indicate something about all the other aspects since these are the actual products of a child that serve as the springboard for the other writing aspects. In any form of writing, children assign meanings to them as how they think about or perceive their written product. In the Philippines, early literacy has gained its niche in early childhood programs. Private preschools and even barangay daycare center are utilizing modules on reading and writing development. However, much emphasis is being given to reading programs as viewed to be essential in later academic achievement. Writing, on the other hand, is perceived to develop through tracing and mastery of line forms (*batayang guhit*) which become basis of letter writing. Thus, writing activities focus more on mastery of physical features and not on the output's meaning or writer's intention. To make literacy, specifically, early writing to be more functional and significant, it is essential to explore whether the physical features are related to the other aspects of early writing.

Statement of the Problem

This study sought to determine relationships between featural writing skills and the other aspects of early writing of 3 to 5- year - old preschool children. This relationship may be investigated by exploring early writing attempts of these children by looking into the different aspects. Specifically, the study intended to answer the following questions:

1. What featural writing skills do these children exhibit?

2. How do these children exhibit the other aspects of writing?
    a. knowledge on the conventions of writing
    b. reading of written texts
    c. cognitive attention on written composition
    d. process of generating output

3. Is there a significant relationship between featural writing skills and the different aspects of writing?

Review of Literature

Theorists have different ideas about what literacy is, and about when and how it should be taught and learned. Current theoretical perspectives on literacy tend to reflect either a developmental framework or a socio-cultural framework. This study views early writing development based on Piaget, a constructivist and Vygotsky, a sociolinguist. Theory on perceptual learning will also be discussed to shed light on early writing development.

Cognitive Development Theory of Jean Piaget

Piaget described learning as a modification of students' cognitive structures, or schemata, as they interact with and adapt to their environment (Tompkins, 2003). Piaget says that at birth, the child has few schemata and that they are reflexive in nature. As the child grows, his schemata change; they gradually broaden, become numerous and differentiated (Wadsworth, 1979). Two intellectual processes explain how schemata changes; assimilation and accommodation. These two processes are involved in the cognitive function, adaptation. Adaptation involves building schema through direct interaction with the environment (Tompkins, 2003). Assimilation is the cognitive process by which the child's experiences are incorporated into the existing schemata; it accounts for quantitative changes in the schema (Wadsworth, 1979).Accommodation, on the other hand, accounts for qualitative changes in the existing schema; it is the creation of new schema or the modification of the old schemata as a result of one's experiences. Moreover, Piaget emphasizes the importance of experiences and the environment in the intellectual development of a child. In the Piagetian tradition, development is interpreted from the point of view of the learner; the theory has to fit what the child says or does, not the other way round.

Socio-cultural Theory of Lev Vygotsky

The sociolinguists contribute a cultural dimension to our consideration of how children learn. They view reading and writing as social activities that reflect the culture and the community in which students live (Heath,1983 as cited in Tompkins, 2003). According to Vygotsky (1962), language helps to organize thought, and children use language to learn as well as to communicate and share experiences with others. For Medrano (1997), the internalization of higher psychological functions as a basic concept consists of transformation from the interpersonal or inter-psychological plane to

intrapersonal or intra-psychological plane. This interpersonal plane refers to the interaction between the child and adult; the intrapersonal plane refers to the development within the child. Thus, the role of adults and culture where the child belongs are significant factors in the series of transformations.

Teale and Sulzby (as cited in Cziernewska, 1992) believed in Vygotsky's idea that the centre must be the individual child. Reference is made to the role of the environment and of significant adults in providing information about what writing looks like, how writers behave and how written language is used. Children are involved in a collaborative venture. Based on Vygotsky's concepts on scaffolding and zone of proximal development, cognition starts as the child reaches the goal only through close interaction with an adult. Through verbal interaction and scaffolding, the child can now organize ideas. The adult then may gradually reduce his aid until the child is able to perform alone.

Theory on Perceptual Learning

The theory of perceptual learning has suggested that the young tend to attend first to the whole and only much later to the parts (Gibson in Temple, 1988). Gibson explains that this process of perceptual learning can be clearly illustrated by the development of a child. Initially, sensations of an infant are all undifferentiated but soon must begin to do some sorting. This process of sorting and classifying is the child's way of finding out about the world and getting some control over it. The process continues throughout childhood and adult life becoming clearer as more distinctive features are added to our categories. If the perception of things in the environment starts with gross distinctions and moves progressively to finer ones, it stands to reason that letters – being the fine elements of writing- would be last elements to be differentiated. The theory of perceptual learning would lead us to believe that children should first discover gross differences between writing and other similar things and later become aware of finer distinctive features that separate writing from other kinds of graphic displays, and smaller components of writing, such as letters, from each other.

Related Studies

Although some studies have been conducted on early literacy, specifically on early writing or in some of the other aspects, none have studied the relationships between the aspects of early writing. Sulzby, Barnhart and Hieshima (1989), reported quite complex patterns of development of emergent forms of writing. It was revealed that the primary forms of writing in the fall were found to be scribbles, drawings and letter strings. Two surprising results were explored: the endurance of scribble as a form of writing, particularly with advanced forms of composition and rereading behavior, and the late appearance of invented spelling. Also, it was reported that the forms of writing and their relationship to rereading were critically important. Sulzby noted that children would often use a less mature form of writing to accomplish a more mature compositional task and their subsequent rereading would also be high-level.

The results of Encomienda's study (1996), however, revealed that features present in

drawings varied from age to age and that generally, drawing progressed with age, from simple to complex ones to which more details were being added. Kamii and Manning (2002) explained that children who write in strings of random letters construct the belief that writing is different from drawing pictures, but pay attention only to what writing looks like. Children who write words with minimum quantity tend to focus only on what writing looks. Eventually, children will reach a level wherein they construct the theory that writing is related to speaking and make progress toward conventional writing. Baghban (2007) stated that young children draw, upon given a writing material which becomes a child's first writing and later, first reading material that the child himself authored. The research showed that opportunities to write and draw in related contexts, without adults stating "the right way" to do either, enable children not only to sort pictures from print but also to gain expertise in each context.

Though, several studies examined writing development, writing skill itself has been reported to be a tough task by many children due to difficulty in expressing themselves (Balarbar, 2001). Gabor (2005) further added that children, even Filipino deaf students, perceive writing as challenging and tedious. It was Medrano's study (1997), however, which has much influence on this research. Medrano's investigation on the early writing attempts of 5-year-old Filipino children, by focusing on the different aspects, revealed that 92.9 % were symbolic writers, 85.9% wrote in letter strings, 25.3% wrote ideographically and 8.4 % were conventional writers. In the knowledge of conventions, 98.6% manifested use of upper-case and lower-case letters in their written texts. Majority of the children were also found to read their written texts in monologue. On the other hand, 25.2% were thinking in heaps; 57.7% were thinking in complexes and 9.9% were found belonging to pseudo-conceptual thinking. Most of the children were found to write independently.

As a response to Medrano's recommendation, this study was undertaken to probe into the relationship of featural writing skills with the other aspects of early writing among 3 to 5 -year-old children by looking into the nature of the early writing attempts of these children.

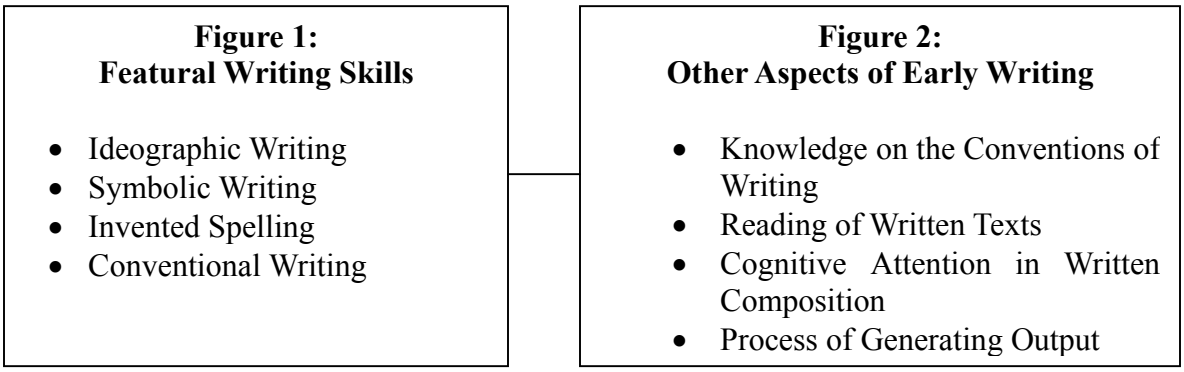
Conceptual Framework

This study aimed to look into featural writing skills of preschool children and their correlates. The variables used in this study were the different aspects of early writing adapted from Medrano (1997). Featural Writing Skills is an aspect that refers to the distinctive physical features of writing or the writing stage at which the 3 to 5-year-old children operate in. The written text productions of the children may demonstrate ideographic writing, symbolic writing, writing via invented spelling or conventional writing, and may be further described into sub stages. On the other hand, the other aspects of early writing refer to the associated behavior or characteristics of early writing such as knowledge on conventions, manner of reading, cognitive level and process of writing. Knowledge on the conventions of writing is an aspect that refers to the awareness of the children on the conventions of writing such as directionality, use of lower and upper case letters and spacing (Medrano, 1997). These different components

are taken as separate units and not as one whole aspect as knowledge on conventions of writing. However, reading of written texts is an aspect that looks into the manner by which a child read his/her written text production (Dyson and Freedman, 1990). Categories under this aspect are reading aspectually in monologues, conventionally or refusal to read.

The other aspect, cognitive attention in written composition, pertains to the type of thinking reflected on the written text production of the child. Categories of this aspect are thinking in heaps, thinking in complexes and pseudo-conceptual thinking. Lastly, process of generating output is an aspect that shows the manner by which a child creates their written text productions. They may refuse, hesitate to write, write with assistance, copy or write independently.

Conceptual Framework Showing the Possible Relationship of Featural Skills to the Other Aspects of Early Writing



Method

This research is a descriptive correlational study on the featural writing skills and other aspects of early writing of 3-5 year -old children and their relationship with each other.

Participants

The participants of the study were 36 randomly selected children, 19 female and 17 male, from the Child Development Laboratory, a preschool program at the College of Human Ecology UP Los Banos Laguna. Twelve students from the Daycare class composed the 3 -year old group, twelve students from the Nursery class composed the 4 –year old group and twelve from Pre-kinder composed the 5- year old group. Six batches were formed with six children each to allow a more convenient and detailed recording of observations. The research was conducted by pulling out a batch and bringing them to the library.

Measures

Medrano's Early Writing Attempts Checklist was adapted to look into the nature of the early writing attempts. Content validation was done by a panel of evaluators and necessary revisions were made afterwards. The checklist was composed of five parts that looked into the aspects of early writing; namely featural writing skills, knowledge on conventions of writing, cognitive attention in written composition, reading of written composition and process of generating output. Each aspect was further subdivided into categories or sub stages that described different levels by which the aspect might have been manifested and were assigned values with a distribution of score such that the higher the score, the closer was the subject to the conventional. A scoring rubric was used in order to standardize the scoring. The early writing attempts of children were assessed based on the actual written production and behavioral manifestations during the writing event sessions.

Procedure

A. Preliminary Stage

1. Storybook evaluation

After a panel evaluation, three picture storybooks and one original story were chosen to be suitable to the interest of 3 to 5- year- old children and their format similar to the proposed writing activity.

2. Planning of Writing Activities

The activities, adapted from the research of Medrano (1997) have previously been evaluated to invite children to express ideas, and to make feel that they could be authors. The following writing activities of Medrano were used:

a. Comic balloon writing- composed of a set of pictures of empty speech bubbles for children to fill up.
b. Writing a message – consisted of a frame of picture taken from the storybook where children would write what they wanted to say to one of the characters in the story.
c. Writing about a story listened to – used two frames of picture from the storybook where children would write about the story listened to based on the pictures.
d. Writing one's story- consisted of two picture sequence in which children will write their own interpretation.

3. Training of assistants

Prior to the data gathering stage, two assistants were trained for a more detailed and convenient gathering of data. These two assistants were the recorder and the technical assistant who also served as raters. There were regular meetings among the three raters to discuss observations and scoring after each writing event session.

4. Preparation of Writing Equipment

Writing activity sheets for group and individual writing were prepared consisting of frames of picture taken from the story of the day for writing a message and writing about a story listened to activities. Activity sheets for the comic balloon writing and writing one's own story activities had different pictures from the story for the different principle behind the two activities.

Writing equipment was composed of writing tables, chairs and different colored pens. Children were provided with name tags to prevent confusion during rating.

B. Data Gathering Stage

A trial study was conducted in a learning center where 15 students of mixed age group, 3 to 5- year- old, were randomly selected. The trial run results showed that the writing activities and research instrument were appropriate for 3 to 5-year-old children such that everybody came up with their own written productions. The actual research was then conducted on the second semester of school year 2006-2007. In each writing event session students were pulled out, from their classes during free play. Each session was comprised of four main activities namely, prewriting, group writing, individual writing and reading of written text production or post writing.

In the prewriting activity, there was an interactive story reading to allow better understanding and more discussion before, during and after the story reading.

During the group writing, the batch was introduced to the assigned written production for the day. There were enlarged copies of materials and children were asked to write and read what they have written. In individual writing, sheets of paper with a different picture from the same story were used and children were asked to do the assigned written production individually. The child's reading of the written composition was then recorded. During all of these activities, observations were noted down. After the writing event sessions, the raters finalized the Early Writing Attempts Checklist of each child.

Data Analysis

In this study, percentages and frequencies were used. The Spearman Rho formula of correlation was employed in finding the relationship between featural writing skills and the other aspects of early writing.

Results

The different aspects of early writing of three, four and five year- old children were observed and scored in four writing activities.

Featural Writing Skills

Table 1 presents the number of children and percentage of the population belonging in the different categories of featural writing skills. It can be observed that the number of children becomes lesser as the writing stage becomes more conventional.

Table 1: Frequency and Percent Distribution of Children 3 to 5 Year-Olds in the Different Categories of Featural Writing Skills

Featural Writing Skills	f	%
Ideographic	12	33%
Symbolic	11	31%
Invented Spelling	10	28%
Conventional Writing	3	8%
Total	36	100%

The scores assigned to the different sub stages of each category and the number of children exhibiting the different writing stages are presented in Table 2.

Table 2: Scores Assigned to the Different Sub-stages of Featural Writing Skills and the Frequency and Percent Distribution of Children 3 to 5 Year-Olds Exhibiting the Different Sub-stages

Stage/Category	Score	f	%
Ideographic writing			
-writing via drawing	1	2	6%
-writing via scribbling	2	8	22%
-writing in letter-like form	3	2	6%
Symbolic writing			
- writing in letters at random	4	2	6%
- writing in letter strings	5	9	25%
Writing via invented spelling			
- phonemic writing	6	2	6%
- syllabic writing	7	5	14%
- phonetic writing with visual memory	8	0	0%
- phonetic writing with vowels	9	3	8%
Conventional writing			
-1-2 words correctly spelled	10	0	0%
-3-4 words correctly spelled	11	1	3%
-5 or more words correctly spelled	12	2	6%

Ideographic Writing

Table 1 shows that the Ideographic stage has the highest percentage, indicating that most of the participants were in this stage. Among the 36 children, 12 of them were observed to belong in this stage. Based on observations, all of these 12 children are 3-year- olds implying that the entire 3- year -old group manifested this type of writing and that none of the two older groups wrote in this manner. As shown in Table 2, most of the children in the ideographic stage exhibited writing via scribbling. The table also shows that out of the total population, scribbling ranks second in the most number of children writing in such way. Those who wrote via drawing usually came up with faces, lines or shapes in their output. While those who wrote in letter like forms usually combined their names in their writings or made up letters that looked similar to the letters of their names though written incorrectly.

Figures 3 a, b and c are some samples of early writing attempts gathered from the three-year- old group. Figure 3a, shows a girl's ideographic writing with a score of 1 because the output is a distinct object or drawing of a face with arms and legs. Scribbling, letter like forms, individual letters written correctly or incorrectly are not evident.

Figure 3a: Ideographic writing of a 3-year-old girl through drawing.

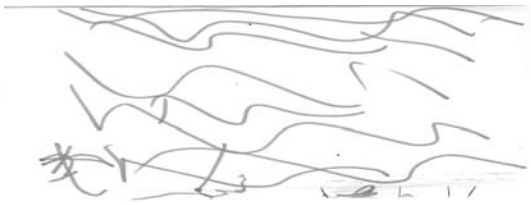


Figure 3b: Ideographic writing of 3-year-old girl through scribbling.

Figure 3b, however, is a scribble of wiggly lines considered to be ideographic since output is not letter-like nor a drawing. There are no individual letters written correctly or incorrectly. In Figure 3c, on the other hand, the name of the writer "Adi" could be read but not scored as stated in the rubrics. The other marks are like letters written inversely or with extra hoops or arms showing that this is still ideographic writing.

Figure 3c: Ideographic writing of a 3-year-old girl through letter like forms

Symbolic Writing

Symbolic writing ranked second in percentage with 31% of the entire population. It was also observed that this type of writing was existing among four and five- year- olds. A total of 9 students wrote in letter strings. Table 2 shows that this sub stage got the highest percentage, though symbolic writing is only next to ideographic writing in terms of percentage as shown in Table 1. Having one more child to be writing in letter string than the 8 children writing in scribbling made the former sub stage to have the highest percentage. Most of the four-year-olds were found to be writing in letter strings. Mostly were observed to just combine letters with letters coming mostly from the letter of the day discussed in class or letters in their names. Some samples of symbolic writing of four and five-year-olds are presented in Figures 4a and 4b.

Figure 4a: Sample of symbolic writing via random letters of a 4-year-old girl.

Figure 4b: Sample of symbolic writing via letter strings of a 5-year-old girl.

Figure 4a shows most letters written correctly but scattered inside the comic balloon not following any direction, thus labeled symbolic writing via random letters; while Figure 4b showed correctly written letters written beside each other, as if following a pattern. As such, was named as symbolic writing via letter strings.

Writing via Invented Spelling

Table 1 presents that the previous stage, symbolic writing, has only one child more than writing via invented spelling. Similar to symbolic writing, only 4 and 5-year-olds were found to be writing in invented spelling, with most of the oldest group writing in this way. Most of the children in this stage wrote in syllabic writing or writing with one letter standing for one syllable. As observed, only the 5-year-old group wrote in this way. Usually vowels were missing in this type of writing and only the letters with very evident sounds, usually the first and last letters, were written. Others used one letter per word and some wrote almost correctly except for some missing letters.

Figures 5a to 5b, both demonstrate invented spellings. Figure 5a is composed of correctly written letters arranged beside each other. When this was read by the child, it was read as *"Once upon a time, a girl lived in a house, playing treasure map; a girl was playing treasure map"* showing that this is indeed invented spelling via syllabic writing. In Figure 5b, although, there are some vowels, this is considered as phonetic writing with vowels since there are correctly written letters to make up words which could be understood except for some other missing vowels. This was read by one 5-year-old as *"Mauubos na ang planeta, malulungkot na ko" (Nothing will be left of the planet, I will be sad)*.

Figure 5a: Invented spelling via syllabic writing by a 5-year-old girl

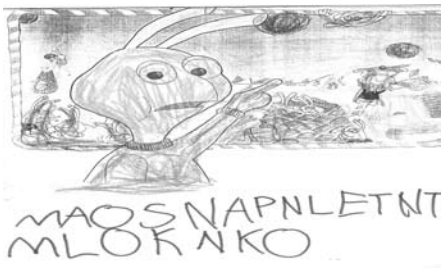


Figure 5b: Invented spelling via phonetic writing with vowels of a 5-year-old girl.

Conventional Writing

Children in the conventional writing stage were found to be the least in number at around 8% (see Table 1). As observed, only 5-year-old children were found to be writing in this way. None was observed to write with one to two words correctly spelled but two children wrote with five and more words spelled correctly.

Figure 6a: Sample of conventional writing of a 5-year-old boy.

Figure 6b: Sample of conventional writing of a 5-year-old boy.

Figures 6a and 6b present conventional early writing attempts observed among the children. Figure 6.a was read as *"Bad mo, ang sama mo, hindi ka nagsheshare,"(Bad you, you are bad, you are not sharing)* while Figure 6b was read as *"Bakit mo kinuha? Ang sama mo naman, hindi mo bibibigyan" (Why did you get? You are bad, you are not giving).* In both of these figures, letters were correctly written to make up some correctly spelled words.

Other Aspects of Early Writing

Knowledge on Conventions of Writing

Directionality. Table 3 shows that 61% of the total sample showed correct knowledge of directionality, as observed all the 5-year-old children belonged to this category. However, it was also observed that 19% did not have concept on directionality. A very minimal number of children manifested left to right direction only, lesser than those who wrote from top to bottom only.

Use of Upper and Lower Case Letters. As shown in Table 3 most (44%) of the children made use of both upper and lower case letters, though incorrectly. Twenty-eight percent did not use letters but drawing, scribbling or letter like forms. None of the three age groups showed correct usage of letters (see Table 3). An equal number of children used upper case or lower case letters only.

Spacing. The difference in percent distribution between the two levels of spacing is very evident in Table 3. Ninety-six percent of the children have no knowledge on this aspect and only 4% of the five-year-olds manifested spacing in their written productions.

Table 3: Frequency and Percent Distribution of 3 to 5-Year Old Children in the Different Categories of Knowledge in Conventions of Writing

Categories	f	%
Categories of Directionality		
Did not show knowledge of directionality	7	19%
Showed top-bottom direction only	5	14%
Showed left-right direction only	2	6%
Showed correct knowledge of directionality	22	61%
Total	36	100%
Categories in Use of Case of Letters		
Did not use letters	10	28%
Used upper case only	5	14%
Used lower case only	5	14%
Mixed upper and lower case letters	16	44%
Used upper and lower case letters correctly	0	0%
Total	36	100%
Categories in Knowledge of Spacing		
Did not show knowledge of spacing	34	96%
Showed some knowledge of spacing	2	4%
Total	36	100%

Reading of Written Texts

Table 4 shows that all the children read their written productions. Most of the children were reading from memory or in monologues or narrating their own stories even if not actually written. These children sounded like they were conventional readers for they sound literate. These readers were seen not to track print but pointed to pictures or parts of the picture when reading and reading in a story-telling intonation. Nineteen

percent (19%) were able to read the actual print in their written productions rather than based on pictures or sole memory.

Cognitive Attention in Written Composition

When children were asked to read their written production, many manifested coherent and logical thinking reaching up to 61% of the total sample as shown in Table 4. All the members of the 5- year- old group belonged to this type of thinking. Thirty-three percent of the children thought in complexes and these were mostly 4-year- olds. As stated earlier, in the aspect reading, everybody read their written output and consequently, all would also manifest cognition.

Table 4: Frequency and Percent Distribution of Preschool Children by Categories in Reading, Cognitive Attention, and Process of Generating the Written Output

Categories I	f	%
Categories in Reading		
Refused to read	0	0%
Read with assistance (Hesitant)	1	3%
Read in letters and syllables (Aspectual)	2	6%
Read from memory (Monologue)	26	72%
Conventional	7	19%
Total	36	100%
Categories in Cognitive Attention	**f**	**%**
Not manifested	00	0%
Thinking in heaps	02	6%
Thinking in complexes	12	33%
Pseudo-conceptual thinking	22	61%
Total	36	100%
Categories in Process of Generating Output	**f**	**%**
Refused to write	0	0%
Hesitated to write	0	0%
Wrote with assistance	0	0%
Copied	1	3%
Wrote independently	35	97%
Total	36	100%

Process of Generating Output

Table 4 shows that all of the children studied wrote during the writing activities, except for only one, a 3-year-old child, who copied at one time.

Relationship of Featural Writing Skills with the Other Aspect of Early Writing

To test whether students who got high points in featural writing skills also got higher scores in the other aspects of writing, the scores of the children in all the aspects in the different writing activities were correlated using Spearman rho formula. At $p< 0.05$, there is evidence to say that there is significant relationship between featural writing skills and the different aspects of early writing except process of generating a written output (see Table 5). Spearman rho formula yielded correlation coefficients which could be interpreted using a crude criterion for correlation as seen on Table 6.

Table 5: Correlation Coefficient of the Different Aspects of Early Writing

Aspect	rho (ρ)
Directionality	0.835*
Use of letters	0.805*
Spacing	0.403*
Reading of composition	0.662*
Cognitive Attention	0.785*
Process of Generating Output	0.198

*p< 0.05 level (2-tailed)

Based on Table 5, the highest correlation obtained was between featural writing skills and directionality with $\rho = 0.835$. This suggests that these two variables have a high linear relationship, such that the more one becomes a conventional writer, the greater chance of having correct knowledge of directionality. The same is true with use of letters ($\rho = .0.805$).Process of generating an output, however, has the lowest yielded correlation ($\rho=0.198$) implying a negligible linear relationship, although, there might be some other relationship, not necessarily linear. Spacing ($\rho =0.403$) was found to have moderate linear relationship with featural writing skills and both reading and cognitive attention were observed to have substantial correlation ($\rho=0.662$ and $\rho =0.785$).

Table 6: Criterion for Correlation

Coefficient	Relationship
0.00 to 0.20	Negligible
0.20 to 0.40	Low
0.40 to 0.60	Moderate
0.60 to 0.80	Substantial
0.80 to 1.00	High to very high

Discussion

Featural Writing Skills

Observations on the early writing attempts of 3-5 year-old children show that there was some pattern in writing development, wherein writing forms became more conventional as one became older. Maturation might have contributed to fine motor development. However, there were also observed differences within age groups indicating that belonging to the same age group, does not necessarily mean manifesting similar writing skills. Each child has his/her own phasing depending on biological factors and environmental stimulation. Early writing development may depend on the onset of experience, the duration, the frequency of exposure and the number of environments that support their early writing. Socioeconomic status of families where children belong may also be a contributory factor in writing development. Parents' educational background and literacy level and parental involvement may dictate the amount and kind of literacy materials and experiences of the child at home.

The average scores in the different writing sessions showed some pattern. Some children, however, were not consistent in their writing forms between the different activities, though shift was noted within the same stage. It can be said that performing at one writing stage at one time does not indicate that one will write that way all the time, other factors such as interest of an individual or type of writing activity may affect writing stage. The novelty of the activities might have excited the children resulting in some changes in featural writing skills.

Knowledge on Conventions

Directionality. With regard to knowledge in conventions in writing, specifically directionality, results show that children 3 to 5-year-olds exhibited directionality correctly. In this study, however, only a few of the 3-year-old group displayed this knowledge since

scribbling, their major form of writing was done without any direction. Top-bottom orientation was found to be higher in percentage than left to right directionality. This may be due to the fact that it is actually easier to make a line going down than going across. This may be attributed to undeveloped fine motor skills or eye-hand coordination such that the 3- year- old group did not obtain scores only in the left-right direction level.

Use of Letter Cases. In the use of letters, the results indicate that 44% used mixed upper and lower case letters with none using the letter cases correctly. Although these children have the ability to put message into print, they still have difficulty on the proper use of upper and lower case letters. This limitation may be attributed to low ability if not inability of children to write in sentences at this stage and thus unaware of proper usage of letters. Similarly, children at this stage use their way of writing their names as basis in their usage of letter cases. This may be due to the fact that these children were used to writing their names in all paper activities in school and that they felt a sense of ownership in works with their names or even letters from their names.

Spacing. The finding that 96% of the children had no knowledge in the aspect spacing demonstrates the fact that leaving spaces between words is a highly abstract procedure for young children to manage. In addition, there are no spaces as such between words in speech and to use a space in writing involves a child knowing where word boundaries are. A few (4%) children who have this knowledge in spacing were mainly 5-year-olds who were writing and reading conventionally.

Reading a Written Text

In reading a written composition, the results of this study show that majority (72%) of the children in the three age groups read in monologues. Since most of the children can not read conventionally, their easiest way was to tell stories or statements based on their drawings or pictures on their paper. The fact that there was no child who refused to read implies that children observed were aware what reading means and that what they had written on paper may be read or that they were interested in the reading activity. However, 3%, who were 3-year-olds, could read only with assistance. This may be attributed to their less mature understanding that what was written could be read or difficulty in verbalizing their thoughts.

Cognitive Attention in Written Composition

Majority of those who read in monologue thought logically and coherently. This type of thinking is essential for a child to come up with a meaningful story of his/her own.

It is considered to be the highest level of conceptual thinking in narratives whereby text productions show coherence, consistency and logical presentation of ideas. Those who read with assistance, on the other hand, were also observed to be thinking in heaps implying that assistance was needed due to difficulty in constructing and organizing thoughts about the written output. Majority of the 3-year- olds manifested thinking in complexes, although much of them read from memory. This shows that they were active in making up their stories although ideas were slightly related only.

Process of Generating an Output

In this aspect, almost all (97%) of the children were found to write independently. This may be due to the pleasure felt during writing and the desire to explore their abilities to write. This is consistent with the result of Medrano's (1997) study among 5-year- olds wherein children were found to actively engage in all writing activities in both group and individual writing. The presence of the researcher, a more skilled adult, who demonstrated the new writing activities, made the children eagerly participate and imitate. The same behaviors were observed when children were asked to do their works individually. This is in accordance to the theory of Vygotsky, wherein he recommends the zone of proximal development, through which scaffolding and interaction might have taken place allowing a child to organize ideas and understand that one can write through these new activities.

Relationship between Featural Writing Skills and the Other Aspects of Early Writing

The Spearman rho computation showed a high correlation between featural writing skills and directionality and use of letters. A high correlation means the more one becomes a conventional writer, the higher ability to correctly use directionality and letter cases. Basically, as one learns to write words correctly, it means that that person is aware of the right usage of letters and the right arrangement of words on a page. Reading of composition, on the other hand, was found to be substantially correlated to featural writing skills. This, therefore, means that there is some linear relationship between the variables not necessarily high. Writing appearance may be deceiving such that a scribbling child may reread her written work, reflecting a complex relationship between forms of writing and rereading.

Similarly, cognitive attention was computed to be substantially related to featural writing skills. As a child gains more experiences with the world and the field of literacy, the more mature conceptualization becomes which eventually could be reflected in written production. The aspect of spacing, however, was measured to be only moderately related to featural writing skills. As mentioned earlier the concept of space usage is quite hard to grasp for young children due to its characteristic of being abstract concept.

Lastly, process of generating an output has negligible linear correlation with featural writing skills. This finding may be attributed to children's tendency to make marks in any form. A lot of information was presented earlier on the abilities of children to write using any material. Since mark-making is considered as the start of writing, even infants may already be engaged in writing through accidental or intentional marks they make. According to Clay (as cited in Goodwin and Perkins, 2002), children explore the writing medium by playing with print's graphic features, not necessarily concern for a specific message. Thus, scribbling or conventionally, children write.

The results obtained in this research indicate that featural writing skills were

significantly correlated with the other aspects except process of generating an output. Early writing can therefore be viewed holistically considering not only writing stages but the other aspects as well. Although writing can be logically analyzed into its varied aspects, a learner comes as a whole, not displaying knowledge of these aspects in neat sequential order, but in clumps which adults or teachers must separate into neatly organized categories. Like a kaleidoscope, early writing's parts are ever newly arranged, newly revealed. And, finally, the writer has his or her own intentions and style, his or her own sense of what's interesting; thus individuals who share similar knowledge about written language may have different stylistic preferences for organizing and using that knowledge for acting, thinking and expressing meaning. In brief, the nature of the individual learner, the nature of situational context, and the complex nature of the writing system itself all interact in written language growth. The interplays of these factors suggest that we cannot offer a one dimensional description of writing development that can serve as a template for all learners. However, the result of this study may serve as guidelines in understanding writing development and associated behaviors of young children. Moreover, this may help teachers appreciate the signs of progress that may be hidden amidst students work.

Conclusion

From the findings of the study, it can be concluded that majority of the 3-5 year-old preschool children observed are in the ideographic stage ,mostly scribbling, followed by symbolic stage ,some in the invented spelling stage and a few in the conventional writing stage. Majority of the preschool children have no knowledge in directionality, mixed upper and lower case letters, have no knowledge of spacing, read in monologue, thought pseudo-conceptually and wrote independently. It can be concluded that featural writing skills are significantly related with directionality, use of letter cases, spacing, reading and cognitive attention but do not have a significant relationship with process of generating a written output. The early writing attempts of young children has shown some patterns in development deepening the understanding of the field of early writing. The present study reveals that children at any age may write in any form and can even read their products by assigning meaning to them. The evidence that early writing is composed of different aspects indicates that writing is a complex process. The child should be viewed holistically going beyond forms–but more on how one understands the written material. At the outsider's point of view, the child must be treated as a whole, involving the orchestration of thought, intentions and feelings.

The author would recommend that future researches look into the relationship of the other aspects of writing with each other, such as relationship of use of letter cases with spacing or directionality or the relationship of process of generating a written output with reading. Due to some observed shifting in writing stage in some children, studies on the relationship or effect of writing activity to the featural writing skills and other aspects may be conducted. The revelation of the nature of children's early writing attempts will change the views of adults regarding writing. For children, their written composition will now be accepted as a form of writing thus the development of a sense of pride in their work and confidence in writing. Consequently, there will be explosion of self-initiated

written compositions in homes and in preschools. Upon adults' acceptance of written outputs, there will be an increase in the awareness of children that whatever they have written has a meaning. Eventually not only love of writing will happen but love of reading as well which when both nurtured will become a strong foundation for a child's success later on in life.

For teachers and administrators, the results of this study may serve as basis for redirecting the school's program which may include allotment of a longer period for writing, development of more writing activities and centers and encouragement of scribbling and invented spellings to develop appreciation for writing as an enjoyable activity. Activities should go beyond the usual free hand drawing and paper works to allow the child to discover other purposes of writing. Children should also be encouraged to share their written stories in class or in small groups. This may also imply more interaction of teachers with students during writing events aiding teachers in understanding their students' written output and children's interests, feeling and thoughts.

Moreover, this study may be used as basis in the assessment of writing among young children. Evaluation now may not only look into writing conventions but writing may now be viewed holistically, considering all the other aspects mentioned in this research. Results of this study point to the important role of parents in discovering the potentials of their children. Also, parents may realize their own potential too on how they may enrich or weaken the writing capabilities of their children. They may strengthen their parents-child literacy interactions at home by providing more materials, activities and interactive literacy time to their children and involving them on their own literacy works at home.

References

Baghban, M. (2007). Scribbles, labels and stories: The Role of Drawing in the Development of Early Writing. *Young Children, 62*, ERIC Digest (EJ53990).

Berk, L. E. (1994). *Child development (3rd ed.)*. Boston: Allyn & Bacon.

Browne, A. (2001). *Developing language and literacy* (2nd ed., pp.3-8). Paul Chapman Publishing Limited.

Czerniewska, P. (1992). *Language in education learning about writing: The early years.* Blackwell Publishers.

Dyson, A. H. (1984). "N" 'Spell my Grandma" "Fostering early think about print". *The Reading Teacher*. Delaware: The International Reading Association, pp. 262-271.

Encomienda, A. (1996). *Exploratory study of the drawings of selected Filipin preschoolchildren.* Unpublished master thesis. UP Diliman Quezon City, Philippines.

Farris, P. J. (1993). *Language Arts- A process approach*. Wm. C. Brown Communication Inc.

Fernandez, J. R. (2005). *Paternal involvement and its influence on children's educational achievement.* Unpublished bachelor thesis. UP Diliman Quezon City. Philippines.

Ferreirro, E. (1990). Literacy development, psychogenesis. In Yetta M. Goodman (Ed.),*How children construct literacy?: The reading teacher*. Delaware: International Reading Association, Inc.

Grossi, E .P. (1990). Applying psychogenesis principles to the literacy instruction of the lower class children in Brazil. In Yetta M. Goodman (Ed.), *How children construct literacy: The reading teacher.* Delaware: International Reading Association Inc.

Gunn, T. P. and Terasaki, D. P. (1982) *Written language instruction- Theory and education.* Aspen Publication.

Gunning, T. G. (2003). *Creating literacy instruction for all children*. Pearson Education, Inc.

Kamii, C. & Manning, M. (2002). Phonemic awareness and beginning reading and writing. *Journal of Research in Childhood Education*, 17(1). ACEI.

Makin, L. & Whitehead, M. (2004). *How to develop children's early literacy. A guide ffor professional careers and educators*. London: Paul Chapman Publishing, A Sage Publishing Company.

McGee, L.M. & Richgels, D. J. (1996). *Literacy's beginnings Supporting young readers and writers* (2nd ed.). Boston: Allyn and Bacon.

Medrano, Zosima (1997). *Home literacy events: Their relationship to early writing attempts of preschool children.* Unpublished doctoral dissertation, UP Diliman Quezon City, Philippines.

Neuman, S. & Dickinson, D. (2003). *Handbook of early literacy research*. The Guilford Press.

Sampson, M., Van Allen, R., Sampson, M. (1991). *Pathways to literacy – A meaning centered perspective*. Holt, Rinehart and Winston Inc.

Sulzby, E., Barnhart, J., & Hieshima, J. (1989). *Forms of writing and rereading from writing:* A preliminary report technical Report No. 20, July 1989. Available at www.writingproject.org/downloads/csw/op20.pdf

Temple , C. (1988) *The Beginning of Writing(2nd ed.).* Boston: Allyn and Bacon, Inc.

Tompkins, G. E. (2003). *Literacy for the 21st century (3rd ed.).* Merill Prentice Hall.

Vygotsky, L. S. (1962). *Thoughts and Language.* Massachusetts: The M.I.T. Press.

Wadsworth, B. J. (1979). *Paget's' theory of cognitive development*. New York and London: Longman, Inc.

Whitehead, M. (1996). *The development of language and literacy*. London: Paul Chapman Publishing Limited.

Wray, D., & Medwell, J. (2006). *Progression in writing and the Northern Ireland levels of writing.* A research review undertaken for CCEA. Available at www. warwick.ac.uk/ staff/D.J.Wray/CCEA.doc

Effects of Task Relevancy on Second Language Production

Bayram Pekoz
Renae Low
Putai Jin
The University of New South Wales, Sydney, Australia

Introduction

In the era of information explosion and rapid globalization, learning a second language is no longer just an academic option. For many of us, learning a second or foreign language becomes a surviving tool and provides opportunities for social and economic development. In the Asia-Pacific region, the most dynamic geo-political and geo-economic area in the world, second language learning has been recognized as an important item in the national agenda by educational policy makers, teachers, and researchers. According to the estimation by Adamson (2005), there are over 3.5 million non-native English speaking students (e.g., Latino student) in U.S. public schools; in some parts of the country, more than 50% of the preschoolers are from non-English-speaking homes. In Australia, languages other than English (LOTE) have long been part of the primary and secondary school curricula; more than forty languages are recognized for tertiary entrance selection (Mercurio & Scarino, 2005). In China, great efforts have been made in the curriculum development of English as a foreign language (EFL) at all levels of education (Cheng, Rogers, & Wang, 2008). Japan has benefited from its one and half centuries' school-based English language program, and it is currently introducing innovative policies that emphasize more on interests, motivation, and attitude toward effective communication in EFL courses (Sasaki, 2008). English was introduced to Hong Kong in 1840s. After the return of sovereignty to China, it is still used as one of the business languages. This special feature has been taken into account in the policy and practices of EFL for this region (Cheng et al., 2008; Qian, 2008). In Singapore, English is not only one of its four official languages (together with Mandarin, Malay, and Tamil), but also the "de facto" working language and the main medium of instructions in all schools and institution. Thus, a large proportion of present-day Singaporean children grow up as English-knowing bilinguals (Rubdy, Mckay, Alsagoff, & Bokhost-Heng, 2008). It should be noted that other influential languages, such as Chinese (Chen & Liu, 2008), are also being learned as a second or foreign language in the Asia-Pacific region.

To engage students in language production, second language teachers have frequently used various learning tasks they believe to be effective. However, there has been a gap between theory-driven research and classroom practice. In particular, there is a need to examine systematically the relationship between task variables and second language production (Courtney, 1996; Ellis, 1994; Skehan, 1998a). As pointed out by Foster (1998), "Some current claims in Second Language Acquisition research are of academic rather than practical interest because the researchers have lost sight of the world inhabited by teachers and learners" (p. 21). Research has yet to find out what kinds of tasks are more effective in terms of student involvement and participation.

Second language acquisition (SLA) scholars have defined the concept of task in the following ways. Nunan (1989) uses the term "communicative task" indicating the teaching of language as communication:

> "a piece of classroom work which involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is principally focused on meaning rather than form." (p. 10)

Willis (1996) defines a task as an activity "where the target language is used by the learner for a communicative purpose … in order to achieve an outcome" (p. 23). Like Nunan and Willis, Skehan (1998a, 1998b) emphasizes the significance of meaning and outcome in his definition of task. According to Skehan (1998b), a task is an activity which satisfies the following criteria: "a) meaning is primary; b) there is some communication problem to solve; c) task completion has some priority; d) there is a real-world relationship; e) the assessment of the task is in terms of outcome" (p. 95).

It should be emphasized that the theme of this study is not to investigate the effectiveness of task-based instruction (TBI) approach in second language learning. Although the TBI approach has been proposed and practiced during the recent decade as an alternative teaching and learning method (e.g., Ellis, 2003; Long, 2000; McDonough & Chaikitmongkol, 2007; Nunan, 1989; Skehan, 1998a, 1998b; Skehan & Foster, 1997; Willis, 1996), there are still some concerns (Swan, 2005) about adopting the entire approach in the domain of second (or foreign) language learning (for simplicity, we use L2 to denote second as well as foreign language). However, both sides do endorse the pedagogic utility of various tasks within and outside the classroom and the importance of peer-peer dialogue to improve the accuracy, fluency and complexity of learners' language production (Canagarajah, 2006; Hinkel, 2006; Swain, Brooks, & Tocalli-Beller, 2002; Swan, 2005; Zuengler & Miller, 2006). The present study attempted to examine effects of task type and task relevancy on L2 learners' verbal production in the peer-peer collaborative dialogue situation.

In current L2 research, task types have been used as independent variables, which refer to several forms of task such as problem solving, debate, decision-making, information gap, and jigsaw. Based on Pica, Kanagy, and Faladun's (1993) task typology, two task types, problem solving and jigsaw, were used in this study. The reason for selecting the problem solving and jigsaw tasks for this study is that they provided a base for comparison between task types in terms of task effectiveness. Both task types had similarities, which would make it easier to study task variables operationalized as more relevant and less relevant variations of the same task type. These common characteristics are a) they involved picture descriptions; b) they involved a certain degree of information-gap between interactants; c) they required exchange of information; d) both were two-way tasks; e) they were convergent tasks; f) both tasks had only one solution; and g) the pictures in the tasks were identical.

In a review of *TESOL* (Teachers of English to speakers of other languages) *Quarterly*'s research tendencies, Canagarajah (2006) points out that we have recognized

that all four language skills – speaking, listening, reading, and writing – should be integrated and organizing principles, such as goals, projects, tasks, and portfolios, should be appropriately applied to our curricula. When we shift to the learner-centered paradigm (Nunan, 1989), a crucial issue is to understand learners' needs, interests, objectives, cognitive capability, experience, and other available mental resources (Bashir-Al, 2006; Fouzder & Markwick, 2000; Hinkel, 2006; Sparks, Patton, Ganschow, Humbach, & Javorsby, 2008). According to Belcher (2006) and Murray and McPherson (2004), instructors are not always good judges of the relevancy issues and thus learners should be encouraged to participate in needs assessment. The content of learning material that is most relevant to learners needs is most likely to motivate learners (Flowerdew & Peacock, 2001).

As Keller (1983) suggests, relevancy is a prerequisite for sustained motivation and requires the learner to perceive that important personal needs are being met by the learning situation. Relevancy implies that the content of a course matches students' expectations. According to Cole and Chan (1994), the following points need to be considered in terms of relevancy. First, students benefit from learning tasks that are relevant to prescribed goals and have demonstrable practical values. Second, tasks should match students' knowledge, understanding and experience. Third, when students perceive the relevancy of the tasks, they expend the effort necessary to complete the tasks. Fourth, teachers should look for tasks with content that students have a preference for, or present the tasks in a format that will stimulate their involvement.

The main purpose of the present study is to examine second language production as influenced by task relevancy. Swain (1985, 1995) emphasizes that students need to produce language in meaningful contexts. Language production or "comprehensible output" is a prerequisite for meaningful use of one's linguistic resources. Comprehensible output has the following functions: (a) it improves learners' fluency; b) it enables learners to recognize a gap between what they wish to say and what they are able to say; and (c) it allows learners to test hypothesis about their comprehensibility and linguistic correction of the utterances (Swain, 1995). Bearing in mind the limitations that are associated with L2 task research, the present study aims to investigate the following questions: First, what effects does task relevancy have on the quantity and quality of language production? Second, what effects does task type have on the quantity and quality of language production? In line with these research questions, it was hypothesised that learners' language production would be greater when they are presented with tasks that are relevant to their needs and interests than when they are not, no matter what type of tasks is used.

Method

Participants

Sixty participants were recruited from a university in Turkey and worked as dyads (n=30) in the study. They were in low-intermediate level classes at the pre-academic English language institute of the university. Out of 30 dyads, 16 were males and 14 were

females. The subjects' age ranged from 18 to 21 with a median age of 19. The participants in each dyad were matched on the variables of proficiency level, age, socio-economic background, and gender. They were from a medium socio-economic background. Since previous research found that gender plays a significant role in L2 tasks (Gass and Varonis, 1986), the participants formed same-gender dyads. The subjects who participated in the dyadic tasks were chosen at random by ten classroom teachers.

Materials

Two task types, problem solving and jigsaw, were used in this study. These task types were in line with Pica, Kanagy, and Faladun's (1993) task typology. The problem-solving task required participants to spot and describe the differences between two pictures. Each participant in a dyad had a picture similar to his or her dyad partner. They were asked to find out the differences by interacting in English. They were not supposed to look at each other's picture. The second task type was a jigsaw task. Eight pictures, which constituted the story, were divided into two piles so that each participant in the dyad had four pictures. Their task was to construct the story by interacting in English without looking at each other's picture. Each participant held different pieces of information needed to complete the task. Both task types had more relevant and less relevant variations in accordance with the participants' evaluation. Following the task completion, each participant was asked to rate the tasks in terms of relevancy: "How relevant did you find the task to your needs and interests?" They answered the question on a five-point scale ranging from "not at all" (1) to "very much" (5). The participants in the dyads rated the tasks independently and an average was taken for each pair.

Procedure

Participants completed their consent forms prior to the experiment. The dyads were withdrawn from their classes one by one into a vacant room. The experimenter gave the instructions in Turkish, which was the subjects' native language, and answered their questions before starting each task. Each task took approximately five minutes to complete. All the tasks were carried out in one single session. Dyadic interactions were recorded. The repeated measures design was used. All dyads worked on more relevant and less relevant variations to reduce the effects of subject personality on the features of language production. The order of tasks was counter-balanced to control for the confounding influence of task ordering and practice effects.

This study investigated both the quantity and quality of language production. The measures for the quantity of language were the amount of language production indicated by the number of words and utterances. The measures for the quality of language production were turn-length and naturalness of the conversations. The average turn-length was calculated by dividing the total number of utterances by the total number of turns produced in each task. The conversations were also analyzed for degree of naturalness by considering this criterion: whether the utterances were related and had transition relevancy (Coulthard & Brazil, 1992; Sacks, Schegloff & Jefferson, 1974). To perform an analysis of results from this perspective, the number of successive turns for

each task was identified. Next, counts were obtained to find out how many turns each instance contains. The number of turns in each instance was then converted into a five-point scale to discriminate between low and high numbers of successive turns. To simplify the measurements, three to five successive turns were recoded into 1, six to eight turns into 2, nine to twelve turns into 3, thirteen to fifteen turns into 4, and finally sixteen and more successive turns were recoded into 5.

Results

Manipulation Check: Relevancy

The means and standard deviations of the participants' perceived relevancy on the problem solving and jigsaw tasks are shown in Table 1.

Table 1: Means and Standard Deviations of Task Relevancy for Each Task (n=30)

	Problem-solving				Jig-saw			
	more relevant version		less relevant version		more relevant version		less relevant version	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Relevancy	3.38	0.68	3.05	0.62	3.90	0.95	3.37	0.91

Analysis of variance (ANOVA) indicated that there was a significant difference between the two variations of each task type in terms of relevancy, for problem-solving tasks $F_{(1,29)} = 6.37$, $p < .05$, and for jigsaw tasks, $F_{(1,29)} = 4.25$, $p < .05$.

The Quantity of Language Production

First, random samples of the transcriptions were used to establish inter-rater reliability. Inter-rater reliability checks obtained high correlations for the categories of words and utterances, which were .94 and .96, respectively. The results regarding the amount of language production are given in Table 2.

As indicated by ANOVA with repeated measures, there was a significant task type effect in terms of language production measures, for the number of words, $F_{(1,29)} = 24.02$, $p < .001$, and for the number of utterances, $F_{(1,29)} = 67.16$, $p < .001$. The interaction of the two independent variables (i.e. task type and relevancy) was significant only for the number of words, $F_{(1,29)} = 4.43$, $p < .05$. Follow-up analysis using ANOVA showed that the simple main effect on the differences between the two variations of the problem-solving task was significant in terms of the number of words, $F_{(1,29)} = 7.73$, $p < .01$. In other words, more relevant version of the problem-solving task produced a greater number of words than its less relevant counterpart. However, regarding the number of utterances, no significance was obtained between problem-solving variations. As for the jigsaw task, no significance was obtained for language production.

Table 2: Means and Standard Deviations of the Quantity and Quality of Language Production for Each Task (n=30)

	Problem-solving				Jig-saw			
	more relevant version		less relevant version		more relevant version		less relevant version	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Quantity:								
Utterance	49.73	11.22	48.17	11.00	35.30	8.94	3.37	0.91
Words	279.00	51.30	256.00	48.50	241.00	2.79	236.00	53.15
Quality:								
Turn-length	1.61	0.45	1.36	0.23	2.89	1.50	2.52	1.05
Successive-turns	3.50	1.31	3.37	1.27	4.90	0.31	4.87	0.35

The Quality of Language Production

The main effect of task type was significant for turn-length, $F_{(1,29)} = 51.52$, $p < .001$, and for successive-turns, $F_{(1,29)} = 62.13$, $p < .001$. The jigsaw task produced longer turns and more successive turns than did the problem-solving task. The main effect of relevancy was significant for turn-length, $F_{(1,29)} = 4.46$, $p < .05$, but not for successive-turns. Follow-up analysis revealed that the mean differences for turn-length were significant for the two versions of the problem-solving task, $F_{(1,29)} = 19.86$, $p < .001$. In other words, the more relevant version of the problem-solving task produced longer turns than did the less relevant variation of the same task type. Such qualitative difference in language production was not observed with the jigsaw task.

Discussion

The results regarding the quantity of language production confirmed the hypothesis for one task type, that is, learners' language production is greater when they are presented with tasks that are relevant to their needs and interests. As the results indicated, the more relevant version of the problem-solving task produced more language than the less relevant versions of the same task type. The more relevant version of the jigsaw task resulted in a slightly higher number of words and utterances. However, a significant difference was not obtained for the jigsaw task type. The literature (Nunan, 1999; Robinson, 1995, 2001; Skehan, 1996) suggests that it may not be easy to keep the difficulty level of tasks constant because it is affected by features such as familiarity, contextual support, density, clarity, and complexity. In addition, the cognitive load involved in the learning process (Low, Jin, & Sweller, in press; Yeung, Jin, & Sweller, 1998) may be an important mediating variable and thus should be investigated. Overall, findings of the present study are consistent with those in educational psychology showing

that task relevancy is conducive to effortful, deep learning (Alexander, Kulikowich,, & Schulze, 1994; Cerdán & Vidal-Abarca, 2008; Lamb, 2007; Low & Jin, in press; Newby, 1991; Shirey & Reynolds, 1988; Smith & Luginbuhl, 1976), thus partially supporting the application of the ARCS (attention, relevance, confidence, satisfaction) model to enhance learners' motivation (Keller, 1987).

A distinction needs to be made between the two indicators for the quantity of language. Although significant results were obtained for the number of words on the problem-solving task, no significance was achieved for the number of utterances. Thus, a further question of interest is: Does the number of words as a unit of analysis represent language production more reliably than the utterance? A tentative answer would be "yes" because the fact that the length of utterance in the tasks varies from one word to 25 words renders the utterance less reliable as a means of measuring language production. This view is in contrast with that of Crookes (1990), who favours the utterance as a production-unit of speech. This issue is especially important when research focuses on finding out to what extent the language produced in tasks represents extended discourse (i.e. language beyond sentence level). The dependent variable turn-length was treated as a measure of quality of language production in the present study. However, as the results suggest, the variable turn-length may share quantitative characteristics as well because it involves quantity of language production to a certain extent. Therefore, such an interaction may have had an effect on the significant results obtained for turn-length.

It appears that a more relevant task would stimulate learners' interest. As a result, their participation would be greater. In other words, they would work hard towards the completion of the tasks and accordingly produce greater amount of language. Also, the results revealed that each task type was distinctive in terms of quality and quantity of language production. It was the problem-solving task that resulted in more quantity of language production, but where quality was concerned, it was the jigsaw task that yielded more natural discourse. The findings are in accord with Duff (1986, 1993) and Tong-Frederick's (1984) conclusions that one task is not necessarily better than the other, and different task types may be complementary from pedagogic and psycholinguistic perspectives.

Conclusion

The present study differed from previous studies of L2 task research in certain ways. First, it investigated task type and task variable relevancy as independent variables as well as the interaction between them. Second, it employed language production measures as dependent variables as opposed to negotiation of meaning strategies. Third, the research employed a large sample of dyads (n=30) compared to previous research, which usually involved less than 10 dyads. Fourth, this study revealed that the quantity of language production should be distinguished from the quality of language production. A task type or kind, which produces more language, does not necessarily produce better quality language. For instance, a problem-solving task that involved telling picture differences may produce more language than the jigsaw task, but may not produce better quality of language.

Some pedagogical implications can be drawn from the results of the present study. Research in the Asia-Pacific Region has consistently shown that policy makers and instructors should be mindful of learners' interests and cultural factors in the learning of a second or foreign language. For instance, Osborn (2007) has pointed out that school policies, language programs and associated classroom activities in America must be designed to encourage pluralistic approaches, embrace cultural diversity and meet students' needs. Australian researchers have discovered that, if second language learners lack interest and positive goal-orientation, they may avoid self-regulated study (Davis, 2007; Mills, 2007). Research in Hong Kong (Lo & Hyland, 2007) indicates that underachieving as well as exam-oriented ESL students, if having opportunities to work on tasks of interest that match their own socio-cultural context and thus relevant to them, can build self-confidence and become more flexible and resourceful learners. A pedagogical intervention project conducted in Singapore's secondary English classrooms has emphasized that teachers need to adopt a proactive, socio-cultural stance to creativity and criticality in English language education (Kwek, Albright, & Kramer-Dahl, 2007). In general, students will benefit from language learning if teachers find out, through needs analysis, the sort of content their students wish to learn and the kind of tasks they find relevant to their needs and interests. The findings also suggest that the difficulty levels could have an intervening effect on language production. It is hoped that this study can attract more SLA researchers and practitioners to design and conduct investigations on task relevancy and other motivational factors.

Notes

Correspondence concerning this article should be addressed to Renae Low, School of Education Studies, the University of New South Wales, Sydney 2052, Australia. Electronic mail may be sent to r.low@unsw.edu.au.

References

Adamson, H. D. (2005). *Language minority students in American schools*. Mahwah, NJ: Lawrence Erlbaum.

Alexander, P. A., Kulikowich, J. M., & Schulze, S. K. (1994). The influence of topic knowledge, domain knowledge, and interest on the comprehension of scientific exposition. *Learning and Individual Differences, 6,* 379–397.

Bashir-Al, K. (2006). Language learning and the definition of one's social, cultural, and racial identity. *TESOL Quarterly*, *40*, 628-639.

Belcher, D. D. (2006). English for specific purposes: Teaching to perceived needs and imagined futures in worlds of work, study, and everyday life. *TESOL Quarterly*, *40*, 133-156.

Cerdán , R., & Vidal-Abarca, E. (2008). The effects of tasks on integrating information from multiple documents. *Journal of Educational Psychology*, *100*, 209-222.

Canagarajah, A. S. (2006). TESOL at forty: What are the issues? *TESOL Quarterly*, *40*, 9-34.

Chen, H., & Liu, K. (2008). Web-based synchronized multimedia lecture system design for teaching/learning Chinese as a second language. *Computers and Education*, *50*, 693-702.

Cheng, L., Rogers, W. T., & Wang, X. (2008). Assessment purposes and procedures in ESL/EFL classrooms. *Assessment and Evaluation in High Education*, *33*, 9-32.

Cole, P. G., & Chan, L. K. (1994). *Teaching principles and practice, (2nd ed.)*. New York: Prentice Hall.

Coulthard, M., & Brazil, D. (1992). Exchange structure. In M. Coulthard (Ed.), *Advances in spoken discourse analysis* (pp. 50–78). London: Routledge.

Courtney, M. (1996). Talking to learn: Selecting and using peer group oral tasks. *English Language Journal, 50,* 318–326.

Crookes, G. (1990). The utterance and other basic units for second language discourse analysis. *Applied Linguistics, 11,* 183–199.

Davis, J. M. (2007). Resistance to L2 pragmatics in the Australian ESL context. *Language Learning*, *57*, 611-649.

Duff, P.A. (1986). Another look at interlanguage talk: Taking task to task. In R. Day (Ed.), *Talking to Learn: Conversation in Second Language Acquisition* (pp. 147–181). Rowley, MA: Newbury House.

Duff, P. A. (1993). Tasks and interlanguage performance: An SLA research perspective. In: G. Crookes & S. M. Gass (Eds.), *Tasks and Language Learning: Integrating Theory and Practice* (pp. 57–95). Clevedon: Multilingual Matters.

Ellis, R. (1994). *The study of second learning acquisition.* Oxford: Oxford University Press.

Ellis, R. (2003). *Task-based language learning and teaching.* Oxford: Oxford University Press.

Flowerdew, J., & Peacock, M. (2001). Issues in EAP: A preliminary perspective. In J. Flowerdew & M. Peacock (Eds.), *Research perspectives on English for academic purposes* (pp. 8-24). Cambridge, England: Cambridge University Press.

Fouzder, N. B., & Markwick, A. J. W. (2000). Self-perception, individual learning style and academic achievement by a pair of bilingual twins in a secondary school. *International Journal of Science Education*, *22,* 583-601.

Foster, P. (1998). A classroom perspective on the negotiated meaning. *Applied Linguistics, 19*, 1–23.

Gass, S., & Varonis, E. (1986). Sex differences in nonnative speaker-nonnative speaker interactions. In R. Day (Ed.), *Talking to Learn: Conversation in Second Language Acquisition* (pp. 327–351). Rowley, MA: Newbury House.

Hinkel, E. (2006). Current perspectives on teaching the four skills. *TESOL Quarterly*, *40*, 109-131.

Keller, J. M. (1983). Motivational design of instruction. In C. M. Reigeluth (Ed.), *Instructional Design Theories and Models*. Hillsdale, NJ: Erlbaum.

Keller, J. M. (1987). Development and use of the ARCS model of motivational design. *Journal of Instructional Development*, *10*, 2-10.

Kwek, D., Albright, J., & Kramer-Dahl, A. (2007). Building teachers' creative capacities in Singapore's classrooms: A way of contesting pedagogical instrumentality. *Literacy*, *41*, 71-78.

Lamb, M. (2007). The impact of school on EFL learning motivation: An Indonesian case study. *TESOL Quarterly*, *41*, 757-780.

Lo, J, & Hyland, F. (2007). Enhancing students' engagement and motivation in writing: The case of primary students in Hong Kong. *Journal of Second Language Writing*, *16*, 219-237.

Long, M. (2000). Focus on form in task-based language teaching. In R. Lambert & E. Shohamy (Eds.), *Language policy and pedagogy: Essays in honor of A. Ronald Walton* (pp. 179-192). Philadelphia: John Benjamins.

Low, R., Jin, P., & Sweller, J. (in press). Cognitive architecture and instructional design in a multimedia context. In Robert Zheng (Ed.), *Cognitive Effects of Multimedia Learning*. Hershey, PA: IG1 Global.

Low, R., & Jin, P. (in press). Motivation and Multimedia Learning. In Robert Zheng (Ed.), *Cognitive Effects of Multimedia Learning*. Hershey, PA: IG1 Global.

McDonough, K., & Chaikitmongko, W. (2007). Teachers' and learners' reactions to a task-based EFL course in Thailand. *TESOL Quarterly*, *41*, 107-132.

Mercurio, A., & Scarino, A. (2005). Heritage languages at upper secondary level in South Australia: A struggle for legitimacy. *International Journal of Bilingual Education and Bilingualisms*, *8*, 145-159.

Mills, K. A. (2007). "Have you seen 'Lord of the Rings'?": Power, pedagogy, and discourses in a multi-literacies classroom. *Journal of Language, Identity, and Education, 7, 15-28.*

Murray, D., & McPherson, P. (2004). *Using the Web to support language learning*. Sydney, Australia: National Centre for English Language leaching and Research.

Newby, T. J. (1991). Classroom motivation: Strategies of first-year teachers. *Journal of Educational Psychology*, *83*, 195-200.

Nunan, D. (1989). *Designing tasks for the communicative classroom*. Cambridge: Cambridge University Press.

Nunan, D. (1999*). Second language teaching and learning*. London: Heinle & Heinle.

Osborn, T. A. (Ed.) (2007). *Language and cultural diversity in U.S. schools: Democratic principles in action*. Lanham, MD: Roman & Littlefield.

Pica, T., Kanagy, R., & Faladun, J. (1993). Choosing and using communicative tasks for second language instruction. In G. Crookes, & S. M. Gass. (Eds.), *Tasks and Language Learning: Integrating Theory and Practice* (pp. 9–34). Clevedon: Multilingual Matters.

Qian, D. D. (2008). English language assessment in Hong Kong: A survey of practices, developments and issues. *Language Testing*, *25*, 85-110.

Robinson, P. (1995). Task complexity and second language narrative discourse. *Language Learning, 45*, 99–140.

Robinson, P. (2001). Task complexity, task difficulty, and task production: Exploring interaction in a componential framework. *Applied Linguistics, 22*, 27–57.

Rubdy, R., Mckay, S. L., Alsagoff, L., & Bokhost-Heng, W. D. (2008). Enacting English language ownership in the outer circle: A study of Singaporean Indians' orientations to English norms. *World Englishes*, *27*, 40-67.

Sacks, H., Schegloff, E., & Jefferson, G. (1974). A simplest systematics for the organization of turn-taking in conversation. *Language, 50*, 696–735.

Sasaki, M. (2008). The 150-year history of English language assessment in Japanese education. *Language Testing*, *25*, 63-83.

Shirey, L. S., & Reynold, R. E. (1988). Effect of interest on attention and learning. *Journal of Educational Psychology, 80,* 159–166.

Skehan, P. (1996). A framework for the implementation of task-based instruction. *Applied Linguistics, 17,* 38–62.

Skehan, P. (1998a). Task-based instruction. *Annual Review of Applied Linguistics, 18,* 268–286.

Skehan, P. (1998b). *A cognitive approach to language teaching*. London: Oxford University Press.

Skehan, P., & Foster, P. (1997). Task type and task processing conditions as influences on foreign language performance. *Language Testing Research, 1*, 185–211.

Smith, F. J, & Luginbuhl, J. E. R. (1976). Inspecting expectancy: Some laboratory results of relevance for teacher training. *Journal of Educational Psychology*, *68*, 265-272.

Sparks, R. L., Patton, J., Ganschow, L., Humbach, N., & Javorsky, J. (2008). Early first-language reading and spelling skills predict later second-language reading and spelling skills. *Journal of Educational Psychology*, *100*, 162-174.

Swain, M. (1985). Communicative competence: Some roles for comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (Eds.), *Input in Second Language Acquisition* (pp. 235–256). Rowley, MA: Newbury House.

Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principles and Practice in Applied Linguistics: Studies in Honour of H. G. Widdowson* (pp. 125-144).London: Oxford University Press.

Swain, M., Brooks, L., & Tocalli-Beller, A. (2002). Peer-peer dialogue as a means of second language learning. *Annual Review of Applied Linguistics*, *22*, 171-185.

Swan, M. (2005). Legislation by hypothesis: The case of task-based instruction. *Applied Linguistics*, *26*, 376-401.

Tong-Fredericks, C. (1984). Types of oral communication activities and the language they generate: A comparison. *System, 12,* 133–146.

Willis, J. (1996). *A framework for task-based learning*. London: Longman.

Yeung, A. S., Jin, P., & Sweller, J. (1998). Cognitive load theory and explanatory notes. *Contemporary Cognitive Psychology, 23*, 1-21.

Zuengler, J., & Miller, E. R. (2006). Cognitive and sociocultural perspectives: Two parallel SLA worlds? *TESOL Quarterly*, *40*, 35-58.

Education Policy, Reform, and School Innovations in the Asia-Pacific Region

PART IV:

EDUCATIONAL TECHNOLOGIES AND e-LEARNING

The Development of Educational Technology in China

Ramsey Ding-Yee Koo
ACEI-HKM, Hong Kong & Macau

Tak Cheung Chan
Kennesaw State University, USA

Michael D. Richardson
Southeastern Louisiana State University, USA

Introduction

China has a long history of development in educational technology. In the last two decades, because of its open policy to the west, the development was particularly rapid, especially in economically thriving areas. To better understand the origin and trends of this spectacular technological development, we need an update of some basic information about Chinese education system in recent years. The People's Republic of China has a territory of about 3.6 million square miles (9.6 million square kilometers) with a total population in excess of 1.3 billion (World Fact Book, 2008). Approximately two hundred million people reside in cities and towns, while over 800 million live in rural areas. The Chinese educational system is made up of preschool, primary, secondary, higher, vocational and adult education. Over one-fourth of the population is below the age of fourteen, which is under compulsory schooling beginning at the ages of 7 through 15. Preschool education is provided in kindergarten units which admit children over 3 years of age. Primary schools enroll children at age 7, though the age of entry is gradually being changed to 6. Secondary school is divided into the junior and senior stages, each consisting of three years. China has more than 200 million elementary and high school students, and combined with pre-school children, they account for one sixth of the total population. Higher education is for those students who have passed public and national examinations of all levels. Undergraduate programs in universities and colleges generally require 4 to 5 years of study, while some medical schools require 6 years of preparation. The graduate programs for master's and doctoral degrees average 2 or 3 years for completion. With the impact of the information era and the increasing competitive-edge of its labor force, the Ministry of Education (MOE) revised its educational policy in 2001 to increase the gross higher education enrollment rate to 15 percent by 2005, resulting in a total of over 16 million students in higher education (Yang, 2002). In 1999, under public pressure to provide more educational opportunities in higher education, colleges and universities enrolled a record 1.6 million students across the nation, up 48 percent from 1998. By 2005, five million new students were enrolled, which was 4.7 times more than in 1998. Currently, 5.7 million newly enrolled students are attending colleges and universities in China, an increase of 5 percent from a year earlier and down from double-digit growth in recent years (Xinhua, January 25, 2007). The public educational spending accounts for 3.41 percent of the Gross Domestic Product (GDP) in 2002 (up from 2.55 percent in 1998), the government will increase financial

input for education in the coming five years and gradually raise the proportion of annual public education expenditures to 4 percent of GDP (CERNET, March 10, 2006).

Education in The People's Republic of China is under the general guidance of the Communist party and administered by government's agencies at different levels. In May 1985, the Central Committee Resolution on the Reform in Educational System was approved. The resolution provides the guiding principle for the development of China's education which specifies that education must serve the nation's socialist construction and must rely heavily on education (Swanson & Zhian, 1987). According to this axiom, the common mission of schools at all levels should be to aid the nation's modernization drive and competitively train students morally, intellectually, and physically for future development and service.

A fundamental feature of the Chinese education system is its adherence to a highly centralized, rational, top-down, administrative model (Zhao, Zhang & Li, 2006). In 1985, the State Education Commission was established to formulate the guiding principles of education including the planning of educational research, coordinating the functions of different education departments and agencies, and guiding education reform (Swanson & Zhian, 1987). On the other hand, the Central Education Administration Institute was responsible for training administrative leaders for the institutions of higher education and educational departments at provincial and municipal levels. Administrators at college levels and in primary and secondary schools are usually trained at provincial colleges of education or in government agencies (Frasher & Frasher 1987, MOE, 2006). After the restructuring of the State Council in 1998, the State Education Commission became the Ministry of Education (MOE), which is a central government agency under the State Council responsible for China's educational undertakings and language work. It also carries out the work assigned by the State Steering Committee of Science and Technology and Education (MOE, 2007).

Highlights of Educational Technology Development

Educational technology is not a new term in The People's Republic of China. According to official record, Chinese educational technology first started with college audio-visual programs in 1922 in the School of Agriculture of Jinling University where slides and films with oral explanations were recorded on phonograph to publicize the scientific methods for cotton-planting (CERNET, 2001). The explanation of the term "educational technology" in the *Chinese Education Encyclopedia* is a translation of "electrified education". Educational technology has developed rapidly in China during the last twenty years (Li, 1999; Yang, 2008; Zhang, 1986). Because of the severe shortage of teachers and school workers, educational technology has become the answer to increasing the productivity of teachers and administrators - that is, to make competent instruction and training programs stretch as far as possible throughout the country. High schools and language institutes require extensive and impressive language-lab equipment and technical support. Many courses and teaching materials are built around the videotapes of noted teachers and professors from distant schools. Educational technology has tremendous impact on education at all levels in the urban as well as rural schools.

In 1986, An English-Chinese Dictionary of Educational Technology was published in China. With some 30,000 entries, this bilingual dictionary is the first of its kind (Xing, 1986) compiled for public use. During this year, an official delegation of Chinese educators visited the Annual Convention of the Association for Educational Communications Technology (AECT) held in Las Vegas, Nevada, beginning January 16 to 21, 1986 (Gubser, 1986). Since the late 1980s, many countries have been in collaboration with China on educational technology and information science due to the vast demands and rapid development of research and technology inside China. With a population comprising one-fourth of the world population, China has become the largest market in the research and development of educational technology and informatics for many foreign trades and enterprises.

Educational Television and Educational Technology

Most of the teacher-training universities in China have television-production equipment to create instructional videotapes. The prevalent model of instructional television is similar to that which dominated the United States during the 1960's. The most impressive development of educational television in China is the Central Radio and Television University which is similar to the Open University in Great Britain. It is an expanded version of Beijing Television University established in 1960 which by 1983 had an enrollment of 935,000.

The Central Radio and Television University is administered by the State Education Commission and the Ministry of Radio, Motion Picture and Television, which provide leadership in both academics and technology. With branches in every province, autonomous region and municipality, the university's television structure is the largest of its kind in the entire world (Zhang, 2005). The Central Radio and Television University's major courses of study include electronics, economics, machine building, mathematics, chemistry, physics, English, and many other non-technical subjects. Not surprisingly, many of the university students are factory workers, administrative staff and teachers who attended on either a full-time or part-time basis. Official student status is achieved by graduating from middle school and passing a university examination. Students are classified as full-time when they study four or more days a week. At every branch of the university there are full-time managers, instructors, and mentors involved with either teaching or management functions. It should be noted that the university's television branches offer a graduation diploma, recognized by the province, after the successful completion of a regular 3-year program of study. Because the formal higher education institutions usually offer 4-year programs, the graduation certificate issued by the television university is a step between the secondary school diploma and four-year university diploma. However, due to the increasing demand of online adult education at the post-secondary level and the rapid development of educational technology, in recent years the Ministry of Education has approved 68 ordinary schools of higher learning and the Central Radio and TV University to pilot modern distance education. By the end of 2003, these schools had established 2,027 off-campus learning centers around China, offering 140 majors in ten disciplines, and had a total enrollment of 1.373 million (MOE, 2006).

It seems clear that Chinese educational television can provide a needed service, especially for workers and teachers who seek to improve their skills and expertise. Television instruction also releases the severity of unemployment problems in urban areas by providing part-time course work or remedial instruction. The government hopes that in addition to removing unemployed youth from the streets, these courses will allow youth to engage in productive activity following training (Su, 1989). While the television university is certainly the primary source of educational programming, it is not the only source. Today, schools of higher learning for adults include radio and TV, worker, farmer, correspondence and evening universities, management and education colleges. Regular television stations provide a variety of educational programs including business, finance, accounting, foreign languages, computer science, information technology, education, agriculture subjects, social science, arts and sciences. For over forty years, the television university has made major contributions by providing higher education to great numbers of people across the country. For example, the China Agricultural Broadcast and Television School has "nearly 3,000 branch schools and a teaching and administrative staff of 46,000. Using radio, television, satellite, network, audio and video materials, it has trained over 100 million people in applicable agricultural technologies and over 8 million persons for work in rural areas. After 20 years in development, it is the world's largest distance learning organ for rural education" (Wikipedia, 2008). Moreover, while adult secondary schools include vocational, high and skills training schools, worker elementary and farmer elementary schools comprise the adult elementary sector (MOE, 2006).

The Use of Information Technology in Education

In the face of the challenge of the knowledge-based economy, globalization, and technical revolution, the government has decided to concentrate significant resources on the development of education and information, including expansion of the computer use in schools, restructuring of the curriculum and instructional programs, and privatization of education and information service industry. Computers first appeared in China in the 1950's, but were largely ignored until the 1970s. Computer education in primary schools started in 1984 in more than thirty large and medium-size cities. Since the government adopted a more open foreign policy in the 1980s, the computer industry has been developing and expanding rapidly in most urban and sub-urban areas, particularly in the aspects of scientific research, manufacture industry, business application, professional training and distance education. In the year 2000, the Ministry of Education issued the *Plan to Develop Educational Information Technology in the 10th 5-year Period (2001-2005) (Outlined)*, which required among other things: (i) To set up Information Technology as a separate subject in schools, and (ii) To connect all K-12 schools with the Internet by 2010. At the post-secondary level, many colleges and universities have started to make extensive use of innovative pedagogy such as Community-Based Natural Resource Management (Qi, Gubo & et al, 2008) and Course Management Systems (CMSs) (Liu & Cheng, 2008) to assist educators and students in creating on-line learning communities. These approaches have found to be stimulating and effective in teaching and learning and as possible supplement to traditional learning and on-campus education.

On the other hand, some universities in China have been building and implementing distance education network, including web-based degree and non-degree programs through the Internet Colleges. Zhao, Zhang, & Li (2006) noted some major prospects of on-line higher education in China and provided comments related to the short evolutionary path of the Internet Colleges.

> One result of this growth has been the demand for more and better educational opportunities at the postsecondary level. In response, the Chinese government, which holds a tight control over its highly centralized education system, introduced a number of drastic measures to expand access to postsecondary education, including the formation of "Internet Colleges"--or "wangluo xueyuan," in Chinese. These colleges, which are units within existing universities, are dedicated to offering postsecondary-level educational programs online. Other than the China Central Radio and TV University (CCRTVU), they are the only institutions approved by the government to offer online postsecondary education. The Internet College initiative was a bold experiment for the Chinese education system, and as such, it has gone through a number of changes and modifications since its inception. These changes and modifications partly reflect the government's struggle to strike a balance between tight regulation and flexibility, between tradition and innovation, and partly reveal the current social, political, economical, and educational realities in China with regard to online education.

Use of Computers at School

In China, the use of computers in the school began in the late 1970s. In 1978, students at Shanghai Children's Science Center were the first to receive basic training in computers. In 1980, a few microcomputers were presented to Beijing Jingshan Middle School by the Beijing Association of Science and Technology. The students began learning how to use the computers during their spare time rather than during school. In 1982, Beijing University and two other colleges helped a local middle school start introductory computer courses (Zhang, 1986). At the initiative of the government and the Ministry of Radio, Motion Picture and Television, and with the support of various enterprises and individuals, additional schools started computer education programs. According to a survey in 1987, there were over 36,000 micro-computers being used in over 3,000 primary and secondary schools in China. Including the out-of-school computers available to some students, there were over 60,000 in number, with the majority belonging to Apple II's.

In order to impart basic computer knowledge and practical application, the Number Two Secondary School affiliated with East China Normal University has carried out computer instruction since 1978. In the beginning, the content consisted mainly of BASIC instruction and some introductory software applications. The school has switched to training students to solve problems using computer technology. Computer education in primary schools started in 1984 in more than thirty large and medium-size cities. However, due to educational policy and limited resources, majority of schools were lagged behind in computer education and information technology. This is particular acute in many remote areas and ethnic minority regions.

In an effort to improve the quality of education, the central government has started to reform computer technology in school. In an official report on Promote Information

Technology Among Schools Over Next 5-10 Years at the 4th Ministerial Review Meeting on Education for All of the Nine High-Population Countries held in 2001, the government announced that it will spend five to ten years, starting from 2001, for promoting IT education among primary and middle schools including vocational and technical schools. Specifically,

1. The subject of Information Technology (IT) will be made compulsory throughout the country, and by the year 2005, IT education will become a compulsory course in all the middle schools and the primary schools in cities and other developed areas.

2. The coverage will be expanded to over 90 percent of schools nation-wide as soon as possible. Moreover, taking into consideration local conditions, different methods will be explored to make the Internet accessible to all primary and middles schools.

3. Before 2010, some 90 percent of the countries' primary and middle schools will gain access to the Internet and broadband net; and for the remaining 10 percent, multi-media teaching facilities and other resources will be made available.

4. The government will also make efforts to integrate IT and other subjects. The study and application IT should be integrated with the development of educational concepts, and IT should be applied to the improvement of the educational system, content and methods.

5. Teachers will try to apply IT in teaching other subjects as much as possible, and IT should be employed in students' studying and in the creating process.

6. IT will also give full play to long-distance education and new information and communication technologies so as to meet the evolving needs of the social and economic development, promote the training of practical skills and accelerate the national development of education.

7. To achieve the goal, the Chinese government has worked out a guiding principle stressing rational planning and all-round promotion, which are tailored to the needs of different localities and with a focus on effectiveness.

CERNET (2001). China to Promote IT Among Schools Over Next 5-10 Years (August 21, 2001)

At present, computer courses are required in most urban senior high schools, but in some junior high schools students receive computer education as a component of their extra-curricular activities. Also, the training in computer science at the primary level is undertaken mainly as part of extra-curricular activities in many remote areas. Although information technology in rural schools is at the initial stage, it is developing gradually in some regions. For example, in the Shanxi Province, the government project in developing

twenty centers for teaching software has been underway until 2006. The region will complete establishing an information network center for basic education with its base in higher education institutions by the end of 2002 to cover the needs of schools in urban cities. The network will serve all counties and villages by the end of 2003 (China Education Daily, 2001).

Advancing from Traditional Computer Instruction to Modern Information Technology

In recent years, with rapid development of the global economy and the strategic investment of human resources, the goal of computer education in China has changed from the traditional ones providing students with basic computer concepts, fundamental knowledge of BASIC computer language, word and data processing, and application of Chinese software packages in the classroom to those that promote inquiry, problem-solving skills, interactive learning and reflective thinking, such as the web-based learning and Internet e-Learning, Modular Object-Oriented Dynamic Learning Environment (Moodle), construction of personal and school homepages, group projects through intranets or internet-based stations, and understanding of the role of information technology plays in modern society. Today, nearly 1.5 billion people around the world join the e-world through the Internet (Colle, 2008). With support of the government and investment of local and foreign IT industries, currently China has well over 200 million Internet users, a number that has surpassed those of the United States and the European Union (EU).

> The number of Chinese citizens reached 253 million by the end of June 2008, up 56.2 percent from 162 million in 2007, the most in the world, the China Internet Network Information Center (CNNIC) said in a report on Thursday. The report … revealed the country also had the largest number of broadband subscribers at 214 million, more than 80 percent of the total domestic Internet population. In addition, the registered "CN" domain topped 12.18 million as of July 22, 2008. China had replaced Germany as the largest country in terms of domain numbers. About 206 million citizens checked news online, which is equivalent to about 81.5 percent of the whole domestic online population. About 63.29 million shopped online, or a quarter of the whole domestic Internet population, while 23.79 million paid money through online means, the CNNIC reported. China has seen a steady increase in its Internet users in recent years. It reported 210 million Internet users through 2007, while on June 30, 2006, the figure was 123 million. (Xinhua, Jan 24, 2008)

It should be noted that despite the rapid growing rate in Internet population, wide disparities exist among metropolitan cities and sub-urban and remote areas in terms of digital resources and IT development, as indicated in the report below.

> Internet users in Beijing will have faster, easier access to the cyber world when the "wireless Beijing" program goes into full swing. The service will be offered free of charge during the Olympics. CECT-Chinacomm Communications, the service provider, will implement the plan in three phases. The first phase began trial operations on June 25, 2008 and covers an area of 100 square kilometers. The second phase is scheduled to finish in 2009 and the final phase will be completed in 2010 with the creation of a citywide wireless network. Through the wireless access points, people with laptops, PDAs or Wi-Fi enabled mobile phones will be able to go online outdoors. According to

> the plan, CECT-Chinacomm Communications will build 9,000 wireless access points in public areas and 150 WiMAX stations by the end of 2009, providing Wi-Fi services on more than 90 percent of streets in Beijing. (Shanghai Daily, June 26, 2008)

Furthermore, in many remote and undeveloped regions such as the central and western areas, education and information technology has been established gradually due to the lack of human, financial, and material resources. For instance, the Xinjiang Province will take five to ten years to implement the use of information technology in schools. Currently, only forty percent of senior secondary, ten percent of junior secondary and five percent of primary schools are equipped with computer facilities in this region. Since the fall of 2001, all regular senior secondary schools are mandated by the government to offer IT courses, while only seventy percent of junior secondary schools at municipal level could follow such regulation. With the limited resources and support, it was estimated that only eighty percent of junior secondary schools at the county level in Xinjiang Province could fulfill such requirement in 2003 (East News Net, 2001). Zhang (2005) noted that urban schools tend to benefit more from advanced digital e-learning and information technology resources than rural schools because

> [E]ven with substantial government investment and supportive policies, the development of modern distance education in rural China is far more challenging than it is in the cities. Open access has not been met for online learning activities in China yet, as many individuals do not own computers or have access to the Internet connections at home. Therefore, online education has to be accessed at central locations and/or in the learning centers. In rural areas and less developed regions, the learning centers, existing and new ones, will be leveraged with the Internet, mostly through satellite technologies. … Yet in rural China, the critical need is still the secure 9-year compulsory education and to make the basic facilities available. To bridge the gap between the cities and the rural areas will be a long-term, challenging task (MOE, 2002b), and the market economy makes it even harder to achieve such a goal without heavy investment from the private businesses and industries (pp. 32-33).

On the whole, China has made a great leap forward in advancing from traditional computer instruction to modern information technology. Evidently, the impact of the global economy, increasing competition of human resources, and continuous support of the government are the main driving forces behind the change.

Government's Role and Effort in Technology Development

The Chinese government has been playing a significant role in the development of educational technology and computer education since the 1980s. In 1998, the State Education Commission awarded over 400 schools in China as experimental schools in modern educational technology. These schools offer an average of seven hours of teaching in computer science per week and enhance the use of computers and software packages and in teaching and learning (Wenhui Daily, 1999). Moreover, to facilitate the development of information technology in education, in late 1999 the State Education Commission established fifteen pilot university high-tech parks across the country to oversee selected universities and provinces to take part in relevant projects. It was planned that one hundred national high-tech parks would be developed. With regard to schools, the State Education Commission has recommended that all primary and

secondary schools should introduce an information technology course in the curriculum, with senior secondary schools and urban junior secondary schools to comply, and rural junior secondary schools and primary schools to follow suit (China Education Daily, 1999). For example, in Tianjin, since 2002 the city has allocated a total amount of five billion yuan on the equipment for information technology for its primary and secondary schools. By 2001, information technology has already become the core curriculum of all senior and junior secondary and thirty percent of all the primary schools. All schools in Tianjin must implement information technology in their curriculum. Essentially, one IT room is planned for every twelve classes in senior secondary schools, one for every eighteen classes in junior secondary, and one for every twenty four classes in the primary. On the other hand, more information technology facility and support has been given to model or key-point schools, including approximately fifty computers to be installed in each room for these secondary and primary schools.

Information technology has been considered as a tool for poverty reduction and economic development in many developing countries (Larson & Murray, 2008). In recent years, with the impact of the knowledge-based economy and global competition, the Chinese government has been investing heavily in information technology in public education. The funds for computers in junior and primary schools also come from government appropriations and donations from colleges, research institutions, foreign enterprises, and individuals. In fact, in the past eight years, the Ministry of Education has set up more than 300 IT training bases nationwide which have helped more than 50,000 people get IT certifications (Xinhua, September 6, 2008). A report on the National Conference on Technological Innovation in Higher Educational Institutions revealed that:

> [B]etween 1992 and 1998 higher education institutions completed two-thirds of National Natural Sciences Foundation projects and 14% of national key science and technology projects; received 60% of national science and technology awards; signed over 30,000 contracts worth 2.84 billion yuan (0.35 billion USD); and sold over 3,000 patents for 284 million yuan. Furthermore, over 60,000 projects were accredited by national ministerial and provincial authorities. The knowledge economy and overall state strength revolve around innovation in knowledge and technology (China Education Daily, January 12, 2000).

On January 9, 2006, Chinese President Hu Jintao outlined his major strategic tasks for building an innovation-oriented country at the Fourth National Conference on Science and Technology in Beijing, China. Accordingly, China will embark on a new path of innovation in the new era with Chinese characteristics; the objectives of the tasks are to:

- adhere to innovation;
- seek leapfrog development in key areas;
- make breakthroughs in key technologies and common technologies to meet urgent requirements in realizing sustained and coordinated economic and social development; and
- make arrangements for frontier technologies and basic research with a long-term perspective.

Hu further outlined a medium-long-term program for science and technology development in China from 2006 to 2020:

> China will spend 15 years to turn itself into an innovation-oriented country, which means broad and profound social reform. A favorable mechanism should be established so that science and technology will accelerate social development, and in turn, society should increase investment in scientific and technological innovation. Hu also called for the creation a favorable financial environment for local, national and international companies to conduct innovation … China will train world first-class scientists, especially young and middle-aged scientists, based on national key scientific research projects and international scientific cooperation projects. An incentive mechanism will be formed to increase the efficiency of innovation and provide more chances for young talented people. China will introduce more overseas-trained people and attract overseas Chinese graduates back to start businesses in China. (Xinhua, January 9, 2006)

The above policy reform has great impact on the development of educational technology. Since China has started setting the stage for educational change and technological innovations, a number of government research and development programs have been conducted extensively on web-based learning, curriculum review, the national transmission network system, Chinese software programs, privatization of schools and modernization of school administration at all levels.

The CERNET Project

Great effort has been put forward in facilitating the use of information technology in education across China. Of the many aspects to enhance modern technology in education, the China Education and Research Network Project (CERNET, 2006) is by far the most ambitious and comprehensive network development for supporting education and research in and among schools across the nation. Funded by the government in 1994, the goal of the CERNET is to allow teachers, researchers, and students in most universities and colleges around China to study and conduct research in a network environment linking every part of China and every corner of the world, and in turn, it should significantly enhance the education quality and research abilities across the country and provide with Chinese universities and colleges an easy access to the world's science and technology arena and create an important platform for fostering of culture-indifference and future-developing market economy (CERNET, 2001). The project will continue to study the existing environment and conditions for many schools across the country, including vocational, adult, and distance education in remote or under-developed areas. With Tsinghua University as its national center, CERNET has ten regional network centers and main nodes distributed across various higher institutions in China. Since the completion of the first phase in December 1995, many institutions have already connected to the national network system. During the second phase (1996-1999) of the project, various crucial technologies for computer information network and regional backbone upgrade tasks were consolidated. Launched by the Ministry of Education, the third phase (2000 - present) has been initiated in response to the demands of the Education Revitalizing Initiative Oriented to 21st Century. In the near future, with the completion of the high-speed transmission network and regional backbones as well as the collaboration with China Broadcast and Television Education System and other

communication facilities, 39,412 middle schools with 55,120,000 students and 160,000 primary schools with 122 million students nationwide will be able to benefit from this gigantic information system, which is also the largest national education and research network in the world(CERNET, 2001). Currently, more than 100 universities and eight provinces and autonomous regions are covered by CERNET, except Tibet. In addition, the Ministry of Education (MOE, 2006) points out that:

> [T]he gradual spread of broadband technology has also helped online education. The China Education and Research Network (CERNET), started in 1994, is now China's second largest Internet network, covering all major cities of China. The high-speed connection between it and the China Education Broadband Satellite Net, opened in 2000, established a "space to earth" transmission platform for modern distance education, and provided an all-round network supporting environment for distance education.

Apart from the above, in promoting the development of hi-tech and information technology industry, China has relaxed its policy in 1999 by facilitating hi-tech enterprises to import their needed talents from other locales. According to the China Education Daily (December 4, 1999), in the capital city of Beijing the new regulations now stipulate that those companies handing over 3 million yuan (US$ 360,000) of tax annually are given priority to employ highly qualified college graduates from outside the city. The district government also issues their company employees the local permanent residence permit in order to work and live in the municipal. Currently, CERNET has several global connection links to North America, Europe, Asia and Pacific totally with 800 Mbps bandwidth, serving nearly 1,500 mainland universities and institutions with 20 million end users. In recent years, initiated by the government, CERNET has joined the large national project named China Next Generation Internet (CNGI) Project, and it is now undertaking the largest next generation network backbone in the country, named CERNET2, and operate China Next Generation Internet (CNGI) exchange point CNGI-6IX in Beijing (CERNET, 2006). With rapid development and effective planning, China has taken advantage of the 2008 Olympics in Beijing to showcase her innovative CNGI and IPv6 networking technology to all visitors and participants.

Overcoming Challenges and Enhancing Educational and Information Technology Development and Innovations in the Information Era

The impact of knowledge-based economy and globalization will continue to have great influence on the development of education and information technology in China. Despite some recent advancement in information technology for education, China is still confronted with many difficulties and issues in developing and adopting computer education and information technology. The major problems and challenges are massive population, shortage of funds in educational investment, lack of qualified teachers and management personnel in educational technology and curriculum development, inefficient information system management and administrative training programs (Bernadette, 2008; Chan, 2002), in additional to inadequate technical and financial support from both the provincial and local governments (Koo, 2003; Robinson, 2008). Liu (2006) summarized an important survey conducted by Yu and Xia in 2003

regarding some of the major problems and challenges related to the integration of ICT in K-12 education in the country.

> … 90% of all the 20,000 school intranets were at a status of 'being not used or not efficiently used'. Besides other factors, e.g. limited budget, lack of online resources, and deficiency in school management, it is also the teachers' perceptions and competence in ICT in teaching and learning that are obviously a barrier to integrating ICT in K-12 education. ICT competence does not merely refer to CAI, or demonstrating pre-established contents to students, but rather serves to support students' autonomous and collaborative discoveries, communicative learning, and social construction of what has been taught. The traditionally teacher dominated classes have handicapped the effective integration of ICT into a students educational process. (Liu, 2006, p. 196)

Furthermore, beyond the K-12 education, many students in post-secondary institutions also encounter difficulties in integrating information and technology in their academic study. A recent study by Schippers (2008) on students' support needs in China carried out in 2005-2007 at a public university in North-east China revealed that many students lack important transferable skills such as teamwork, note taking and IT skills. Findings also showed that students recognize that (i) freshmen need both study and time management skills as well as guidance on how to adapt to college life; and (ii) second-year students need to develop confidence and learn goal setting and career planning. The researcher concluded by suggesting the implementation of a Student Support course that uses multiple teaching methods and teaches study skills as well as transferable skills to classes of about 20 students from different departments.

As mentioned earlier, in recent years computer education and information technology has been expanding rapidly from schools to schools in large cities and subsequently to schools in rural areas (Bernadette, 2008). While the IT industry has developed so rapidly and the cost of computer hardware and information network service is declining, parents, teachers and schools are now more willing to invest in modern technology and integrate information system for enhancing the educational quality of their children (Ho, 2007). On the other hand, with universities and colleges taking an active role in producing additional highly qualified teachers and professionals in education and information technology, more systematic training programs and staff development opportunities promoting utilization of educational technology should be provided for administrators, teachers and students in rural areas as well as for those from ethnic minority and disadvantaged background.

Robinson (2008) adapted the 4As Framework (availability, access, acceptability, and adaptability) in a systematic study of using distance education and ICT to improve access, equity and the quality for the professional development of rural teachers in the poorest 41 of Gansu Province's 86 counties in western China. The project was jointly funded by the European Union and the Chinese government and implemented by the Gansu government from October 2001 until March 2007. Findings revealed that there were a number of many major challenges and difficulties faced by the teachers' learning resource programs in the rural setting, including maintaining strong support and commitment from the leadership at provincial and local levels of government despite

personnel changes, ensuring ongoing good management and leadership from head-teachers as they face competing demands on their attention and budgets, finding future funding for the replacement of ageing equipment, and providing a continuing, changing, and affordable flow of good quality, topical, and relevant learning resources to maintain teachers' motivation as they become familiar with existing content (p. 14). In addition, there was also still the challenge of reaching those teachers who were the most difficult to reach in the rural villages.

Another area of concern is computer and Internet addiction among children and youths. According to the recent news report (Xinhua, August 28, 2008) on Chinese lawmaker warning against child Internet addiction, Internet addiction has reached an alarming level across the country.

> Li Jianguo, vice-chairman of the Standing Committee of China's National People's Congress (NPC), on Thursday called for closer supervision of children using the Internet to prevent addiction. About 10 percent of the estimated 40 million Chinese children using the Internet were addicted, said Li, secretary-general of the top legislature, in a report on the implementation of the Law on the Protection of Juveniles since it came into force in June 2007. The figures were collected from 11 provinces after a two-month survey, said Li, noting that Internet addiction was mainly caused by on-line games and a lack of supervision by the authorities. Li said the management and supervision of Internet games and Internet cafes must be strengthened, and he urged researchers to study methods to help minors avoid Internet addiction. (Xinhua, August 28, 2008)

In an era of and rapid globalization and lifelong education, barriers in networked learning and information technology could create much challenges and difficulties for the motivated learners. In a review of networked learning in higher education institutions in China, Huang (2006) indicated that four main challenges faced by institutes and staffs in popularizing networked learning in mainland China are the lack of (i) the task-focused activities, (ii) appropriate resources to support task-focused activities, (iii) learner's strategy and learning support, and (iv) designing new evaluation methods in traditional educational context. The researcher pointed out that "as we become more experienced in using technology to support networked learning the focus of attention has moved from the technology itself to the pedagogy and now to the type of organization(s) needed to implement effective learning". In addition, removing obstacles and enhancing official partnership with foreign institutions is another challenge facing innovation of educational technology and development of on-line education in China, as revealed in the report below from a major university in the United States.

> The University of Massachusetts has announced that it will offer 40 online courses to students in China in the spring of 2009, but there are some hurdles to overcome. The program has not officially been approved by China's Ministry of Education, and college officials who have been through the ministry-approval process say UMass and other colleges may have a long, uneven road ahead. The Ministry has been slowing approvals of foreign higher-education programs in response to concerns about quality and cost. Ministry skepticism of online curricula and lack of an official partnership with a Chinese college are other challenges facing the UMass application. (Rampell, 2008)

Research and development in education has always been an integral part of innovation and advancement for science and technology. In a review of research of educational technology in China, Chen, Li, and Xie (2007) noted that many difficulties, problems, and challenges exist for researchers and practitioners dealing with research and practices in the field of educational technology. Specifically, the most obvious shortcomings in Chinese educational technology researches include:

- Misunderstanding in the role of teacher being just a knowledge deliver rather than a knowledge creator and researcher.
- Discrepancy or disjointedness between theory and practice in the study of educational technology.
- Inadequate understanding of *dialectics* in experimental educational technology research.
- Research project selection and theoretical hypothesis formation are too passive and often one-fold.
- Insufficient and irregular experimental control in research study.
- Over-simplification in their methods of measurement.
- Lack of effective models and paradigms in planning quantitative research in educational technology.
- Inadequate or inappropriate statistical analysis of data.

In view of the above limitations and shortcomings, the authors suggested and underlined the importance of the following aspects and strategies for improving future development of research in educational technology in China:

- Project selection: Bottom-up instead of top-down selection.
- Provide various kinds of research training to teachers and researchers in the field of educational technology.
- Emphasis that research in educational technology should be based upon concrete evidence and experimental data (i.e., not solely a matter of personal opinion or qualitative inquiry without conclusive evidence).
- Systematic control of the experimental process.
- Effective utilization of both qualitative and quantitative approaches.

- Cross-cutting research and integration of various methods and designs in applied and theoretical research.

Conclusion

The impact of knowledge-based economy and globalization will continue to have great influence on the development of education and innovations in information technology in China. Traditional education attaches great importance to the overall development of students' character, civic obedience, physical well-being and moral reasoning skills. Nonetheless, in order to meet the challenges of the information era and global economic competition, students must also possess psychosocial and interpersonal skills, higher order thinking, creativity, the abilities to seek, evaluate, organize and present information, as well as the propensity for independent and life-long learning (UNICEF, 2008, Yang, 2008). In China, computer education and information technology has been expanding rapidly since the 1980s from schools to schools in large cities and subsequently to schools in rural areas (MOE, 2007; Huang, 2006)**.** Indeed, as the IT industry has developed so rapidly and the price of computer hardware and information network service is declining, parents, teachers and schools are more willing to invest in modern technology for enhancing the educational quality of their children. On the other hand, with universities and colleges taking an active role in producing additional highly qualified teachers and professionals in education and information technology, more staff development promoting utilization of educational technology could be provided for administrators, teachers, and students at all levels across the country. Undoubtedly, the increased utilization of modern technology will occupy an increasingly important role in China's massive educational system as future generations will depend heavily on the successful applications and development of educational technology. More technical, administrative, and financial support from both the government and industry are needed for the future development of educational technology and computer education in China, including the use of information technology in the classroom, provision of hardware and technical support and network infrastructure across the country’s ethnic minority and under-developed regions, improving teacher training programs in educational technology, enhancing educational administration through information management systems, restructuring of school curriculum and traditional pedagogy with subject specific integration strategies, linking regional and national network systems for all schools, developing innovative instructional Chinese software programs and educational technology support systems, assessment and evaluation of Internet e-learning and applications of various multimedia and educational delivery strategies, as well as further research on the impact of information technology on teaching and learning at all levels.

Appendix

China Central Radio and TV University (IV)
Teaching Resources and Process

Teaching Resources

The CCRTVU organizes Revues and up its teaching resources. It pays attention to the design of teaching and multimedia teaching package. While making full use of existing media, it also actively develops new teaching media, such as computer networks.

Teaching Process

KTVUs pay attention to the management and control of their entire teaching process and make endeavors in the development and improvement of the quality control system adaptable to the open education. There have been formed a framework with the "Five Unities" as its core unified curriculums, unified syllabuses, unified textbooks, unified examinations and unified assessments. While making use of television, radio, computer networks and so on, efforts have been made in other forms of teaching and learning, such as self-study, tutorials, question-and-answers and practice. Evaluation for "Credited Examination Centres" implemented by Radio and TV Universities around China.

Source: China Central Radio and TV University(IV). January 1, 2001.

Notes

Part of this article is developed from the article by Xu, M., Richardson, M. D., & Flanigan, J. L. (1990). *Educational Media International, 27* (2), 54-57.

References

Bernadette, R. (2008). Using distance education and ICT to improve access, equity and the quality in rural teachers' professional development in western China. *International Review of Research in Open and Learning*, *9*(1), 1-17.

Chan, T. C. (2002). Planning and changing: Educational development in China since the Cultural Revolution. *Educational Planning*, *14*(1), 53-63.

Capitalizing on Our Advantages Revitalizing Our Economy. Address by the Chief Executive the Honorable Tung Chee Hwa at the Legislative Council meeting on 8 January 2003. The Hong Kong Special Administrative Region of the People's Republic of China.

CEPA (2008). Closer Economic Partnership Arrangement: A Practical Guide to the Free Trade Agreement between Hong Kong and Mainland China. Invest Hong Kong, January 2008. The Government of Hong Kong Special Administrative Region.

CERNET (2001). China to Promote IT Among Schools Over Next 5-10 Years (August 21, 2001). Available at http://www.edu.cn/200108_1470/20060323/ t20060323_ 14653. shtml

CERNET (2001). Education Evolution in China. http:// www.edu.cn/20010906/3000468. shtml

CERNET (2006). China to Raise Education Expenditures to 4% of GDP. China Education & Research Network, March 10, 2006.

CERNET (2006). China Education. Update on 2006-1-11. Retrieved September 30, 2008 from http://www.edu.cn/introduction_1378/20060323/ t20060323_158626.shtml

Chen, Yun-hong; Li, Bing; & Xie, Bai-zhi (2007). Difficulties, problems and counter-measures in Chinese educational technology researches. *US-China Education Review, 4*(9), 58-63. Center of Educational Technology, Fourth Military Medical University, Xi'an, Shaanxi China.

China Daily, April 30, 1999. Favorable policies to import talents. Retrieved September 30, 2008 from http:// chinadaily.com.cn/cndy/history/1999/04/d3-3com.d30.html

China Education Daily, December 4, 1999.

China Education Daily, January 12, 2000.

China Education Daily, March 1, 2001.

China Education and Research Network (CERNET, 2001). Education China: Educational Technology. Retrieved September 30, 2008 from http://www.edu.cn/20010101/21933.shtml

Chinese Government Official Web Portal, 2006. Basic Education. Available at http://english.gov.cn/2006-02/08/content_182558.htm

CIA Fact book (2008), China, Update on October 9, 2008. Available on http:// www.businessteam.hu/lt/data_ch.html#Intro

Colle, R. D. (2008). Education, development, and the e-world: Is something missing here? Essay review. *Comparative Education Review, 52*(2).

East News Net, April 23, 2001.

Epstein, I. (1982). Educational television in the People's Republic of China: Some preliminary observations. *Comparative Education Review, 26* (2), 18-24.

Frasher, J. M., & Frasher R. S. (1987). Administrator preparation in the People's Republic of China. A paper presented at the annual meeting of the University Council on Educational Administration in Charlottesville, VA.

Gubser, L. (1986). China is hungry for educational technology, *Tech Trends, 31*(2), 14-18.

Ho, Wai-Chung (2007). Students' experience with and preferences for using information technology in music learning in Shanghai's secondary school. *British Journal of Education Technology,* 38(4), 699-714. EJ765882.

Huang, R. (2006). Networked learning in China's higher education institutions: Opportunities and challenges. Beijing: Beijing Normal University, China. Retrieved from http://www.vschool.net.cn/old/N_ in_China's _HEIs_ Opportunity _Challenge_ Prof%5B 1%5D.Huang _reviewed_.pdf

Information Technology Services Department (ISTD) (December, 2001). *Building a digitally inclusive society*. Hong Kong, China: Author.

Koo, D. R. (2003). Rural education in China. In Ramsey. D. Koo, S. W. Wu, & Titus S. P. Li (Eds.), *Education Reform in China, Taiwan, Hong Kong and Macau.* Hong Kong: The Association for Childhood Education International (ACEI), Hong Kong and Macau.

Larson, R. C., & Murray, M. E. (2008) Distance learning as a tool for poverty reduction and economic development: A focus on China and Mexico. Journal of Science Education and Technology, 17(2), 175-196.

Li, H. (1999). Chronicle of Major Educational Policies of China (1997-1999) III, Educational Milestones 1999. See CERNET at http://www.edu.cn

Liu, Bangxiang (2006). Virtual learning community: A new approach to teacher professional development - Reflective research into an e-learning program of intercultural collaboration between China and the United Kingdom. In Frank Bunning & Zhi-Qun.

Liu, James N. K. & Cheng, Xianggian (2008). An evaluation of the learning of undergraduates using e-learning in a tertiary Institution in China. *Journal on e-Learning, 7*(3), 427-447.

Lofstedt, J. I. (1984). Educational planning and administration in China. *Comparative Education, 20* (1), 57-71.

Ministry of Education (2007). The 9th 5-Year Plan for China's Educational Development and the Development Outline by 2010. Planning and Statistics. Available at http:// www. moe.edu.cn/english/planning_n.htm

Ministry of Education (2007). Functions. Available at http://www.moe.edu.cn/english /ministry_f.htm

Ministry of Education (2006). Online and Adult Education. Available at http://www. gov.cn/english/2006-02/08/content_182542.htm

Qi, Gubo & et al (2008). Introducing participatory curriculum development in China's higher education: The Case of Community-Based Natural Resource Management. *Journal of Agricultural Education and Extension*, 14 (1), 7-20. EJ811746.

Robinson, B. (2008). Using Distance Education and ICT to Improve Access, Equity and the Quality in Rural Teachers' Professional Development in Western China. *International Review of Research in Open and Distance Learning, 9*(1), 1-17. EJ801079.

Royal D. C. (2008). Essay review: Education, development, and the e-World: Is something missing here? *Comparative Education Review*, *52* (2).

Rampell, C. (2008). Online in China, Colleges Can Run into a Wall. *Chronicle of Higher Education. 54*(32), A4. EJ 792044.

Schippers, Margriet (2008). *Student Support in China: Addressing the Perceived Needs of Undergraduate English Department Students.* ED 499780. Available at http://eric. ed.gov/ RICDocs/data/ericdocs2sql/content_storage_ 01/0000019b/80 /3c/77/9a.pdf

Shanghai Daily. Beijing to Get Fast, Wireless Internet Access. June 26, 2008. Available at http://news.xinhuanet.com/english/2008

Su, Z. (1989). People's education in the People's Republic of China, *Phi Delta Kappan*, *70* (8).

Sung, Yun-Wing (1989). The China-Hong Kong Connection. In James A Dorn. & Xi Wang (Eds.), *Economic reform in China: Problems and prospects*. Chicago, IL: The University of Chicago.

Swanson, A. D. & Zhian, Z. (1987). Education reform in China. *Phi Delta Kappa*, *68*(5), 373-378.

Tang, H. (2003). Innovation and Technology. Speech by the Secretary for Commerce, Industry and Technology, Mr. Henry Tang, at the Annual Dinner of the Federation of Hong Kong Industries, 6 March July, 2003.

Tang, H. (2002). Innovation and Technology. Speech by the Secretary for Commerce, Industry and Technology, Mr. Henry Tang, at the Federation of Hong Kong Industries luncheon, July 19, 2002.

UNESCO (United Nations Educational, Scientific and Cultural Organization) Institute for Statistics (2007). Correspondence on education expenditure data. April. Montreal, Canada.

UNICEF (2008).Which skills are life skills? Available at http://209.85.173.132/search?q =ache:sbjWTiwKWo0J:www.unicef.org/lifeskills/index_whichskills.html+life+sk ills &hl=en&ct=clnk&cd=5&gl=us

Van Raaij, Erik M., & Schepers, Jeroen (2008). The acceptance and use of a virtual learning environment in China. *Computers & Education*, *50*(3), 838-852.

Wenhui Daily, November 4, 1999.

Wikipedia (2008). Education in the People's Republic of China. Available at http://en.wikipedia.org/wiki/Education_in_the_People%27s_Republic_of_China#Rural_education

World Fact Book 2008. CIA.

Xing, S. (1986). First Chinese-English dictionary on educational technology compiled, *Tech Trends*, *31* (2), 17.

Xinhua News Agency, April 15, 2000. Distance learning network in the West.

Xinhua News Agency, January 9, 2006. Report on Speech at China's Fourth National Conference on Science & Technology, Beijing. President Hu Jintao, January 9, 2006. Available at http://english.gov.cn/2006-01/09/content_151696.htm

Xinhua News Agency, January 25, 2007. Enrollment growth to be limited. World Education News & Reviews, February 2007. Available at http://www. wes. rg/ewenr/07 feb/asiapacific.htm

Xinhua News Agency, July 24, 2008. China has 253 million netizens, surpassing U.S. Available at http://news.xinhuanet.com/english/2008-07/24/content_8763966.htm

Xinhua News Agency, August 28, 2008. Chinese lawmaker warns against child Internet addiction. Available at http://news.xinhuanet.com/english/2008-08/28/ content _9730524.htm

Xinhua News Agency, September 6, 2008. Window of China. Available at http://news. xinhuanet. com/english/2008-09/06/content_9805575.htm

Xu, M., Richardson, M. D., & Flanigan, J. L. (1990). *Educational Media International*, *27* (2), 54-57.

Yang, R. (2002). Lost opportunities in the massification of higher education in China. *International Higher Education*, Summer Issue. Center for International Higher Education. Boston College.

Yang, Min (2008). Rethinking lifelong learning through online distance learning in Chinese educational policies, practices and research. EJ801807.

Yu, S., Xia, W. (2003). To Interpret Educational Information in China. *Distance Education China* (in Chinese), 10.

Zhang, Ke (2005). China's on-line education: Rhetoric and realities. In Alison A. Carr-Chellman (Ed.), *Global perspectives on e-Learning: Rhetoric and reality* (pp. 21-34). Thousand Oaks, CA: Sage.

Zhao (Eds.). *TVET Teacher Education on the Threshold of Internationalization*. Germany: INWEnt. Capacity Building International. pp. 195-212.

Zhao, Yong; Zhang, Gaoming; & Li, Ning (2006). The life of "Internet Colleges": Policies, problems, and prospects of online higher education in China. *EDUCAUSE Review, 41*(6), 48-50. EJ769824.

Knowledge is Power: The Sociocultural Context for Computers in India

Vidya Thirumurthy
Pacific Lutheran University, Tacoma, USA

Introduction

The traditional educational thought and practices of the Indian subcontinent, throughout its long history, has assimilated new ideas (Reagan, 2005). Harmoniously, adults engender powerful cultural practices in their daily life to pass on their long standing traditions and values to young children. Children are socialized into adapting the cultural values, behaviors and mores. The following scene set in Indian household describes how adults engage children in traditional practices:

> Goddess Saraswathi is regarded as the giver of wisdom, education, intellect, music, dance and *all* arts. The grace of Goddess Saraswathi is important for you to do well in school and acquire knowledge. *Knowledge* is *power*. Look, She is holding a book in Her hand. That is the reason why your parents initiated education for you on the day dedicated to the goddess (Swaminathan, 2000).

The grandfather in Chennai, India then bowed and touched the book with both his hands and touched his eyes as a mark of respect and the little girl followed suit. This was the response of a grandfather to a little girl who asked him about his worship rituals of Goddess Saraswathi. The child, in this case, was seeking clarification of her grandfather's cultural act and he in turn couched the cultural values in his language (Vygotsky, 1986 & Tomasello, 2000). In the process of explaining to the child, he communicated to her that acquiring knowledge is important to him, an unstated expectation. Children are acculturated to worship objects and tools such as books, instruments and toolkits as manifestations of *knowledge*. Such objects are worthy of respect and reverence and adults model the behavior for their children. In fact, when a new computer is acquired, it is blessed before one uses it.

Old Meets the New

In general, the West perceives the tradition and modernity as polarities and as two spheres (Gusfield, 1967) while intellectuals when analyzing the two, engage in creating new possibilities (Wei-ming, 1996). India may appear as a land of contradictions, but it is not. Indian traditions and modernization co-exist, where the ancient and the contemporary maintain a perfect union. The ubiquitous presence of Indian traditional philosophy and patterns of behaviors are seen all around. At the same time, for economic transformation, modern tools force their way in to the old traditions such that it permeates the pervasive Indian cultural practices. In short, old ways are adapted to the modern technology and in turn, technology is used to emphasize the age-old social values.

In this manuscript, I describe (1) the value of peripheral participation of children in sociocultural activities, (2) the broad and specific schemes proposed by the Central

(Federal) Government of India for introducing *information and communication technology in schools*, (3) the evidences from the field on how this scheme is adapted by schools, both private and public, and (4) bring to the forefront the hidden sociocultural values in the government policies and the educational practices of schools, teachers and parents, and how these ensure children imbibe the sociocultural values. In order to articulate the above and to give the reader a comprehensive picture and the context, I weave in the multi-tiered educational system in India and the role of National Council of Educational Research and Training (NCERT). This article is not an extensive discussion on Government of India's schemes on technology in schools, or challenges in implementing the decree, although touched up on, rather a conversation on the sociocultural biases in government initiatives, school practices and their impact on the child.

Peripheral Participation

Lave and Wenger (1991) label sideline participation described earlier as *legitimate peripheral participation*. The novice progresses toward full participation in the sociocultural practices of a community by slowly mastering the cultural practices. Such tangential participation allows children to move into the center of activities when they become practitioners. Children learn to understand knowledge in a context. Rogoff, (1984) argues that, "In everyday situations, thought is in the service of action" (p.7). The focus is on the activity and thinking is done in context under the guidance of adults. When the activity is in progress, the actions emerge on the spur-of-the-moment and adults may not even be conscious of the goal or the hidden concepts embedded in the activity.

The little girl in the vignette observed her grandfather and just as any five-year old would she simply asked "why do you do that?" The girl was curious and the grandfather responded. The skilled adults help the child focus on subgoals so that the situation becomes more manageable (Saxe, Gearhart, & Guberman, 1984). The apprentice and the practitioner jointly problem solve. In this case, by giving her an example, the grandfather explained the practices. Adults negotiate ways to achieve the subgoals of the activity, assisting the child every which way possible, resetting the subgoals as the activity progresses (Cole, 1996; Rogoff, 1984; Saxe, Gearhart, & Guberman, 1984). As the activity evolves, direction and the course change as needed. At the genesis of this apprenticeship-based learning is the context, which structures the cognitive activity to provide necessary resources, however tacit they may be, for the child to solve problems and to adapt the intellectual tools, signs and skills of the culture. Brown et. al. (1987) contend that cognition is situated in context.

> People who use tools actively rather than just acquire them, by contrast, build an increasingly rich implicit understanding of the world in which they use the tools and of the tools themselves. The understanding, both of the world and of the tool, continually changes as a result of their interaction (p. 33).

To assist novices to reach the higher levels of thinking, adults or skilled individuals use *tools* and *signs* (Vygotsky, 1978). The use of *tools* and *signs* become an integral part of mediated activity.

In everyday contexts opportunities for imitation are not necessarily planned but occur naturally (Rogoff, 1984). One should not view the everyday activities that children participate at the micro level of the activity and its immediate context, but rather they should be seen from a macro level where the activity in which the children participate is one of many activities that take place in the larger context (Nicolopoulou and Cole, 1993). The context at the macro level offers children the opportunity to develop social relationships with adults and peer to experience and internalize the shared rules. Parents, cultural practices, schools and national policies have a role to play in preserving/ promoting these values. But to understand the role of schools in the Indian context, one must have a comprehensive idea of the school structure. In the next two sections I describe the complicated school system and the role of a national organization in developing national policies on education and curriculum development.

Overview of the School System in India

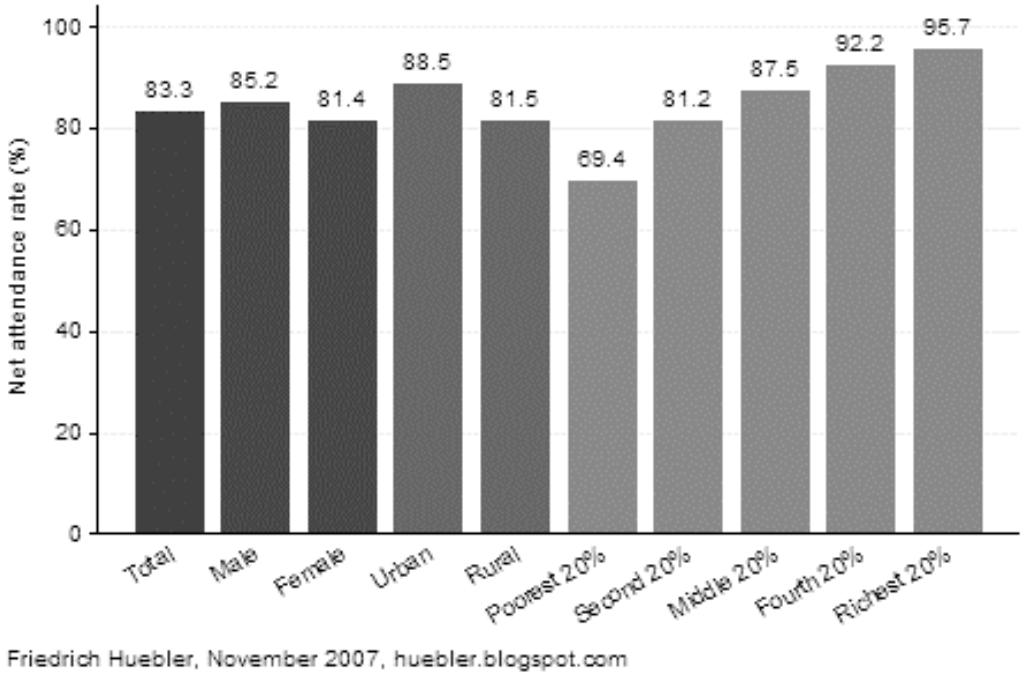
Indian education system is complex. Education is provided by two major entities: public and private schools (Thirumurthy & Jayaraman, 2007). In the public school category, there are three levels: (1) schools operated by the federal government, Kendriya Vidyalaya Sangatan (KVS) and the Navodaya Vidyalaya Samiti (NVS) which follow the curriculum of Central Board of Secondary Education (Developed by NCERT), (2) the State operated schools that follow the curriculum of Secondary School Leaving Certificate and the (3) city corporation/municipality schools that also follow the curriculum of Secondary School Leaving Certificate (See Flow Chart 1). The public schools are secular and may charge a nominal tuition fee based on the income of the family or simply collect a deposit, refunded when the child leaves the school. These schools give preference to children of state or federal government employees or socially disadvantaged castes or tribes. The city-corporation/municipal schools and NVS serve the underprivileged population. The private schools on the other hand, may have a religious orientation, and the tuition vary based on the types of programs the schools provide. These schools cater to the needs of the lower middle class to the rich.

English language plays a major role in education. The society values schools where the medium of instruction is in English (often referred to as English medium) and KVS, the central government school and private schools fall under this category. The state government schools may have both English and vernacular mediums. But the city run government schools and NVS use only vernacular languages for instruction and English is taught as *a* subject. The structure of the school system is hierarchical with private schools rated the highest. The New York Times article on the quality of public school education echoes the sentiment.

> More Indian children are in school than ever before, but the quality of public schools … has sunk to spectacularly low levels, as government schools have become reserves of children at the very bottom of India's social ladder … The children … [in the public schools] come from the poorest of families — those who cannot afford to send away their young to private schools elsewhere, as do most Indian families with any means" (Sengupta, 2008).

This sums up the conditions of the city government schools where the poorest of the poor are in attendance. (See Figure 1. for school attendance by social class.) There is a noticeable difference in the attendance pattern between children who attend private schools and those enrolled in city government schools. The over arching policies that govern schools are developed by a federal government subsidiary organization called National Council of Educational Research and Training (NCERT).

Figure 1: Primary School Net Attendance Rate (NAR), India 2006



Data Source: India Demographic and Health Survey 2005-06

Role of National Council of Educational Research and Training (NCERT)

The Central government relies on the advice and assistance of the NCERT in developing policies and guidelines for the implementation related to school education (NCERT, National Curriculum Framework for School Education, 2000). NCERT is a top-tier resource organization that was set up by the Government of India to assist and advise the Central and State Governments on academic matters related to school education. One of the major objectives of NCERT is to act as the research organization dedicated to the modernization of education and educational reform. It develops standards and curricular framework and reviews them every ten years.

To instruct appropriate use of technology in schools, the NCERT provides the curricular content and skills students should develop (Table 1). For example, for computer education in primary grades, National Curriculum Framework for School Education (2000) states:

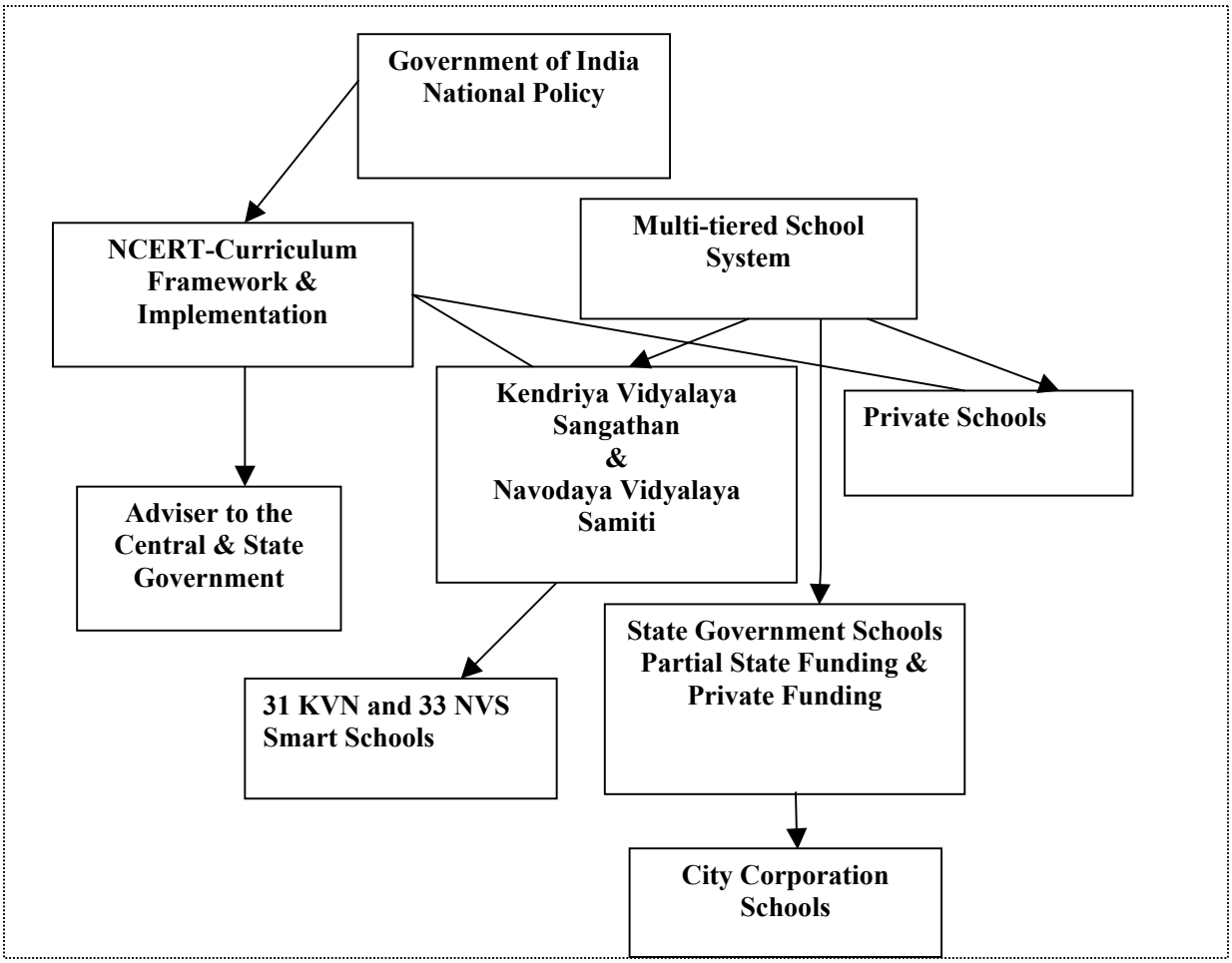
> … the best use of LOGO is based on a few assumptions. They are First, LOGO turtle is 'an object to think with'; children can be encouraged to explore ideas and solve problems with the turtle. Secondly, LOGO as a programming language can be used to develop: (a) very sophisticated programming skills and (b) confidence in controlling the technology. Finally, LOGO can be used to develop some concepts in geometry. The Floor turtle can be made available to give more concrete experience of physical movement (p.3).

The state governments have the option of adapting them or using its framework to develop their own curricula.

The Changing Times and Changing Circumstances

In this section, I start with the pertinent aspects of the National Policy on Education. I describe the scheme of the Government of India to promote computer technology in schools and the funding made available to schools. I then spell out a few of the objectives and the specific components imbued in the scheme but elaborate one component, the *Smart Schools*.

Flow Chart 1:
The Tie between the National Policy, NCERT and Indian School System



Central Government Policies

This 47-page Government of India document on the National Policy on Education is divided into XII sections. Part III of the document, National System Education declares the importance of promoting "India's common cultural heritage, egalitarianism, democracy and secularism… removal of social barriers" (3.4, p.5). It also pronounces,

> 3.9. In the areas of research and development, and education in science and technology, special measures will be taken to establish network arrangements between different institutions in the country to pool their resources and participate in the projects of national importance.
>
> 3.10 The nation as a whole will assume the responsibility of providing resource support for implementing programs of education transformation, reducing disparities, universalization of elementary education, adult literacy and technology research (Department of Education, 1998, p.2).

Table 1: National Framework Curriculum for Computer Education

No.	Skills	Activities
1.	Drawing simple figures using LOGO primitives, like FORWARD, BACK, LEFT, RIGHT in the command mode.	Draw objects or geometric figures using primitives.
2.	Repeating a series of commands, including PEN UP, PEN DOWN, CLEAN, CENTRE and REPEAT. Moving from command mode to programming mode.	Draw more complex objects. Work out independently the stratagem for solving given problems.
3.	Building up a task and demonstrate programming logic.	Explore variety of ways in which complex programs can be written using smaller units of procedures. Put it all together, managing the hierarchy of procedures.
4.	Teaching the turtle new commands or procedures.	Create new commands (procedures). Use the new command in contexts. Distinguish between the original commands or primitives and new commands or procedures.
5.	Using recursions.	Develop procedures, which call themselves.
6.	Taking decisions.	Have a procedure continue to execute until a condition is met. The program will take the decision on the basis of IF-THEN conditions.

Source: National Curriculum Framework for School Education (2000) retrieved on March 25, 2008 from: http://www.ncert.nic.in/html/itcurriculum.htm#sec-2

Thus, these policy items set the stage for advancing technology in schools as it sees education as the *cardinal principle* that is "a unique investment in the present and the future" (2.4, p.3).

Government of India Scheme: Broad Expectations

As India begins to realize its goal of providing universal elementary education through its Sarva Siksha Abhiyan (SSA) program, the government has mapped out two broad goals to expand: to promote universal secondary education for *all* children and to *Universalize Computer Literacy*. To achieve the later, in 2004, the government introduced a scheme, the *Information & Communication Technology in Schools* (ICT@Schools). "The 'ICT @ Schools' scheme is a window of opportunity to the learners in the schools of India to bridge the digital divide" (Annual Report 2006-2007, p.93). This comprehensive scheme is developed to *bridge the gap between the digital divide* and to provide *a level-playing field* to school students. These are particularly salient because of the social hierarchy of schools discussed earlier. Some of the objectives of this scheme are to (1) enrich "the existing curriculum and pedagogy by employing ICT tools for teaching and learning," (p. 93), (2) help children develop skills in performing specific functions using information technology and assist children to become adept in using the digital/global communication technology, and (3) help children *learn how to learn* (Learning: The Treasure Within, UNESCO, 1996).

Specific Components: Smart Schools

In order to accomplish the objectives, the ICT@Schools specifies four major components: (1) The financial partnership between central and state governments, (2) Setting up of *Smart Schools* in every region "which shall be the technology demonstrators, (3) Universalization of Computer Literacy through the network of KVN [Kendriya Vidyalaya Sangethan] and NVS [Navodaya Vidyalaya Samiti] to neighboring schools," (Annual Report 2005-2006. p. 157) and (4) Other related activities of the State Institutions of Technology.

Kendriya Vidyalaya Sangathan is one of the apex organizations of the Government of India and it was introduced in 1962 to provide uninterrupted education to the wards of transferable Central Government employees. There were 20 schools in 1964 and now there are 932 KVS including three international, Moscow, Tehran and Katmandu (Annual Report, 2006-2007). Children of non government employees are accepted on a need basis. Navodaya Vidyalaya Samiti started with two experimental schools in 1985-1986 and has grown to 565 schools all over India as of January, 2007. These free boarding, lodging, fully residential, and co-education schools cater to the needs of rural areas. 75% of the students come from rural areas and 33% of the seats are reserved for girls.

The *Smart Schools* are state of the art facilities where students interact with the computer and construct their own knowledge. Students in these schools are considered to be autonomous learners.

> In a Smart School, students are autonomous learners; they learn how to learn. Smart Schools enable children to acquire abilities of constructing knowledge from available information. These abilities are crucial to a learning society…The aims of this school are to promote a balanced development and help integrate knowledge, skills and values, enable multidisciplinary, thematic and continuous learning and help acquire competencies to cope with the Information Age (A Blueprint for Smart Schools, 2004, p.2).

The basic expectations of primary grades in these *Smart Schools* are limited to providing appropriate computer software so students will have opportunities to "discriminate between objects, letters and figures; associate objects with words, words with sounds; match figures, picking odd ones out" (A Blueprint for Smart Schools, 2004, p 2). The complexities and the degree of difficulty vary with the grade levels. These schools are also expected to have the internet and high band communication technology such as video-conferencing.

Funding

As of 2007, the Central Government has successfully converted 31 and 33 KVN and NVS schools respectively, into *Smart Schools*. This amounts to one school per State/Union Territory (Annual Report 2006-2007). A grant of Rs. 25 lakh (Approx US $62,500) would be given to every *Smart School*. The government proclaims "Computer awareness programme has been planned in KVS in a big way and it is expected that by the end of the financial year pupil-PC ratio will be 20:1" (Annual Report, 2007, p.151). The central government under ICT@School allocated Rs.50.00 crores (US $12.5 million) for the fiscal year 2005-2006 and Rs. 67 crores ($16.750 million) for 2006-2007. The scheme lists a number of options toward which this amount could be used and some of the items are: acquiring generators, computers and software, remodeling of rooms, cabling, securing electricity, making civil repairs etc. The policy also charges State Governments with some responsibilities of developing long-term plans for computer education. It also encourages states to enter into partnership with private sectors in realizing their plans. In addition,

> Kendriya Vidyalayas and Navodaya Vidyalayas would be given funds to the rate of Rs.15,000 (approx. US $ 400) per neighbourhood school to impart computer literacy to not more than 10 neighbourhood schools within a radius of 3 to 4 kilometers to cover 8,000 such schools over three years (Annual Report 2005-2006, p. 157).

Since there two schools are government funded, it gives high priority to modernizing these schools first.

Implementation

Looking at the structure of the system, how then does the government implement its reforms? The policies of the central government are not prescriptive and only paint broad expectations because the "Indian education system is locally administered. The State and Central governments do not control schools..." (Shah, 1989, p. 349). There is flexibility in implementation and it allows for schools to adapt the government policies to

the extent that suits their needs and capabilities. The resources for building infrastructure as well as assets needed to maintain computers are provided in modicum *only* to government schools and the private schools depend heavily on tuition the schools collect from students. The private schools also solicit generous donations from parents for acceptance of the child in the school and in turn, parents demand a rigorous curriculum and technological capabilities. Thus, the private schools and parents work hand in glove to prepare students for a competitive world.

The government does not police whether or not schools implement the initiative either fully or partially and that decision is left to school authorities. There is no accreditation for schools. State officials like the inspectors of schools, have the power to visit schools, but because of the volume of schools that fall in their purview, such visits are few and far between. These officials have to monitor government schools and that leaves them with no time for private schools. Therefore, there is wide discrepancy in the expectations and what is provided in schools. To sum up, the initiatives of the government as spelled out in ICT@Schools on *leveling playing* fields are important to change the lives of disadvantaged children. However, how much is available in public schools depend on the resources promised. The disparities and inequities in the quality of education children receive in public schools will be leveled when all of the resources are provided to schools that do not have the resources.

In the following section, I would like to illustrate the availability and adaptation of technology in schools with data from the field, collected during my visits to private and public schools in the State of Tamil Nadu. These visits took place over a period of two weeks in January, 2007. I spent time in the computer laboratories in elementary schools and witnessed computer lessons. The data included field observations, interactions with administrators/teachers, and textbooks for computer class. The data analysis revealed the following categories: Physical facility and lesson structure, operational and technical terms and cyber interactions. These categories are developed under separate headings: Private and Public schools. Finally a comparison between private and public schools are drawn. Where possible, I use pertinent literature to corroborate.

Adaptation of Computers in Private and Public Schools

Private Schools: Physical Facility and Lesson Structure

Implementing computer literacy has generated a lot of enthusiasm in private school administrators, teachers, and parents. Two of the private schools I visited had 40 computers set up in an air-conditioned laboratory. Every class was taken to the laboratory for 45 minutes a day by their class teacher. The computer classes were structured to engage children in learning the proper use of computers, computer programs and application of programs. The lessons taught promoted the context for learning the technical aspects of computer.

Upon entry into the computer lab, one witnessed an open space in the front of the room and computers along three walls. This arrangement seemed like a good match for direct instruction. For example, in Bharathi Vidya Bhavan, a school in Erode city in the State of Tamil Nadu, the technician taught a lesson on how to create a Power Point presentation to third graders (Photograph 1). First, she wrote down the steps on the white board while the students sat on the floor and copied what the teacher had written on the board. The teacher explained the step-by-step process to create Power Point slides. Once the instruction was complete, she sent them to the computers to work on their Power Point presentation for a science project that their science teacher had assigned. But before the students began their work at the computer, the technician and the teacher asked the students to be *gentle* and to be *careful* while operating computers. Every child had a computer for his/her use. Both the teacher and the lab technician floated around assisting children. The students' notebooks were open and often the students were seen referring to their notes to navigate the program. Similarly, the fourth graders were learning to operate the Excel program. The students were given a worksheet containing the performance statistics of different cricket players and they had to enter them into the Excel program.

The second school, Alpha Matriculation, Chennai, Tamil Nadu, had a similar classroom format. The laboratory was air-conditioned but the room was not as spacious as the previous school. The computers were arranged along the three walls of the room and on the fourth side was a white board. The center space was used when the teacher gave direct instructions or when the students had to copy instructions from the board.

The technician began her class with a reminder on the operation of computers: b*e gentle, turn on the machine and wait for it to boot*, *touch the keyboard softly, save the document frequently* etc. Then she gave them instructions on the exercise they needed to complete. The fourth graders were learning *Inserting Components* in PowerPoint slides. They were asked to insert a picture from the Solar System downloaded from the website in their slides. I should point out the subsequent class that was to come in after the fourth graders left, was cancelled because the class teacher was absent. The technician informed me that she would not instruct the class unless the teacher accompanied the students.

Another aspect that needs to be weighed here is the class schedule observed in both private schools. An examination of the schedule (class time table) revealed that beginning with first grade, a specific time was allotted for computer literacy in the daily schedule. Computer as a subject is given equal emphasis as mathematics or English or any other subject. Private preschools for three and four year-olds or kindergarten programs for the five year-olds, had a few computers available for the students' use. The children learned language or mathematics using appropriate computer software under the supervision of a teacher. These children were taken in groups to work on the computers.

Operational and Technical Terms

The computer textbook for third graders in Bharathi Vidya Bhavan, Erode was LOGO. This book was written by the computer teachers and the technician. In their preface, the authors Krishnakumari et.al (2005-2006 edition) declare that

> LOGO for class III [Grade III] aims at enabling the learners not only to draw but to calculate and to print text as well. The book meets the requirement for practicing material for learning the LOGO language. The exercises would encourage experimentation among children and they can build themselves a powerful tool with which to forge a highly successful computer literacy (p.iii).

One can see how private schools are aligning themselves with the requirement of NCERT, by pronouncing the requisite in their aims (See Table 1 LOGO-NCERT). In addition to the textbook, the school also uses a practical exercise book published by the same authors. The textbook and the practice books have several exercises. In their first lesson for third graders, the worksheet asks students to fill in the box where the students have to (A) state whether the statement is true or false, (B) match the statement with words and (C) respond to questions. To illustrate, here are a few of the exercises:

> Computer is an _____ machine. (The expected answer is *electronic*)
> The full form of PC is _____. (The expected answer is *Personal Computer*)
> What are electronic machines?
> Name some electronic machines.
> What is a computer?
> Write down any five things a computer can do.

These questions and exercises focus on technical aspects of computer and the terminologies that the students need to be familiar with. Similarly, when they discuss the "Good Habits" with computers in their practical exercise book, the very first statement is "We must always treat computers with care. Our hands should be clean before we touch the computer" (Krishnakumari et.al. 2005-2006, p1). The exercises in this book mainly focus on identifying different parts of the computer and the various commands the students need to follow to open, operate and close different programs. For instance, *write down the command to change the pen color and write down the command to change and set the screen color*.

The second private school, Alpha Matriculation used a similar textbook, *Wizkids* (Sridhar & Kavita, 2006), published by Indicom, Software and Services. The Grade III textbook covers more or less similar aspects, such as the different keys and their functions. But the major difference was the chapter on the Computer Processing Unit (CPU) and its functions. This lesson explains the three major functions of a CPU which are the Arithmetic and Login Unit, Control Unit, and Memory Unit. I should once again highlight that these lessons are for the third graders.

Public Schools: Physical Facility and Lesson Structure

There were wide variations in what I saw in the public schools. I visited the KVS, a city corporation school in Chennai and a municipal school in Thindal Village near Erode. I will first describe my observations of the KVS school and then discuss the two corporation/municipal schools. The KVS (CLRI, Campus) had 20 computers in their laboratory. Since my visit to the school, it appears from their website that they have now

acquired an additional computer laboratory and 30 more computers (See Table 2 for statistics from KVS). The room appeared spacious and the computers were arranged as it was in the private schools, along the wall, but it felt warmer as an air conditioner was not on. There were no written or oral instructions observed as to how the students should use computers.

Table 2: ICT Infrastructure Statistics in Three Kendriya Vidyalaya Schools in South India

No.	Description	CLRI KVS	Thambaram KVS	Kochi KVS
1.	No. of Computer Labs	3	3	3
2.	Total no. of students in the KV	1469	1845	1462
3.	No. of computers for students	50	56	70
4.	Student Computer ratio	29:1	32:1	19.5:1
5.	No. of computers in the staff common room	1 + 2 in the library	1 each in Primary Staff Room & Sec. Staff Room	3
6.	No. of computers for office staff	2	2	2
7.	Speed of the Broadband Connect- ions in the KV (Kbps/mbps)	512 kbps Data One +1 mbps Connection	Up to 2Kbps	2 Mbps

Sources: (1) KVS CLRI, Chennai, Tamil Nadu: http://www.kvclrichennai.tn.nic.in/ICT.html (2) KVS Thambaram, Tamil Nadu: http://www.kv2tambaram.tn.nic.in/aboutkv.html (3) KVS, Kochi, Kerala: http://www.kvernakulam.com/ict.php

The teacher brought 40 first graders to the computer lab to show them picture slides from a storybook the students had read. The students narrated the story of the Hare and the Tortoise in chorus with key words like *the hare*, *running fast* as the slides appeared on the LCD screen. In between the teacher reminded the students to speak in complete sentence when the slides appeared. The class then moved on to recognizing English alphabet letters as they appeared on the screen. They sounded out simple sight words like CAT, DOG, HARE etc. The teacher and the technician apologetically informed me that the children would have operated the computers in pairs, but due to some event that was going on in the school the computer room needed to be free and hence they had to cut short the children's time in the laboratory. Therefore, on the day of the visit, these children did not get their 45 minutes of computer instruction. Likewise, a few more computer classes were cancelled. The students did not have 45 minutes everyday and it appeared they came in only once a week. When I asked for clarification, the answer I received from the teachers was "it depends." But the principal and the teachers mentioned that their goal is to get the children everyday to the laboratory.

Cyber Interactions

The program that KVS was using was Oracle's *Project Think.com*. According to a senior teacher in the school, the teachers find this program to be user friendly and that the children were engaged and *really* interested in reading and writing. She added that the students used blogs to interact with other students from their school as well as other schools. The students' postings are monitored by the administrator on the appropriateness of the content. The teachers were also able to share and communicate with teachers from other KVS. She pulled up an example of a teacher's communication on a lesson that the teacher was planning collaboratively with two teachers from Bangalore and Cochin, two major cities in South India.

In an effort to improve information technology in her school, the principal of this KVS was engaged in a fundraiser with the alumni to acquire an additional LCD projector. The principal also explored the possibilities of gaining some support from companies like WIPRO or Infosys, well known for their philanthropy.

KVS is expected to follow the directives from NCERT as KVS receives central government grants for acquiring information technology. The principal of KVS underscored the expectations of these schools across the country. "It is mandatory that even the primary children study subjects at least once a week in the computer laboratory" confirmed the principal. They must also have a trained technician. It appeared to me that the teachers in KVS were more fluent with the computers than teachers in private schools who I did not see operate a computer. KVS being a public school the teachers attend three to five day inservice and training frequently. Annually teachers get training in computer application in subjects.

Finally, the city corporation schools in Chennai that cater to the needs of the poor have no computers, but the promise of three computers the following academic year for the middle and high school students generated enormous excitement in the Headmistress, teachers and students. Because of the tireless effort of one person, the Headmistress (as was described by the teachers), the school was able to obtain funds from the city to construct an entire floor for their computer and science laboratories. But at the time of my visit I only saw the laboratories and there was no computer in the school. The elementary school children did not have any access to computer.

Similarly, the municipality school in Thindal village, Tamil Nadu, the concept of computers in schools seemed like an illusion. Under the SSA program, "1,17,677 New Elementary Schools have been opened since 2001 [and] 94 per cent of rural population has a school within 1 km radius" (Annual Report 2005-2006, p.5). However, that number has increased to "1,81,169 new schools opened till Nov. 2006…. 99-100% universal access at primary level achieved" (Annual Report 2006-2007, p.14). All of the policies of the state and the central government for providing computers at present are simply on paper as far as this village school is concerned. I was informed by one of the private schools in that area that they were willing to donate their old computers to the village school, but because of lack of resources to support a computer lab, the village school

could not accept the offer. When I inquired if the government had promised computers for his school, the village school Headmaster responded that he did not know when his school would receive a computer, but sounded optimistic that they would get one in the future. In the school and social hierarchy, the village schools would fall in the bottom most.

Thus, the government's priority is to provide universal education but it also recognizes access to computers for *all* children as an important goal. However, as *Times of India* (2007), a national newspaper points out "A significant difference is noticed in percentage of schools having computer in rural areas and urban areas" (p.3). The availability of information technology in schools is plagued by the government's inability to mobilize funds for providing the infrastructure, computers and training for all teachers.

Comparisons

Use of Textbooks

Overall, in KVS, Chennai the students did not have a textbook for computer lesson, and their activities related to a lesson they had learned. In my presence, the students did not engage in using computers. In contrast, the private schools had a textbook for computer lessons, and also did an exercise that related to one of the subject matter. They had 1:1 child to computer ratio. However, one of the KVS students reported that children in some other KVS have prescribed textbooks for computer lessons.

Interaction with the World

Yet another difference was the exchange of information with a larger world. The KVS students and teachers were more involved in interactive communication. The teachers were able to collaboratively work and exchange ideas with teachers from other states with regard to lessons planning. Such networking was not seen in the private school during the time I visited. The private schools did not issue an email id for their teachers while all of the teachers in KVS had one. However, it would be appropriate to assume that most teachers, in the private schools and KVS had computers in their homes (See Table 3 for general statistics).

Table 3: Information and Communication Technology Sector Performance

Access	2000	2005
Total Population (in millions)	1,016	1,095
Telephone main lines (per 1,000 people)	32	45
Mobile subscribers (per 1,000 people)	4	82
Internet users (per 1,000 people)	5	55
Personal computers (per 1,000 people)	5	16

Sources: Economic and social context: UNDP and World Bank & ICT sector structure and performance. Produced by the Global Information and Communication Technologies Department and the Development Economics Data Group.

Fund Raising

The principal of KVS was involved in raising funds through alumni associations. She was exploring ways to obtain additional funds from private sector. One cannot assume that all the other principals of KVS are engaged in raising funds for their school. Private schools, as mentioned earlier, based on the collect tuition they collect, provide anywhere from minimal to state of the art technology.

Child-Computer Ratio

In private schools the child, PC ratio is 1:1 while the government school ratio is to 20:1 (Annual report 2005-2006). The private schools, the resources came from parents and they strive to exceed the government's expectations. Since the parents pay tuition, the schools are driven by demands placed by parents (Thirumurthy & Sundaram, 2003). Parents like to see their children use computers at school. As a result, the private schools acquire computers and provide appropriate experiences for their students even in primary classes. Here again, the degree of experiences and opportunities provided depend on tuition fees schools collect. The higher the tuition, the greater are the number of computers and opportunities available for children. Parents actively seek schools that have better computer facilities. The public school parents on the other hand, if they are from the lower socioeconomic strata of the society seldom place any demands on schools while educated and middle class parents expect schools to provide opportunities for children to learn computers.

Outsourcing

The state governments require schools to provide computer education but do not provide the resources to acquire the technology and neither do they monitor whether the schools do provide. The private schools that do not have sufficient resources are now outsourcing computer education to private entities. The schools enter into a contract with private computer laboratories and send the children to the lab or they allocate a room in their school to the company and let them operate from the school. The maintenance,

training and upkeep of software are the responsibility of the computer company. This is practiced in Tamil Nadu and many other states. "The schools contract with local computer companies so children can receive computer education. They are responsible for the maintenance, training for teachers and update of software- general upkeep of computer laboratory" stated a school counselor in Chennai (personal communication, Jan 4, 2008). There is no directive, however, from the state or the central government in regulating outsourced companies.

Smart Schools

During my visit in January, 2007, I had difficulty locating a *Smart School* and therefore, I am unable to corroborate the initiative with field data. Three years after *Smart School* initiative was officially unveiled, I surveyed teachers and administrators from KVN about Smart School and they had not heard of it. However, the *Chandigarh Tribune,* a well known regional newspaper announced the first *Smart School* in Chandigarh city once in 2005 and then again a follow up in 2006 about the Sector 16 Government Model Senior Secondary School in the city of Chandigarh which was getting ready to become a *Smart School* (*Chandigarh Tribune*, 2005 & 2006). But there was no follow up on the progress in any of the newspapers. A search on national newspapers led to a report that was published prior to the introduction of this scheme. It stated that the Government of India had planned to *gradually* expand these *Smart Schools* to be linked to other schools and in the end there would be 100,000 schools where children would receive computer education (*Times of India*, Dec, 28, 2001). Perhaps the word *gradual* refers to a slow implementation process.

To sum up, the structure and the availability of computers may vary, but computers are now seen and used in many schools. This is a positive indication of progress. It appears from my research that India is catching up with technology in varying degrees. But to *level the playing field* and to *bridge the digital divide* the government efforts need a greater push and momentum.

The Hidden and Exposed Socio-cultural Values

In this section, I argue that the policies of the government and the practices in the schools are biased toward the sociocultural values. They reflect and perpetuate the social virtues and the intrinsic worth of *learning*. First, I take the policies of the government and parallel those with the sociocultural values. Then the school practices are examined using the lens of cultural values. Finally, I highlight the social tapestry that parents create and the impact of it on the individual child, a peripheral participant in all these activities.

Examination of government's policies revealed the many concealed sociocultural values. The choice of words in the government policy reflects a certain bias. For instance, *pool their resources* and the *nation as a whole will assume the responsibility* echo the collective responsibility and sharing that has been in practice for centuries in Indian society. Let us also take the specific goal of setting up a *Smart School*. This model is to serve not only the school where the *smart* computer lab is located but also serve a larger

school community. According to the Annual Report, 2006, one *Smart School* is to serve a maximum of 10 neighborhood schools. This concept of pooling resources to serve a wider community parallels with the *joint family system* that has been the practice in the Indian culture. This culturally motivated practice is for utilizing the scarce resources to maximize benefits. It is traditionally acquired and a proven strategy. Indians have long relied on pooling their available resources. One could argue that in modern India "The idea of the state as an enlarged family may have lost much of its persuasiveness, but the metaphor of the family is widely present in all forms of social organization" (Eei-ming, 1996, p. 26). In the *joint family system* the married sons with their families live together with their parents. A cultural setting is thus formed for them to share their *funds of knowledge* (Moll, and Whitmore, 1993), and economic and social assets. The *Smart School* concept is geared toward pooling all of the financial, technical and technological resources to swell its benefits and serve the needs of the community to cope with the technological changes. A traditional practice here is adapted to the contemporary world. The central government's unsaid expectation is for state governments and schools to come up with ways to pool their resources or find ways to augment resources.

The school practices reveal a different type of sociocultural values and I compare them to the educational thought and practices of the culture. The long standing sociocultural values are (1) acquiring knowledge is important and (2) that objects that assist one in acquiring knowledge and skills are to be respected and revered as was seen in the vignette shared. The schools upheld these values in their computer instruction. These schools emphasized the students' respect and care for the object that were used to acquire *knowledge*. "Keep it clean" "touch is softly" "remove your shoes before entering" were heard several times. A place of learning must be respected.

Second, many schools assigned textbooks for computer class, and this solidifies the belief that computer class has the same importance as mathematics, or science or language lessons. It captures a certain tacit expectation, which is *all children must do well in computers just as they should in mathematics or any other subjects*. That is a cultural expectation. There was equal participation of teachers and students in computer classes. The students asked questions on the operational aspects of computer confirming their commitment to the task on hand. They demonstrated their ability to carry out those functions. There were *no* problem behaviors and the children were intently focused on their work. Sometimes children would look into their neighbors work to either clarify their own doubts or assist the peer. Computer lessons are given a structure and the children were expected to give the same attention they would to any other subjects. In Bharathi Vidya Bhavan, the following message on what the word COMPUTER stood for welcomed the students to the laboratory, lest they forget:

Commonly
Operated
Machine
Particularly
Used for
Trade
Education and
Research

This message was a constant reminder that *this* object stood for something *larger* and something that was of *higher* value to which the students must adhere.

A parallel incident I observed was in the city corporation school in Chennai. Garlands hanging at the entry to the computer lab, turmeric and vermilion dots on the door dictated a certain message. These reflected the symbolic ways Hindus bless objects that are worthy of respect. The Headmistress and the teachers sanctified the place in the hope that it has a burgeoning effect and that the students be blessed. "We hope that this beginning will bring us many more blessings" declared the Headmistress of the city government school. Such practices strengthen traditional values. Technology as a toy as perceived in the West is nonexistent.

When the adaptation of the modern tool (in this case, the computer) is examined from the individual child's perspective, it is evident that the initial conversation the reader witnessed between the grandfather and the grand-daughter holds true for most children. Traditional practices provide opportunities to imbue the values in children. The Hindu religious celebrations during Dusara, a ten-day festival, are of particular importance here. The Saraswathy Pooja (prayer for goddess of education) Day, the ninth day, all Hindus worship books and tools and on the tenth day everyone is *expected* to pick up the books and read a page at least, write and use the tools. On this particular auspicious day young children who are ready to start school, sit on their parent's lap, the parent holds the child's hand with the writing tool and the alphabet letters are written on the slate. This is an age old practice. The society works together to instill these values.

Parents in private schools demand computers. Affluent families who have computers buy educational software and allow the children to operate the computer for a certain number of hours each day. There is strict supervision when children interact with computers. The parents allow them to play games only for a limited time. At other times if they are caught playing, they are reprimanded. The emphasis is on disciplined habits and learning. In his description of what *smart schools* aught to be Maheshwari, the Chairperson of NCERT, articulated,

> … in a smart school in addition to using variety of educational technologies for learning, emphasis will be on value-oriented education…. In the same way in education, values to be developed may have to be integrated in all school activities and should not be taught as a separate subject. I am confident that a techno-savvy child with the shield of values will be guided by the voice of the conscience in resisting temptation for accessing harmful

> information or wasting time in playing computer games. I will like to advise parents and teachers that instead of playing the role of an inspector or that of a computer nanny for monitoring what children do with their computers, they should help them in regulating their behaviour by developing in them the right ***samskars*** [a proper sense of duty and obligation] (Maheshwari, 2003).

Here, Maheshwari, Director of NCERT in 2003 emphasized the need all of the entities, Government, schools, teachers and parents working together to instill the Hindu values, *samskars* in children.

Having discussed all of the values, one should not ignore the fact that in addition to the *knowledge* that children acquire, parents, schools and government view these skills parlayed to economic benefits. It is important for the nation's economic productivity. But the sociocultural values are not forgotten when government policies are developed. Schools uphold them. There is not a contradiction between government, schools and parents.

Conclusion

Socio-cultural contexts play an important role in what children learn. "… Children's domain-specific knowledge and expertise depend almost totally on the accumulated knowledge of the cultures and its "transmission" to them via linguistic and other symbols, including both writing and pictures" (Tomasello, 2000, p. 165). In India traditional practices and modernity are not seen as polarities, rather they are converted to aspirations (Gusfield, 1967). Traditional practices lend themselves to embracing change. The government and the community approach computer education as a depository of *knowledge* worthy of respect and reverence. Technology is used as a vehicle to carry the traditional values forward to the new generation. Knowledge is seen as power that can transform the lives of many by increasing the economic opportunities for their citizens. The use of the term *Smart Schools* also brings a cultural bias. *Smart* can be equated to *Knowledge* here. The second reason why the computer is revered is because it is an expensive commodity and beyond the reach of many. And the government is unable to provide computers in every school. Therefore, it has developed an innovative cultural solution to address computer education for all, at least on paper as of now. It is attempting to create a model community of schools.

The language in the school and the state communicate the social values. The evidence from schools suggest that human language has two primary functions: (1) to scaffold actions - including social activities and interactions - that have an everyday casual approach, into doable steps; (2) to scaffold human affiliations in cultures and social groups and institutions through creating and enticing others to take certain perspectives on experience (Guberman & Greenfield, 1991). The children are expected to look, learn appropriate terminologies and touch the computer with care, just as many in India were told to respect and take care of books and other traditional tools. The cultural norms are accentuated in both private and public schools. Books are considered so sacred because they have the key to open the door to wealth of *knowledge*. A similar attribute is thus, given to computers.

Finally, parents, grandparents and teachers model the expected behavior. "Modeling is the process of offering behavior for imitation" (Gallimore & Tharp, 1998, p.178) and most of the *modeling* is un-reflected acts in the culturally organized activities. Parents from all social class modeled their sociocultural values. Parents who are poor may not demand much from schools but irrespective of their socioeconomic background, parents revered books and tools. Children are spectators of cultural behaviors sometimes, and at other times they are told what to do to accomplish the task or in the forms of stories, giving children the time and opportunities to imbue the values. Thus, the tension between traditional practices and modernity evaporates in the Indian context, because there the *old* embraces the *new* to perpetuate the values.

Appendix

Fourth Graders at the Computer Laboratory
Bharathi Vidya Bhavan School

Notes

The author wishes to thank Caroline Hartse, an anthropologist and esteemed colleague for critiquing the manuscript.

References

Annual report 2006-2007. Department of Elementary Education and Literacy, Department of Secondary and Higher Education, & Ministry of Human Resource Department, Government of India.

Annual report 2005-2006. Department of Elementary Education and Literacy, Department of Secondary and Higher Education, & Ministry of Human Resource Department, Government of India.

Blueprint for Smart Schools, Indian NGO, a publication of NCERT. Retrieved on January 10, 2008, from www.indianngos.com/issue/education /resources/ articles 58.htm

Chandigarh Tribune (2006). *GMSSS-16 to be the first 'smart school' in city.* February 9, 2006.

Cole, M. (1996). *Cultural psychology: A once and future discipline*. Cambridge, MA: The Belknap Press of Harvard University Press.

Gallimore, R., & Tharp, R. (1998). Teaching mind in society. In Luis C. Moll (Ed.), *Vygotsky and Education* (pp. 175-205). Cambridge, UK: Cambridge University

Gitanjali, G. (2005). Smart schools set to storm city. *Chandigarh Tribune*. October 17, 2005.

Guberman, S. R., & Greenfield, P. M. (1991). Learning and transfer in everyday cognition. *Cognitive Development*, *6,* 233-260

Gusfield, J. (1967). Tradition and modernity: misplaced polarities in the study of social change. *The American Journal of Sociology*, *72* (4), 351-371.

Kendriya Vidyalaya Sangathan Official Website. Retrieved on January 8, 2008, from http://kvsangathan.nic.in

Kendriya Vidyalaya School, Chennai. Personal communication, January 8 & 9, 2007.

Krishnakumari, S., Sugumalar, P., Shanmugavadivu, B., Priyadarsini, I.U., & Annapoorani, S. (2005-2006). *LOGO 3*. Erode, India: Bharathi Vidya Bhavan publication.

Lave, J., & Wenger, E. (1991). *Situated Learning: legitimate peripheral participation.* Cambridge, UK: Cambridge University Press.

Madhya Pradesh & Chhattisgarh: Janshala, towards empowered community schools. Retrieved on June 14, 2005, from http://www.education. nic.in/htmlweb/ janshala /madhyapradesh.pdf

Maheshwari, A.N. (2003). Education of a Techno-savvy Child: Opportunities and Threats, Seminar conducted on January, 2003, Amity Institute of Education, India.

Moll, C.L., & Whitmore, F.K. (1993). Vygotsky in classroom practice. In N. Minick, C.A. Stone, & E.A. Forman (Eds.), *Contexts for learning* (pp. 19-42). New York, NY: Oxford University Press.

National Council of Educational Research and Training. Available on http://www. ncert.nic.in/sites/publication/schoolcurriculum/itappendixI.htm

National Curriculum Framework for School Education (2000). NCERT. Retrieved on March 25, 2008, from http://www.ncert.nic.in/html/itcurriculum.htm#sec-2

Nicolopoulou, A., & Cole, M. (1993). Generation and transmission of shared knowledge in the culture of collaborative learning: The fifth dimension, its play-world and its institutional contexts. In N. Minick, C.A. Stone, & E.A. Forman (Eds.), *Contexts for learning* (pp. 283-314). New York, NY: Oxford University Press.

Reagan, T. (2005). *Non-Western educational traditions: Indigenous approaches to educational thought and practice* (3rd ed.) Mahwah, NJ: Lawrence Erlbaum Associates, Inc. Publishers.

Rogoff, B. (1984). Integrating context and cognitive development. In M. E. Lamb & A.L. Brown (Eds.), *Advances in Developmental Psychology*.

Saxe, G. B., Gearhart, M., & Guberman, S. R. (1984). The social organization of early number development. In B. Rogoff & J. V. Wertsch (Eds.), *Children's learning in the "Zone of proximal development"* (pp. 19-30). San Francisco: Jossey Bass.

Sengupta, S. (2008, January 17). Education push yields little for India's poor. *New York Times*.

Shah, B. (1989). Computer education in India. *International Review of Education*, 35(3), 349-351.

Sridhar, A., & Kavitha, S. (2006). *Wizkids 3*. Chennai, India: Indicom Software and Services Publication.

Swaminathan, R. (2000). Personal communication. Conversation with his grand daughter in his residence in Chennai on Aug. 23, 2000.

The Hindu Newspaper. (2007, May 6). *Deep-sea fishing project on anvil*. Staff reporter.

The *Times of India*. (2001). Center planning to start *smart schools*. Staff reporter. December 28, 2001.

The *Times of India*. (2007). India progressing towards universal elementary education: where goes missing 40% efficiency? Retrieved on January 18, 2008, from www.schoolreportcards.in/media/m52.htm

Tomasello, M., (2000). *Human Cognition*. Cambridge, MA: Harvard University Press.

Thirumurthy, V., & Jayaraman, B. (2007). Special education at the crossroads in India. *Childhood Education International*

Thirumurthy, V., & Sundaram, N., (2003). Computers for young children in India. *Childhood Education*.

UNESCO, (1996). Learning: The Treasure Within. Report to UNESCO of the International Commission on Education for the Twenty-first Century.

Vikas Times (April 2001). Motivation of self –learning is the technique of smart school. *Vikas Times*, online journal. Retrieved on January 7, 2008, from http://www. vikasonline.com/vikasonline/vikastimes/apr2001/index.htm

Vygotsky. L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Vygotsky. L. S., (1986). *Thought and Language*. Cambridge, MA: MIT Press.

Wei-ming, T. (1996). Confucian traditions in East Asian modernity. *Bulletin of the American Academy of Arts and Sciences, 50*(2), 12-39.

Two Classrooms Becoming One: Using Moodle to Support On-line Learning in Undergraduate Teacher Education

Danilo M. Baylen
University of West Georgia, USA

Maria Rita Lucas
Centro Escolar University, Philippines

Rowena Santiago
California State University San Bernardino, USA

Introduction

The effective use of cutting-edge ICT (information and communication technology) in teaching and learning has been an ongoing issue in higher education. This is especially true for e-learning where technologies for the development and delivery of courses, especially the use of Learning Management Systems (LMSs), are transforming teaching and learning at a very fast rate. This also presents new challenges to both teachers and students who are often faced with questions like: What are some of the new techniques and ICT tools that have emerged in recent years? How effective is the use of these ICT tools in the tertiary (post-secondary) curriculum? How does this influence or shape the development and delivery of courses in higher education worldwide? More importantly, instructors and students are now asking how they can enrich their teaching and learning, by reaching out and working together with their counterparts in separate global locations through ICT and e-learning. The promise of a digital world has brought about increased interests among administrators, faculty members, and students to take on the challenges of online teaching and learning. Moreover, the continuous introduction of instructional technologies in higher education has led to experimentation on what works online for different populations and contexts (Brett & Nagra, 2005). Researchers and practitioners alike have written articles supporting the benefits of distance learning (Garrison, 2000; Schwartzman, 2007). Experienced teachers learn more meaningful uses of educational technology in a lengthy process. This is personally and professionally transformative, context-specific, and quite demanding as it is technically challenging (Hutchison, 2007). As teachers become more adept with the use of technology, they discover its increasing usefulness and effectiveness in the teaching-learning process. Meanwhile, pre-service teachers found the use of weblogs to have positive potential for their reflective practice. The informal characteristics, accessibility through the internet, and ability to support on-line interactions were seen as beneficial features of weblogs (Shoffner, 2006).

In many parts of the Asia Pacific region, there is increasing interest in ICT in teacher education. One concern is the readiness of both teacher educators and pre-service teachers for ICT in terms of knowledge, skills, and attitudes. A study conducted that involved 373 seniors of three public universities in Bangkok, Thailand explored the

technology preparation in teacher education programs (Monsakul, 2005). This study found a positive relationship between their knowledge and skills in computer and their positive attitude towards computer use. Furthermore, students had greatest confidence in word processing and weakest in knowledge of social, ethical and legal issues in ICT. In Taiwan, a study was conducted to map the characteristics of professional on-line instructors. It showed that both knowledge and skills in instructional design and technology, as well as positive attitude toward technology are necessary to become effective instructors (Lo, 2006). In Saudi Arabia, a study of 310 female faculty and students showed that experience in on-line course support and threaded discussions among others, significantly influenced students' attitude towards on-line instruction (Alaugab, 2007). In Turkey, a study showed that pre-service teachers and cooperating teachers had differences in their attitudes about the use of ICT (Kabadayi, 2006). Students engaged in distance learning experiences gain a global dimension and acquire a competitive advantage on perspective towards real life situations (Cassano, 2008). With distance learning experiences, students have opportunities to bring classrooms together from across cultures and distances with its unique and challenging perspectives. The availability of technology for e-learning also supports the professional networking that frequently takes place at international conferences, which often lead to opportunities for instructors to connect with peers and conduct collaborative studies at a distance. This was the case in this study where two instructors were teaching undergraduate courses for pre-service teachers, and agreed to investigate the impact of collaborative online experiences among their students through the use of technology and by designing common activities and assignment for student to complete. In addition to the technological and curricular challenges, differences in learner characteristics and cultural background were considered.

Research Context and Method

An online learning environment was designed and developed to host the communication, connection, collaboration, and community-building activities of two groups of undergraduate students in two distant locations: Manila, Philippines and Georgia, United States. In the Philippines, the Department of Education, has, as one of its ICT plan objectives, "to develop teacher competence in the use of ICT and in the design, production and use of ICT-based instructional materials". In consonance with this, the latest government prescribed pre-service teacher education curriculum has additional 6 units of ICT related subjects, in order to develop better ICT equipped teachers in the future (CHED Memo Order 30, 2004). For the preschool and special teacher education programs, a professional subject on educational technology and a major subject on applying ICT in the preschool or special education setting were added (Philippine Association for Teacher Education, 2005). In the US, the National Educational Technology Standards for Teachers (NETS-T) (International Society for Technology in Education, 2008) is in place to guide teacher educators. However, teachers and students' awareness about these standards need to be further increased (Loverro, 2006). A Technology Integration Survey based on an earlier version of NETS-T, designed to measure technology integration skills of pre-service teachers has also been constructed and validated (Evans, 2006).

In terms of internet access, the schools in Metro Manila, the Philippines' capital, have the greatest access; but the incidence of connectivity decreases as one goes northwards and southwards throughout the archipelago (Abcede, 2003). When the population is taken as a whole, only about 5.5 in every 100 are internet users, and 5.3 out of 100 have their personal computers (World Bank, 2006). In terms of usage of Moodle as LMS, the Moodle website shows that in 2008, there are about 80 registered sites utilizing this LMS in the Philippines while there are 8022 registered sites in the US.

Although separated by great distance, the two groups of undergraduate students were given the assignment of developing a K-12 teaching (instructional) unit, and will have to share information relevant to completing this task. Group A was enrolled in an undergraduate program in preschool education from a Manila-based university (University A) while Group B consisted of students from a university located in southeastern United States (University B). Given differences in academic calendars, Group A started in November and completed their term in mid-March of the following year. Group B started their term in early January of the following year and finished their course activities in early May. Initially, there were a total of 35 students enrolled in both undergraduate courses -- 14 and 21 respectively. At the end of both academic terms, a total of 28 students, 13 and 15 from each course respectively, completed activities related to the research project.

Using Moodle to Enhance Learning

The online environment was supported by using *Moodle*, a server-based and open source application that functions as a learning management system (Moodle, 2008). With access to *Moodle* application, the lead researcher designed and developed the learning environment where students communicated and connected with each other in completing a similar task (Beatty & Ulasewicz, 2006).

Why use Moodle? Given that the two groups involved in this research project were separated by great distance, *Moodle* as an online application was selected due to the following characteristics: no cost or inexpensive, easy to set up and manage, user-friendly, server-based and parallels functions of a learning management system like WebCT or Blackboard (Black, et al, 2007; Dodson, 2007). Functions in *Moodle* "provide opportunities for learners to interact with instructors and fellow students, it also allow them to share ideas, build concepts based on existing knowledge, reflect on experiences and construct knowledge" (Corich, 2005). *Moodle* is able to provide email, discussion forum and online work space to support communication, connection and collaboration. Further, *Moodle* emails which are sent as postings to subscribers in the discussion forum contained features that easily facilitated community building (Dougiamas & Taylor, 2003). Consequently, both groups of students are prompted and reminded to be interactive by contributing to ongoing online activities.

Research Questions

The literature is abundant with materials discussing what works in an online

environment and what demonstrates effective online teaching and successful online learning. Many of these studies investigated how online tools impact a specific course or classroom. Others discuss how to design online environments for different populations, contexts, and content areas.

Learner characteristic is a salient factor to relate with the use of LMS or ILS. It has been suggested that learner characteristics such as learning styles can help diagnose and predict probable difficulties that students may have in using interactive learning systems (Sabry & Baldwin, 2003). Looking at Kolb's learning styles, "convergers", who are logical, would appreciate thorough online documentation; "assimilators" would enjoy surfing the net for information search; "accommodators" would thrive in relationship building and online social interaction (Broadbent, 2002). Using the Grasha and Riechmann Scale, it was revealed that having learners who are generally collaborative and participant, and also those who are independent or solitary pointed toward designing online activities that require both opportunities for students to collaborate (such as forums), and to work independently (Logan & Thomas, 2002). In a study conducted in the University of Hong Kong, using Honey and Mumford Learning Style Questionnaire, it was found that, reflectors (introverts), when given the opportunity to join a discussion with teachers and fellow students via Bulletin Board, behaved in a more extravert and active way (Kevin & Downing).

For this study, the researchers are interested in factors affecting online experiences for undergraduate students. Specifically, the researchers are interested in investigating learner characteristics (Santiago & Nakayama, 2006); other factors impacting online learning (Tyler & Baylen, 1998); and, how groups of students with different backgrounds and characteristics used technology to enhance knowledge and be successful in completing the given learning tasks. Specifically, the following questions are investigated in the present study:

1. What are the similarities and differences in learner characteristics among students in these two groups?
2. How do the participants perceive their *Moodle* experience?
3. What factors could enhance the online learning experiences for this group of undergraduate students?
4. What are the implications to designing online learning experiences in undergraduate courses?

Data Collection

Several sets of data were collected for this study from online surveys, discussion transcripts, and reflection postings and papers. To better understand these two groups of undergraduate students beyond demographic data, researchers asked them to complete a web-based personality inventory based on Goldberg's work (1999). Results from the web-based survey provide information in building a profile for both groups along five basic factors that underlie traditional personality assessment: Extroversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness (Goldberg, 1992).

Demographic Data -- Composition

Group A involved 14 students whom are initially enrolled in an undergraduate course focused on technology in pre-school education. Data from 13 students were used for this research project due to non-completion of online activities by one student. All 13 students were female and majoring in early childhood education. Group B involved 21 students initially but only 15 students completed the online activities at the end of the term. There were 13 females and two males but having different academic majors -- Early Childhood Education, Middle Grade Education, Math, and History.

Web-Based Personality Inventory -- Profile

Research on personality assessment by Goldberg (1992) and colleagues used five basic factors: Extroversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness. Extroversion, in comparison to introversion, is the "people person" factor. It is primarily focused on behaviors that manifest outgoingness and sociability. Also, it is associated with independence and decisiveness. A high score in the Agreeableness scale can be interpreted that a person is identified as cooperative, considerate, good-natured, and tolerant. This could mean that these individuals may avoid conflict. Conscientiousness examines whether one is organized, schedule-oriented, accurate, thorough, disciplined, and shows ethical behavior and integrity. Emotional Stability (vs. Neuroticism) considers a person's response to stress, anxiety, and depression. Openness (sometimes called Openness to Experience) looks at being open-minded, curious, creative, artistic, and adventurous. Both groups display similarities given the pattern of their responses to the survey items (See Table 5).

Threaded Discussion -- Transcripts

Another set of data is based on threaded discussion transcripts focused on pre-K observation and activity plan sharing. Each group took a lead in each threaded discussion. Those who were not asked to post their observations or activity plans were asked to provide feedback and comments. Analysis on this set of data focuses on the level of online interactivity between the two groups. Discussion contributes to identifying implications to designing online learning experiences for undergraduate students.

Reflections Postings and Papers

The final set of data came from the reflection postings that Group A did and reflection papers that Group B wrote and submitted as prompted by questions asking about their experiences, lessons learned, and suggestions for improvement.

Discussion

Learner Characteristics

Results on the Extraversion scale indicate both groups as very similar, with two-thirds or more students in each group identifying themselves as highly extroverts (See Table 1). Since many these students will enter the teaching profession, it looks like their results are consistent with what is expected of them in and out of the classroom. On agreeableness scale, most if not all students from both groups see themselves as often, if not, always agreeable in a given situation (see Table 2). Given the development of these undergraduate students, one can assume that they are in a stage of their lives where they tend to follow or agree on how they will do things especially in the classroom. Table 3 provides the results on Conscientiousness scale, it is noted that there seems to be a difference between the two groups. Group A students are often or usually conscientious while Group B students are always or often conscientious. Researchers argue that age differences (A is younger than B) and academic levels (the level of A is lower than B) of the two groups may contribute to this slight differences.

Patterns of responses between two groups in the Emotional Stability scale indicate slight differences. It seems that more than two-thirds of Group A responded "Usually" to survey items. Group seems evenly distributed in their response to similar survey items except for one student (See Table 4). Overall, both groups reported they are usually or somewhat worried. Researchers believe that this contributes to how students respond (positive vs. negative) to the demands of their academic as well as personal lives. Finally, patterns of responses to the Openness scale reported both groups display similarities (See Table 5) given that they are highly or moderately open to new experiences.

Significant Experiences

Content analysis of postings and papers as reflections revealed four significant experiences identified by both groups: (1) sharing ideas about teaching; (2) receiving feedback and/or comment; (3) interacting with students from another country; and (4) gaining an understanding of similarities of future teachers across cultures. One significant experience that Group A expressed in their postings was meeting new friends.

1. Sharing ideas about teaching

- *We are just 14 students here in University A taking up education major in pre-school and the sharing of thoughts and ideas in teaching are between the 14 of us and because of this project we are able to share with others and learn from them.* (A4)
- *The exchange of thoughts and ideas gave us a lot of thoughts about teaching. (A5)*
- *I've learned a lot from this collaboration. Sharing our ideas and thoughts really helped us in teaching.* (A6)

- *In general, the whole Moodle experience was a new way for us to learn teaching in a whole new light. It was an insightful process to learn the different ways the CEU students might present an activity plan; it helped us to broaden our understanding of pre-k level students.*(B16)
- *I liked seeing other lesson plans; it gave me many great ideas for lesson plans of my own. They designed their lesson plans differently, which was a positive thing to see because I got to see other ways to design a lesson.* (B31)

2. Receiving feedback and/or comment

- *The University B's* [students] *suggestions and replies really helped us in improving our demo plan.* (A6)
- *I realized many things through the exchange of our comments, suggestions and reflections.* (A8)
- *I think the MOODLE experience is greatly positive; and I really liked getting feedback from the girls at University A. I feel that this was a positive experience because they were able to give feedback in ways that I had never heard before. I also feel that it was positive to be able to see how they would teach a lesson compared to the way we would teach a lesson; and I thought that this experience really gave me other ideas and ways to teach young children.* (B24)
- *It was nice to be able to communicate with students from other countries. I learned how they felt about their experiences and they were able to give us advice for when we entered the classroom.* (B29)
- *I liked being able to give feedback to these girls and receive feedback from them.* (B31)

3. Interacting with students from another country

- *This kind of experience is really great because it's a big opportunity to interact with the student from another country.* (A3)
- *This Moodle experience is such a great opportunity for this is once in a lifetime experience for us.* (A4)
- *I was able to interact with students from another country that not all of the education students here in the Philippines will experience.* (A8)
- *Since the school had a small number of students I got to know the students and their style. When asking questions most of the students answered back and were very helpful. They were positive and were glad to answer any questions as well as ask questions to know about me.* (B18)
- *I consider the interaction with students all the way across the world to be the positive part of the Moodle experience. As a student at University B I am always around students who are just like me and completing assignments identical to mine. It is good to see and learn about how students are learning things differently.* (A22)

4. Gaining an understanding of similarities of future teachers across cultures

- *The interaction between the University B students was really a nice experience, knowing and learning a different culture other than our own.* (A10)
- *They all seemed to have the same experiences that I have felt when I am in a classroom teaching as well. Before this, I had never really talked to anybody about my teaching experiences.* (B15)
- *Doing this project, I have been able to write to students from the Philippines and get another perspective on teaching experiences and obstacles encountered. It was neat to hear these experiences and obstacles faced by these other students because it made me feel like I was not the only one having doubts and issues. I know that my classmates in this country go through what I go through, but knowing that students from another country experience the same thing really reassured me about this entire student teacher experience.* (B25)
- *The experience in general helped broaden my knowledge base of the world by giving me insight to the educational process of the Philippines. I enjoyed reading the lesson plans that the students designed as well.* (B26)
- *I loved being able to see how students from another country go through school to be a teacher. I thought it was great how we could connect because we were going through the same types of things. I really enjoyed being able to read the other students' observations of the pre-kindergarten classroom. I understood everything they were going through because I had been in their shoes in Block 1.* (B32)

5. Meeting new friends

- *Gaining new friends.* (A2)
- *We met new friends who gave us suggestions, comments, reflections and their experiences.* (A4)
- *Meeting new friends in this project is such a wonderful experience.* (A4)
- *I was also able to gain friends who helped me improved my activity lesson plan.* (A7)
- *I guess it's the meeting of new people from another country and communicate through this forum where we can read each other posts anytime.* (A8)

Factors Enhancing the Online Learning Experience

Personality

Given the survey results on extroversion, agreeableness and openness to new experience, the researchers believe that similarities in responses contributed to making the collaborative project (instructional units) a positive learning experience for both groups. This was supported by comments pertaining to significant experiences (See Section B). Also, these learner characteristics contributed to community building.

Anxiety and tendency to worry was verbalized in comments about how students from both groups were concerned about how well prepared they are to teach. Finally, survey results showed that the two groups were not quite different in their personality. The researchers believe that this helped the two classrooms become one because it facilitated collaboration and community building as students worked together on their instructional units. In planning for the online activities, several factors were considered that the authors believe will enhance the online experience, i.e., ability to communicate (Communication), connect (Connection), and collaborate (Collaboration) towards building a sense of community among the participants.

Communication

Communication is an individual's ability to use a technology-based tool to send text-based messages to another individual. Sending emails, text messaging, or posting in a threaded discussion comes to mind as a factor in enhancing an online experience. In this Moodle-supported experience, students did not send emails to each other but participated in a threaded discussion. Two topic-focused (observations of a pre-K classroom and activity plan for a pre-K classroom) threaded discussions were used to help the researchers understand how the two groups communicated with each other. A group took a lead in each of the threaded discussion and the other provided comments and/or feedback. Sorensen and Baylen (2004) categorize responses made in online discussions in what they called Initiate-Response-Reply Framework. In reviewing transcripts of online discussions, they coded responses as "initial posting (IP), response to a post (RP), reply to a response (RR), or reply to a reply (RR#) to look at the level of interaction patterns among students" (pp. 119-120). Further explanation on this framework of looking at patterns of exchanges is described,

> In an initial posting, a student started a thread in the online discussion by posting a message. In a response to a post, the student responded to the initial message posted in a given thread. A reply to a response occurred when a student replied to the responses on an initial posting. A reply to a reply occurred when the student replied to one of the replies made by another student. (Sorensen & Baylen, 2004, p. 120)

Table 6 and Table 7 show the pattern of exchanges in two threaded discussion, focused on observations made in a pre-K classroom and a shared activity plan proposed between the two groups. Initial posts (IP) made by both groups should be equivalent to number of participants in each group -- 14 and 21 initially. However, the number of initial posts made by participant did not match with the actual number of enrolled students, i.e., two students from each group did not share their observations as initial posts. In sharing activity plans proposed for a pre-K classroom, more initial posts were made by several students in Group A and again, two students from Group B did not share their activity plans. In addition, Table 6 and Table 7 provide evidence of students communicating with each other in two examples of exchanges in a threaded discussion. There seemed to be a difference in the quantity of postings, as responses and replies, made by Group A in comparison to Group B. On the average, Group A participants made three times more responses and replies than Group B in each threaded discussion.

Connection

Connection means more than the ability to communicate. It is the ability to make connections to messages shared online to one's past, current and future life experiences. For example, messages posted as part of an email or threaded discussion creates a connection to an individual's experience in relation to self, others, community or the world. Strong evidence were found that students in both groups connected with each other given similarities in what they have seen and experienced related to pre-K classrooms. Comments made by students' similarities in experience that contributed to seeing themselves as one group instead of two are as follows:

- *They all seemed to have the same experiences that I have felt when I am in a classroom teaching as well.*
- *It was neat to hear these experiences and obstacles faced by these other students because it made me feel like I was not the only one.*
- *As new teachers, we always feel that we did worse then what we did in the eyes of others.*
- *I think the thing that stood out for me the most during this online exchange with University A students was how alike we all are. I saw that they have the same fears and excitement about teaching that I do.*

Collaboration

Collaboration means more than communicating and connecting with others (Lee, 2003). It is the ability to work with others in an online environment and support each other in completing a task. Students might be able to communicate with each other, create connections to things discussed, and work with others collaboratively. However, they never become part of a community. They see the experience as a beginning and an end and never as a foundation for future experiences.

- *I enjoyed learning about another culture through collaboration. It was very interesting to learn about the set up of their classrooms, the students, and their learning.*
- *I highly enjoyed viewing the different lessons the exchange students provided. I believe viewing lessons and teaching experiences from other countries was positive.*
- *I know I am a secondary math major; however, I am a camp director in the summer as well. So the University A student's advice on teaching pre-k level students will be of great use for my job this summer.*
- *Reading about their lessons was very positive. They have a different way to teaching and it was neat to read and see how they teach lessons. They use a lot more technology for younger students, but that is really good.*
- *I extremely enjoyed reading the University A student's demos and responding and asking questions about them. Every demo I read, I believe I was able to learn something from them. I also enjoyed reading their comments and questions to my Pre-K observation and activity plan. It was interesting to see a different point of view and questions I never thought about.*

Implications on Designing Online Learning Experiences for Undergraduate Courses

In exploring the potential and possibilities of collaborating with a group of undergraduate students in another part of the world, the researchers identify and discuss the following implications: Effective planning, Visual anchors, Alternative Communication Tools and Make no assumptions.

Effective Planning

Given the difference in schedule between two groups, planning ahead of time is essential in making this online experience meaningful to the students. The 6-week difference is a challenge in itself so activities need to be thoughtfully orchestrated to create a smooth transition for Group A and an introduction for Group B.

Visual Anchors

The *Moodle* interface was pretty basic given the exploratory nature of the project. Students suggest that the visual layout of the Moodle website needs to be enhanced to facilitate ease in navigating around it. Researchers thought that the basic structure of the website was simple enough but it looked like more needs to be done. It was interesting to note that all Group A participants posted images of themselves that show in every posting they made. Only a handful of Group B participants decided to post their images. It is common to hear students describe themselves as visual learners. It seems that having digital images of oneself enhance connectively and personalize a virtual work space for the participants.

Alternative Communication Tools

Both groups commented that adding real-time chat or synchronous communication tools might add a positive dimension to the online experience. Students commented that having opportunities to chat on different activities would enhance the interactivity of the online experience. It was interested to note that students perceived an opportunity to chat as giving them more time. There seems to be perceptions that chat is a tool that is less time consuming in completing a task.

Make No Assumptions

Researchers assumed transfer of knowledge and skills relevant to digital literacy among students. Group B students take university courses using similar LMSs. Group A students demonstrate good working knowledge with using synchronous and asynchronous technologies. However, given this experience, researchers noted that there seems to be "gap" in translating technology knowledge and skills learned prior to this course into what is expected in *Moodle*-supported environment.

Conclusion

The results of this research project shed light to various factors that instructional designers and developers need to consider in integrating online collaborative activities to existing courses. The researchers suggest taking a second look at learner characteristics because they can play a major role in impacting student engagement in completing online tasks. Also, it is recommended that key activities that facilitate communication, collaboration and community building need to be in place as part of the course design to continuously engage students in small groups and as a class. Furthermore, it is critical to provide activities where students make connections on their experiences in and out of the classroom to what is happening in their online environments. Finally, in creating a positive learning environment for the students, it is important to provide opportunities for effective planning, building user-friendly interfaces, and identifying alternative communication tools and strategies. If all of these are considered, then the journey to a positive, active, online collaborative experience among students will be realized.

Appendix

Table 1: Pattern of Student Responses to Personality Inventory on Extraversion Scale

Extraversion	Group A	N = 13	Group B	N = 15
	%	*f*	%	*F*
Extremely	0.8	1	0.0	0
Highly	69.2	9	66.7	10
Moderately	23.0	3	13.3	2
Mildly	0.0	0	20.0	3
Barely or not at all	0.0	0	0.0	0
Total %	100.0	13	100.0	15

Table 2: Pattern of Student Responses to Personality Inventory on Agreeableness Scale

Agreeableness	Group A	N = 13	Group B	N = 15
	%	*f*	%	*F*
Always	30.7	4	46.7	7
Often	61.5	8	53.3	8
Usually	0.8	1	0.0	0
Seldom	0.0	0	0.0	0
Hardly	0.0	0	0.0	0
Total %	100.0	13	100.0	15

Table 3: Pattern of Student Responses to Personality Inventory on Conscientiousness Scale

Conscientiousness	Group A	N = 13	Group B	N = 15
	%	*f*	%	*F*
Always	15.4	2	40.0	6
Often	38.5	5	53.3	8
Usually	46.1	6	6.7	1
Seldom	0.0	0	0.0	0
Hardly	0.0	0	0.0	0
Total %	100.0	13	100.0	15

Table 4: Pattern of Student Responses to Personality Inventory on Emotional Stability Scale

Emotional Stability	Group A	N = 13	Group B	N = 15
	%	*f*	%	*F*
Always	0.0	0	0.0	0
Often	15.4	2	46.7	7
Usually	69.2	9	46.7	7
Seldom	15.4	2	6.7	1
Hardly	0.0	0	0.0	0
Total %	100.0	13	100.0	15

Table 5: Pattern of Student Responses to Personality Inventory on Openness Scale

Openness	Group A	N = 13	Group B	N = 15
	%	*f*	%	*F*
Extremely	0.0	0	6.7	1
Highly	77.0	10	80.0	12
Moderately	23.0	3	13.3	2
Mildly	0.0	0	0.0	0
Barely	0.0	0	0.0	0
Total %	100.0	13	100.0	15

Table 6: Pattern of Exchange in Threaded Discussions on Observations of a Pre-K Classroom

Observations	IP	RP	RR	RR1	RR2	Total	N	Mean *
Group A	12	87	47	10	1	145	12	12.08
Group B	19	52	16	0	0	68	19	3.58

Mean = Total No. of Postings (Responses/Replies) / No. of threaded discussion participants

Table 7: Pattern of Exchange in Threaded Discussions on Activity Plan

Activity Plan	IP	RP	RR	RR1	RR2	Total	N	Mean *
Group A	22	102	35	3	1	141	14 **	10.07
Group B	14	40	7	0	0	47	14	3.36

* Mean = Total No. of Postings (Responses/Replies) / No. of Threaded Discussion Participants. ** No. of Participants (14) is different from No. of IP (22) given several posted more than one.

References

Abcede, M. (2003). Integration of ICT in the Philippines' educational system. UNESCO ICT in Education, UNESCO Asia-Pacific Bureau for Education, Bangkok, Thailand.

Alaugab, A. (2007). Benefits, barriers, and attitudes of Saudi female faculty and students toward online learning in higher education. Retrieved from Proquest Digital Dissertations. (AAC 3258686).

Baylen, D. M., & Glacken. (2007). Promoting lifelong learning online: A case study of a professional development experience. In Y. Inoue (ed.), *Online education for lifelong learning* (pp. 229-252). Hershey, PA: Idea Group, Inc.

Beatty, B., & Ulasewicz, C. (2006). Faculty perspectives on moving from Blackboard to the Moodle Learning Management System. *TechTrends, 50*(4).

Black, E. W., Beck, D., Dawson, K., Jinks, S., & DiPietro, M. (2007). Considering implementation and use in the adoption of an LMS in online and blended learning environments. *TechTrends 51*(2), 35-53.

Brett, P., & Nagra, J. (2005). An investigation into students' use of a computer-based social learning space: Lessons for facilitating collaborative approaches to learning. *British Journal of Educational Technology, 36*(2), 281-292.

Broadbent, B. (2002). ABCs of e-learning. USA: Jossey-Bass Pfieffer.

Cassano, C. (2008). The global advantages of distance learning. *Distance Learning Today*, *2*(5). Retrieved March 21, 2008, from http://www.wmdla.com/ images/ Issue _5_FINAL.pdf

Commission on Higher Education (2004). CHED Memorandum Order No. 30 Revised Policies and Standards for Undergraduate Teacher Education Curriculum. Republic of the Philippines.

Corich, S. (2005, December). Let's get ready to Moodle. *Bulletin of Applied Computing and Information Technology, 3*(3). Retrieved March 9, 2008, from http://www.naccq. ac.nz/ bacit/0303/2005Corich_LMS.htm

De Torres A. & Villanueva A. Eds. (2005) Course descriptions of BEED major in preschool education and special education. *Philippine Association for Teacher Education Journal*. *14,* 43-44.

Dodson, S. (2007, September 18). Moodle takes lead in secondaries. *The Guardian.* Retrieved March 31, 2008 from http://education.guardian.co.uk/link/story/0,,2170968,00.html

Dougiamas, M., & Taylor, P. C. (2003). *Moodle: Using learning communities to create an open source course management system*. Presentation made at 2003 EdMedia Conference. Retrieved March 9, 2008 from http://dougiamas.com/writing/edmedia2003/

Downing, K. & Dowing W. (2006) Classroom introversion online extraversion. University of Hong Kong.

Evans, S. (2006). A validation study of a measurement of technology integration skills for pre-service teachers. Retrieved from Proquest Digital Dissertations. (AAC 3207808)

Garrison, R. (2000). Theoretical challenges for distance education in the 21st century: A shift from structural to transactional issues. *International Review of Research in Open and Distance Learning, 1*(1), 1-17.

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring hte lower level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality Psychology in Europe*, Vol. 7 (pp. 7-28). Tillburg, The Netherlands: Tillburg University Press.

Hutchison, J. (2007). Experienced teachers learning meaningful classroom integrations of Web-based technology: A grounded theory study of process. Retrieved from Proquest Digital Dissertations. (AAC 3237086).

International Society for Teachnology in Education (2008). National Educational Technology Standards for teachers.

Kabadayi, Abdulkadir (2006) Analyzing preschool student teachers' and their cooperating teachers' attitudes towards the use of educational technology. *Turkish Online Journal of Educational Technology, 5*(4).

Lee, M. (2003). Engaging the whole person through the practice of collaborative learning. *International Journal of Lifelong Education, 22*(1), 78-93.

Lo, H. (2005). A mapping study: characteristics of professional online instructors. Retrieved from Proquest Digital Dissertations. (AAC 3191791).

Logan, K. & Thomas, P. (2002). *Learning styles in distance education students learning to program*. Proceedings from the 14th Workshop of the Psychology of Programming Interest Group, UK: Brunel University.

Loverro, I. (2006). Toward a pedagogy of educational technology for teacher education programs. Retrieved from Proquest Digital Dissertations. (AAC 3205867).

Monsakul, J. (2005). Technology preparation in teacher education programs at public universities in Bangkok, Thailand. Retrieved from Proquest Digital Dissertations. (AAC 3190054).

Moodle (2008). Retrieved February 10, 2008 from http://moodle.org

Sabry, K. & Baldwin L. (2003). Web-based learning interaction and learning styles. *British Journal of Educational Technology*, *34*(4), 443-454.

Santiago, R., & Nakayama, M. (2006). Understanding e-learners' characteristics and performance in online courses. In R. Mizoguchi et al (Eds.), *Learning by effective utilization of technologies: Facilitating intercultural understanding* (pp. 521-524). Lawrence Erlbaum Associates.

Schoffner, M. (2006). We don't have the liberty of being brainless: exploring pre-service teachers' use of weblogs for informal reflection. Retrieved from Proquest Digital Dissertations. (AAC 3207340).

Schwartzman, R. (2007). Refining the question: How can online instruction maximize opportunities for all students? *Communication Education, 56*(1), 113-117.

Sorensen, C. K., & Baylen, D. M. (2004). Patterns of communicative and interactive behavior online: Case studies in higher education. *Quarterly Review of Distance Education, 5*(2), 117-126.

Tyler, J. M., & Baylen, D. M. (1998). Exploring factors that moderate learning and teaching in a web-based course. In J. Chambers (Ed.), *Selected papers from the ninth international conference on college teaching and learning* (pp. 151-164). Jacksonville, FL: The Center for the Advancement of Teaching and Learning, Florida Community College.

World Bank (2006). *ICT at a Glance: Philippines 2000-2006.* Retrieved August 28, 2008 from http://devdata.worldbank.org/ict/phil_ict.pdf.

Student Self-Assessment as Critical Reflection: The Case of Blended Learning at an American Pacific Island University

Yukiko Inoue
University of Guam, Guam

Introduction

In the 1990s, educational reformers began to seek answers to two fundamental questions (Angelo & Cross, n.d.): (1) How *well* are students learning? And (2) how *effectively* are teachers teaching? Both classroom research and classroom assessment respond directly to these questions. It should be noted that classroom assessment usually has two purposes: one is to analyze the effectiveness of teaching based on a review of teaching activities and students' achievements; and the other is to identify possible improvements for future teaching (Beck, Livne, & Bear, 2005). It should be further noted that the best teachers tend to be those who think about the following factors (Walkington, Christensen, & Kock, 2001):

- What they want to accomplish,
- How they are going to accomplish it,
- Why they want students to learn it, and
- How they will know students have learned it (p. 343).

Research on teacher decision making, cognitive learning, and student motivation, over the past twenty years, has changed *what* teachers know about the importance of assessment for "effective" teaching; and two research findings should be recognized (McMillan, 2001): (1) good teachers continually *assess* students relative to learning goals and adjust their teaching; and (2) *assessment of students* not only documents what students know and can do but also influences learning. Teaching students how they can become self- and peer assessors, and revealing how critical thinking about assessment is therefore an integral part of the learning process, should be a primary aim of all university instructors (Smyth, 2004, p. 369). Although the term "assessment" means different things to different people, it is understood in education as a way to inform students about how *well* they are doing or how *well* they did in the course (Garfield, 1994). Assessment is a dynamic process that continuously yields information about student progress toward the achievement of learning goals; when the information gathered is consistent with learning goals and is used appropriately to inform teaching, it can enhance student learning as well as document it (Garfield, 1994).

Purposes and Themes of the Chapter

The purposes of the present article are to provide critical discussions as to why student self-assessment (learning quality) and classroom assessment (teaching effectiveness) are essentially linked, derived from Smyth's (2004) following inquiries; how student reflection on the assessment procedure is a necessary part of learning experience; and how such reflection can be supported in teaching practices. Using a case study approach, data were collected from two

types of student self-assessment methods: (1) self-ratings (for quantitative analysis); and (2) narrative self-evaluations (for qualitative analysis). The main themes of the article are as follows:

1. *The increasing importance of classroom assessment techniques*:
   Classroom assessment, a major component of classroom research, involves students and teachers in the continuous monitoring of students' learning, as Angelo and Cross (n. d.) maintain, and thus, classroom assessment provides teachers with feedback about their effectiveness as teachers and gives students a measure of their progress as learners.

2. *The increasing importance of reflective student self-assessment methods*:
   Self-assessment methods (students are asked to write narrative self-evaluations, for example) may encourage students to *reflect* on their learning and perhaps result in their consciously improving *how* they learn. By cooperating in reflective self-assessment, students reinforce their grasp of the course content and strengthen their own skills at self-assessment.

3. *The increasing importance of blended learning in higher education*:
   Online education is becoming an important "long term" strategy for many institutions of higher education. Nevertheless, blended learning (or blended online learning) will be a more significant growth area than fully online learning in the future of higher learning.

4. *Evidence from a case study: student self-assessment in blended learning*:
   Blended learning—which is seen in the linkage between instructors, learner, and classroom—is still in its infancy. This case study focused on how students evaluate their learning experiences in blended learning using a course management system.

The present chapter consists of four sections. First, classroom assessment techniques are identified and, in particular, a constructivist perspective to classroom assessment is described. Second, student self-assessment methods are discussed, focusing on reflective student self-assessment. Third, blended learning is detailed, with a discussion of future directions of blended learning in higher education. Fourth, the case of student self-assessment in blended learning at an American Pacific island university is documented, focusing on student self-assessment as critical reflection. Finally, these four sections are integrated and then future research directions are established to promote the linkage of learning quality and teaching effectiveness.

Classroom Assessment Techniques

It is understood that classroom assessment—a method that teachers can collect feedback on how well their students are learning what they are being taught—provides both teachers and students with information and insights needed to improve teaching "effectiveness" and learning "quality." Classroom assessment includes seven characteristics (Angelo & Cross, n.d.): (1) *learner-centered* (and can guide teachers and students in making adjustments to improve learning); (2) *teacher-directed* (teachers decide how to respond to the information gained through the assessment); (3) *mutually beneficial* (by cooperating in assessment, students strengthen their skills at self-assessment); (4) *formative* (purpose is to improve the quality of student learning, not to provide evidence for grading students; the assessments are almost *never* graded and are almost *always* anonymous); (5) *context-specific* (classroom assessment has to

respond to the particular needs of the teachers, students, and disciplines to which they are applied); (6) *ongoing* (classroom assessment is an ongoing process); and (7) *rooted in good teaching practice* (classroom assessment is to build on existing good practice by making feedback on students' learning more systematic, more flexible).

Constructivist Approaches to Classroom Assessment

A constructivist perspective views learners as *actively* engaged in making meaning. Constructivism also promotes reflection by learners, and encourages them to take responsibility for their own learning**.** Teaching with that approach looks for what students can analyze, collaborate, share, build, and generate based on what they already know, rather than what facts, skills, and processes they can parrot (Dougiamas, 1998). To practice the constructivist approach effectively, teachers have to strive for greater awareness of the environments and the participants in a given teaching situation in order to continually adjust their actions to engage students in learning based on three principles of constructivism ("On Course," 2007): (1) students construct learning as a result of what they *think*, *feel*, and *do* (and less so by what their teachers say and do); (2) the most effective learners *are* empowered learners, those characterized by self-responsibility, self-motivation, self-management, interdependence, self-awareness, lifelong learning, emotional intelligence, and high self-esteem (see Table 1); and (3) the intersection of a well-designed educational experience and an empowered learner lies the opportunity for deep and transformational learning and the path to success—academic, personal, and professional.

The aforementioned three principles are connected to the following stages of inquiry-based learning defined by Lim (2004): *ask* (learners articulate their own problems); *plan* (learners design their problem-solving strategies within a certain time frame); *explore* (learners explore resources for solving problems using their background knowledge); *construct* (learners synthesize resources and provide solutions); and *reflect* (learners discuss the implications for further refinement). Inquiry-based learning is the ability to plan, monitor, and evaluate one's own learning processes and strategies. By facilitating and guiding students to adopt inquiry-based learning with eight success principles (described in Table 1), teachers *can* empower their students to become effective partners in their own education.

Useful Steps of Classroom Assessment

To begin classroom assessment, Angelo and Cross (n. d.) recommend that only one or two of the simplest classroom assessment techniques are tried in only one class (in most cases, trying out a simple classroom assessment technique requires only five to ten minutes of class time); and thus, this process of the simple classroom assessment technique involves three steps:

Step 1 *(planning*): Select one, and only one, of the classes in which to try out the classroom assessment. Decide on the class meeting and select a classroom assessment technique (choose a simple and quick one);

Step 2 (*implementing*): Make sure students know what the teacher is doing and that they clearly understand the procedure. Collect the responses and analyze them as soon as possible;

Step 3 (*responding*): To capitalize on time spent assessing, and to motivate students to become actively involved, "close the feedback loop" by letting them know what the teacher learned from the assessments and what difference that information will make.

Table 1: Characteristics of Successful Students and Struggling Students

SUCCESSFUL STUDENTS...	STRUGGLING STUDENTS...
1. ...ACCEPT SELF-RESPONSIBILITY, seeing themselves as the primary cause of their outcomes and experiences.	1. ...see themselves as Victims, believing that what happens to them is determined primarily by external forces such as fate, luck, and powerful others.
2. ...DISCOVER SELF-MOTIVATION, finding purpose in their lives by discovering personally meaningful goals and dreams.	2. ...have difficulty sustaining motivation, often feeling depressed, frustrated, and/or resentful about a lack of direction in their lives.
3. ...MASTER SELF-MANAGEMENT, consistently planning and taking purposeful actions in pursuit of their goals and dreams.	3. ...seldom identify specific actions needed to accomplish a desired outcome. And when they do, they tend to procrastinate.
4. ...EMPLOY INTERDEPENDENCE, building mutually supportive relationships that help them achieve their goals and dreams (while helping others to do the same).	4. ...are solitary, seldom requesting, even rejecting offers of assistance from those who could help.
5. ...GAIN SELF-AWARENESS, consciously employing behaviors, beliefs, and attitudes that keep them on course.	5. ...make important choices unconsciously, being directed by self-sabotaging habits and outdated life scripts.
6. ...ADOPT LIFE-LONG LEARNING, finding valuable lessons and wisdom in nearly every experience they have.	6. ...resist learning new ideas and skills, viewing learning as fearful or boring rather than as mental play.
7. ...DEVELOP EMOTIONAL INTELLIGENCE, effectively managing their emotions in support of their goals and dreams.	7. ...live at the mercy of strong emotions such as anger, depression, anxiety, or a need for instant gratification.
8. ...BELIEVE IN THEMSELVES, seeing themselves capable, lovable, and unconditionally worthy as human beings.	8. ...doubt their competence and personal value, feeling inadequate to create their desired outcomes and experiences.

Source: "On Course," 2007.

Reflective Student Self-Assessment Methods

Experiential learning is composed of three elements (knowledge, activity, and reflection): *reflection* is defined as thoughtful analysis and assessment of one's own *activity* and its contribution to personal growth; and ability is defined as *knowledge* as concepts and prior experience in the context of learning applied to current, ongoing events (Sterling, 2007). The practice of self-assessment is a way for students to acquire the *reflective* habit of mind that is essential to their ongoing capacities to improve their work over time; further, growth in

intelligence or thinking is precisely growth in the capacity for ongoing *reflective* self-assessment, and thus, an important life skill is the ability to *self-assess* and plan for improvement (Curtz, n.d.). When students are included within self-assessments of learning activities, they may gain in growing self-awareness which, in turn, leads to self-directed learning. Self-directed learners (1) create education plans that reflect personal goals, interests and skills, and available resources, (2) demonstrate capacity to undertake independent study, (3) identify patterns, trends, and relationships which apply to problem solutions, and (4) generate a variety of solutions, build a case for the best response and critically evaluate its effectiveness (Conant, n.d.).

Assessment and Reflection

According to Learning Centered Teaching Practices at the University of Sciences in Philadelphia, for many educators moving toward learning-centered teaching requires the following practices illustrated in Weimer's (2002) book, titled *Learner-centered teaching*:

- the functions of the content in learning-centered teaching include building a strong knowledge foundation and to develop learning skills and learner self-awareness;
- the role of the teacher is more facilitative rather than prescriptive teaching;
- the teacher creates environments that motivate students to accept responsibility for learning;
- the purposes of evaluation shift from only assigning grades to also including constructive feedback (and teaching uses *assessment* as a part of the learning process); and
- the balance of power shifts so that the teacher shares decisions about the course with the students such that the teacher and the students collaborate on course policies and procedures.

For students as it is for teachers that meaningful self-assessment takes practice and also self-assessment can take many forms (e.g., whole-class or small-group discussions, reflection logs, self-assessment checklists and inventories, and teacher-student interviews) (Education Place, n.d.). There is a critical connection between student engagement and student self-assessment; specifically, self-assessment can provide a critical feedback to teachers about whether students are engaged: perhaps, the only way that teachers will know: "Since both short-term and long-term engagements are internal feelings, they are difficult (arguably impossible) to discern by looking for external signs alone" (Woodward & Munns, 2003, p. 3).

Self-assessment—not merely a matter of self-grading nor of a summative analysis of one's performance—is an ongoing process of evaluating one's performance in a way that makes it a sustained and sustaining essential part of lifelong learning based on seven concepts (Loacker, 2003-2004): (1) the understanding and practice of self-assessment as a developmental process that is never exhausted in its ability to grow; (2) using observable performance as the basis or evidence for judgment supports lifelong learning; (3) precise observation lies in the ability to separate one's expectations from actual performance; (4) *reflection* plays an essential role in self-assessment; (5) self-assessment as a developing process uses criteria that are gradually internalized; (6) the development of criteria is enhanced by instructor and peer feedback; and (7) the process of reflective judgment can provide valuable information for ongoing improvement.

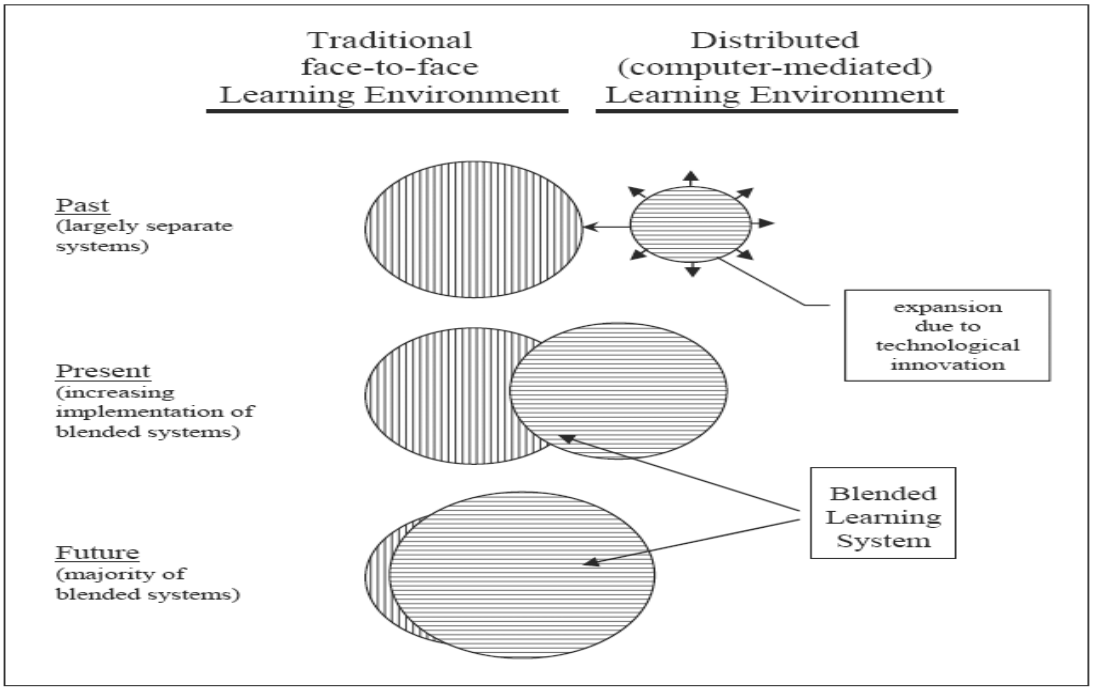
Standardized tests provide information about student learning but do not provide all the information. In this regard, Rolheiser and Ross (n.d.) are optimistic about the impact of authentic

assessments (such as self-evaluation) on student learning but "the problem is that without teacher involvement in student self-evaluation, teachers have no direct knowledge about whether individual students are on an upward or downward path" (p. 16). Rolheiser and Ross offer these tips for getting students started with self-evaluation: *define* self-evaluation for students; *talk* about the benefits both at the beginning of the process and throughout; *start* small (e.g., create short self-evaluation opportunities for students); *choose* a performance that the teacher and students have had some experience with (e.g., oral presentations, research reports); and *expect* a range of reactions from students by helping them get better at self-evaluation.

Blended Learning

The term "blended learning" is being used with increased frequency in both academic and corporate circles (Graham, 2004): "In 2003, the American Society for Training and Development identified blended learning as one of the top ten trends to emerge in the knowledge delivery industry (cited in Rooney, 2003)" (p. 1). What is being blended? While there are a variety of responses to this question, Graham (2004) notes three most commonly documented definitions: (1) combining instructional modalities (or delivery media); (2) combining instructional methods; and (3) combining online and face-to-face instruction. The first two positions above reflect the debate on the influences of media versus method on learning, whereas the third position more accurately reflects the historical emergence of blended learning systems. Blended learning emphasizes the central role of computer-based technologies as depicted in Figure 1.

Figure 1: Progressive Convergence of Traditional Face-to-Face and Distributed Environments Allowing Development of Blended Learning Systems



Source: Graham, 2004, p. 28

Blended *online* learning has the potential of leading to significant enhancements to learning and teaching processes. According to Michigan Department of Education (MDE) (n.d.):

> *Blended online learning is a balanced mix of traditional face-to-face instructional activities with appropriately designed online experiences. Teachers that engage in blended online learning often utilize a course management system as an extension of the physical classroom. This format leverages the communication benefits of a traditional classroom environment and links it to the power of Internet-based learning tools and resources. Educators utilize this format to expand and reinforce classroom-based instructional activities and to extend learning beyond the classroom walls and the normal school day, including evenings, weekends and scheduled breaks.* (p. 3)

A survey of higher education in the United States reported that more than 2.35 million students enrolled in online courses in fall 2004; given the rapid growth of online education and its importance for postsecondary institutions, it is imperative that institutions of higher education provide quality online programs (Kim & Bonk, 2007): "Faculty training and support is another critical component of quality online education… instructors play a different role from that of traditional classroom instructors when they teach online courses, as well as when they teach residential courses with Web enhancements" (p. 2). Leadership from the institution is crucial for faculty to receive adequate support to implement changes in the teaching process. And online education is becoming an important long-term strategy for many postsecondary institutions.

To explore future trends of online education, Kim and Bonk (2007) conducted an online survey. The survey participants were college instructors and administrators who were members of either the Multimedia Educational Resource for Learning and Online Teaching or the Western Cooperative for Educational Telecommunications. Of more than 12,000 who received the e-mail request, 562 completed the survey. Over half of the respondents predicted that online collaboration, case-based learning, and PBL would be the preferred instructional methods for online instructors in the coming decade. In contrast, few expected that instructors would rely on lectures, modeling, or Socratic instruction for their online teaching in the future. In other words, survey respondents predicted that more *learner-centered* techniques would be used in the future, indicating a marked shift from traditional teacher-directed approaches. Most respondents agreed that blended learning would have greater significance in higher education in the future.

The Case of Student Self-Assessment Methods in Blended Learning

The School of Education (SOE) at the University of Guam recognizes trends in teacher education noted by Ornstein and Levine (2003) as follows: increased emphasis on producing *reflective* teachers; growing use of educational technologies; and programs to prepare teaching candidates for the diverse cultural and ethnic settings found in contemporary American schools.
The University, established in 1952, is not only the major institution of higher education in the Western Pacific but it also the only four-year post secondary institution in Micronesia. In addition to the indigenous Chamorros and "stateside" Americans, the University has large student populations of Filipinos, Chinese, Koreans, and Pacific islanders from Palau, the Marshall Islands, and the Federated States of Micronesia, comprised of Pohnpei, Chuuk, Yap, and Kosrae. The diverse student population of the University creates a perfect setting for studying student reflections on learning from multicultural perspectives.

Blended Learning Using MOODLE

The Internet itself and most of the new technology has been added to the higher education environment within the past 10 years; the shift in student demand and the new Internet communications technology has created real opportunity to innovate teaching (Vignare, 2006). Because research on the effectiveness of technology integrated into teaching have revealed innovative practices, the SOE is committed to encouraging faculty members to model positive technology usage in teaching and learning. The SOE has been the early adopter of a course management system called the modular object-oriented dynamic learning environment (MOODLE), which is a server-based software package designed to allow instructors to provide collaborative activities, critical reflection, and learning resources to online students as well as supplementing face-to-face learning. The author of this chapter has been teaching a blended course in teacher education using MOODLE since the fall semester of 2006. MOODLE has been selected because of its flexibility, efficiency, and cost-effectiveness.

A graduate research course (ED601: Introduction to Research Methods) has been offered as the SOE's first implementation of blended learning. Learning activities in college courses are divided into five large categories (Ko & Rossen, 2004). These categories were used for the building blocks of MOODLE in the above blended course (see Table 2). Learning objectives of the course include: summarizing and critiquing research studies; gaining an in-depth knowledge of research designs and methodologies; understanding of research problems and questions; and writing a research prospectus using the American Psychological Association (APA) style writing.

For years, the favored method of assessing student learning outcomes has been to offer multiple choice tests which measure memory, but this type of response does not match the way students learn in the course (Smith, 2003). Teachers consider authentic assessment to be a more reliable approach to assessment, including both unstructured assessments (e.g., student work samples; journals) and structured assessments (e.g., checklists; observations). While unstructured assessments are *not* as easy to evaluate, they provide valuable information concerning the student's skill level.

Many experts believe that rubrics improve students' end products and therefore increase learning. They also believe that when students receive rubrics beforehand, they understand how they will be evaluated and can prepare accordingly. Rubrics offer five advantages **(**"Assessment Rubrics," n.d.): (1) improve student performance by clearly showing students how their work will be evaluated and what is expected; (2) help students become better judges of the quality of their own work; (3) allow assessment to be more objective and consistent; (4) force teachers to clarify their criteria in specific terms; and (5) promote student awareness about the criteria to use in assessing peer performance. Also, truly valid assessment are those students that see as relevant to their learning and life experiences and that help them understand their progress and learning challenges (Shulman, Whittaker, & Lew, 2002). Writing a research prospectus is one of the major assignments in the ED601 course. The grading rubric has been constructed and utilized for evaluating students' proposal writing (for the detailed description, see Appendix A).

Table 2: MOODLE Features and Activities in the Blended Research Course

Categories	Learning activities	MOODLE 'building blocks'
Instructor Presentation	This includes lectures, simulations, charts, and graphs, as well as computer assisted presentations using tools like PowerPoint.	*News Forum* – Instructor's welcome message *Resources* _ PowerPoint slides for each week's lecture
Discussion	Guided discussion sections are common format for discussion. In seminars, instructor presentation and discussion are often combined.	*Forum* – Students participate in a weekly online discussion and a weekly online exercise
Group-oriented and individual projects	Collaborative activities are included here, in addition to group and independent projects presented to the entire class.	*Assignment*: Students upload weekly assignments, and submit online
Research	Research may be conducted either by individuals or in groups (e.g., practical applications, fieldwork and interviews).	Students develop their research proposal and submit online (but present it orally in class)
Assessment	This involves exams, essays, and projects; portfolios that combine different types of work; and evaluation for participation.	Scoring guidelines and rubrics are used, in addition to student participation in MOODLE activities

Source: Adapted from Ko & Rossen, 2004, p. 48

Self-assessment Instruments in Blended Learning

Although students often complete their assignments expecting the teacher to grade and return them, they should learn to thoughtfully study their own work and identify what they have done well and where they need improvement (Teaching Today, 2006). As cited earlier, "To begin classroom assessment, it is recommended that only one or two of the simplest classroom assessment techniques are tried in only one class. In this way very little planning or preparation time and energy of the teacher and students is risked" (Angelo & Cross, n. d., p 10). Based on this recommendation, two types of self-assessment methods have been implemented.

Student Self-ratings (Quantitative Analysis)

A self-assessment instrument was developed, consisting of 12 questions (12 categories of the knowledge and skills of learning objectives in ED601, and used at the beginning of the course (pre-assessment, N =29) and the end of the course (post-assessment, N = 26) (Note that two students dropped the course in the fall semester of 2007), students anonymously rated the degree to which they felt they could agree with each category (5 = very much, 4 = much, 3 = some, 2 = little, and 1 = very little). In fall 2007, the mean differences between the pre-assessment and the post-assessment were statistically significant in five categories (Q3, Q8, Q9, Q11, and Q12), indicating significant improvements during the semester (for the detailed results, see Table 3**)**:

- Q3: know primary and secondary resources (Mpre = 2.93, Mpost = 4.13, $t(14)$= -3.154)
- Q8: know the steps in conducing research (Mpre = 3.00, Mpost = 3.87, $t(14)$ = -2.385)

- Q9: know a variety of research designs/methods (Mpre = 2.87, Mpost = 3.93, $t(14) = -3.228$)
- Q11: know the human subject application (Mpre = 2.33, Mpost = 3.67, $t(14) = -3.568$)
- Q12: know APA style writing (Mpre = 2.60, Mpost = 4.27, $t(14) = -5.229$)

Table 3: Mean (M) and Standard Deviation (SD) of Student Self-rating for the Blended Research Course

		Pre-Assessment		Post-Assessment		
	Assessment categories	M	SD	M	SD	Mean difference
1	I understand what makes an effective researcher in education	3.3333	1.04654	3.7333	.70373	.4000
2	I feel I have established a sense of self-efficacy in terms of developing a research prospectus	2.9333	1.03280	3.6667	.89974	.7334
3	I know the differences between primary and secondary resources	2.9333**	1.22280	4.1333**	.83381	1.2000
4	I know the characteristics of both qualitative and quantitative studies	3.4000	1.18322	4.2000	1.01419	.8000
5	I know how to identify the research problem and to establish research questions and/or hypotheses	3.1333	.99043	3.8667	.74322	.7334
6	I know the purpose and process of reviewing literatures	3.7333	1.16292	4.3333	.81650	.6000
7	I know how to get research materials and references through the Internet.	4.0000	.84515	4.3333	.72375	.3333
8	I know all the steps in conducing research studies	3.0000*	1.13389	3.8667*	.91548	.8667
9	I am prepared to use a variety of research designs and methods	2.8667**	1.18723	3.9333**	.79881	1.0666
10	I have identified which intrinsic and extrinsic rewards have attracted me to conduct research	3.0667	.96115	3.6667	.89974	.6000
11	I know how to get research instrument (involving human subjects) approved	2.3333**	1.29099	3.6667**	.81650	1.3334
12	I know APA style writing and how to cite in-text and references	2.6000***	.91026	4.2667***	.59362	1.6667

*$p < .05$, **$p < .01$, ***$p < .001$

During the fall semester of 2007, student participated in three learning events: (1) the University library tour; (2) an APA style writing workshop; and (3) the Institutional Research Board (IRB) seminar. Apparently the library tour helped students maximize their effectiveness in using library information resources for writing a research proposal. The APA style workshop helped students cite sources within their texts, and format a reference page according to APA style guidelines, as many students expressed, for example: "This course has strengthened my

skills in the APA style writing to the extent that I am much confident in referencing various citations for my research." Finally, the IRB seminar helped students since all research studies involving human subjects have to be reviewed and approved by the IRB prior to data collection. Students learned how to submit a detailed research protocol (including purpose of objectives, research methodology, and data analysis) to the IRB examiner.

Furthermore, the results of the student self-ratings confirm the observation by Frank, Lavy, and Elata (2003) that human beings *are* active learners who construct their knowledge on experience and on their efforts to give meaning to that experience, and that *doing* (such as hands-on practices or interactive workshops) is important to construct learning even for graduate students. The results of the self-ratings *are* therefore reasonable as well as realistic, supporting the famous remark by the ancient Chinese great educator Confucius (Shelly, Cashman, Gunter, & Gunter, 2004): "If I hear, I forget; if I see, I remember; and if I *do*, I understand."

Student Narrative Self-evaluations (Qualitative Analysis)

At the end of the semester, students developed a one-page narrative self-evaluation on their learning in the blended course (including at least one *positive* experience and one *negative* experience). Throughout the semester, students submitted all the assignments electronically creating 'files' and participated in online discussions. Faculty-student interactions have been maintained, for instance, through timely feedback, as a student wrote: "I am grateful that my professor demonstrated such efficiency through timely grading and immediate constructive feedback." Representative student comments on blended learning are summarized below.

Advantages

About blended learning:

- I didn't have to physically be there, but I liked knowing the instructor had taken time to look at what I've done. I was able to receive help both through online and at face-to-face meetings.

- Blended learning met needs for graduate students. I realize that blended instruction promotes lifelong learning, and that blended learning environments help students to become more technologically oriented and literate. I think this is what a graduate course is all about.

- This course encouraged both interactions among students and electronic contacts with the professor beyond the confines of the classroom. Blended learning gave me the flexibility to complete the weekly assignments and submit them electronically virtually anywhere.

- This blended course has taught students how to manage time, and thus, to be more responsible finishing assignments before the due date by setting study schedules. This learning environment has also given me strength to complete assignments independently.

- This course was much successful because it was breached between class meetings and online lectures or lessons. Not only was it convenient but also it still maintained that sense of the classroom environment, which I needed in order to focus on the coursework.

- I believe that I learned more in blended learning because it allowed me to learn the material somewhat at my own pace, making it more convenient than the other traditional courses.

About research:

- I feel that this course is one of those classes where students benefit more from exploring and experimenting with how to propose a research project and how to choose research methods with the professor watching from afar but stepping in when the students hit rough spots.

- The professor's PowerPoint slides posted online covered each chapter very well, and the slides helped to develop a solid understanding of research methods.

- I really appreciate the convenience and ease that the mixture of in-class meetings and on-line instruction has provided. I have been able to better understand research methods and the fundamentals of research and research reporting. I feel that my graduate studies will be greatly augmented by the knowledge I am taking away from this class.

About MOODLE:

- MOODLE is a really great server. I found myself constantly checking the site for daily updates. This ability to view sections and other tutorials uploaded by the instructor is a great opportunity to learn on our own and help refresh certain sections that are unclear.

- This blended course allowed me to learn and submit assignments online while being a full-time schoolteacher. If there were any questions pertaining to the assignment, I was able to get clarification when we met in the class or posting questions on the MOODLE site.

- The textbooks, forums, exercises, and online submission assignments were all clearly aligned with the course's expected learning outcomes. Ample time was given to complete each assignment and MOODLE is such a user-friendly system.

- Having the opportunity to have feedback on assignments via MOODLE and checking grades via MOODLE was very nice. It motivated me to work harder and to keep my grades up.

- Using the Internet and MOODLE is what makes this course both interesting and innovative. It is an up-to-date method of instruction that force students to become technologically literate.

Disadvantages

- Isolation. I feel the isolation most in not being able to share our work or what we turned in as assignments. I don't have to see fellow students, but I would like to see their work.

- One negative outcome from this course maybe if a student was not very familiar with using a computer. When having trouble trying to upload assignments or logging on to the site, Assignments may not be handed in on time and could lead to frustration.

- One thing I would have liked to be different about the course would be to have more exposure to my classmates and more opportunities to work in groups.

- I feel that a lot of the work was too individual and it would have been easier and more effective if I work with other students.

- A negative experience that I had with this class is in regards to interaction with my classmates. Because we did not meet as much, I was not able to speak with most of them or get to know them as much as I would like.

- One disadvantage of blended learning is that each student's time management skills (in addition to technological skills) may be a prerequisite for the course.

Summary of Student Comments

According to participants in this study, blended learning (1) supports and encourages self-controlled, independent learning; (2) provides high flexibility to learners; (3) provides technical competence; (4) increases the motivation of the learners; and (5) provides opportunities to reflect on their own learning. Further, as students mentioned, combining face-to-face classroom instruction with online learning reduces classroom contact hours but in essence, this is more effective than classroom-only courses. For example, students can access to the course material via MOODLE anytime, but retain the face-to-face element. Blended learning, however, leaves a significant and meaningful role for classroom learning. Professors could focus on meaningful ways to blend the learning experience appropriately using computers, but computers could not appropriately teach the content. As negative factors of blended learning, students indicated (1) the lack of interaction with the professor and classmates, and (2) the lack of opportunities for group activities or projects. They also talked about the necessity of computer skills as well as time management skills to be successful in blended learning. Finally, it should be noted that MOODLE is user-friendly for students and provides opportunities for the professor to create *constructionist* environments to enhance learning, facilitating *student-centered* learning.

In conjunction with the rapidly increasing use of new education technologies, online courses are growing in popularity in higher education. As observed in this study, blended online learning is suitable for graduate students because they are responsible for their own learning, progress, and self-assessment. Yet the student reflections have revealed their mixed feelings about blended learning: they enjoy the flexibility of online activities but believe that traditional classroom instruction is needed for the enhancement of the teaching-learning process, as indicated by this student: "I can work better when the teacher shows us how to do it and then I practice …. If this course were entirely online, I could be totally lost." This might be the reason why a balanced mix of "online" and "face-to-face" approaches has to be maintained in a blended course.

Blended learning is "the *new* buzz in higher education. Many educational researchers have discovered that online learning environments are particularly useful for *communication* and *collaboration*" (Vignare, 2006, p.1). The students of this study enjoyed collaborative online

activities such as online discussions and, as Vignare further notes, it is true that students use educational technologies (mainly course management systems) for *convenience* (it is convenient to have the course documents, including lecture notes and discussions, all in one place); *connection* (connect, collaborate, and share are really valuable blended online learning); and *control* (what control means is students want to decide when and where to do their class work). For the students of the study, the MOODLE system seems to be functional because they can use the system effectively for the above purposes. And, of course, a significant amount of learning occurs online using MOODLE, reducing the amount of classroom seat time for students.

The student reflections of the study further confirm that a key role of the teacher as a facilitator in a blended course "is to ensure that students are engaged and making progress in the course. Teachers, providing the facilitation, usually know the subject matter well and can provide content-related instructional assistance to students" (MDE, n.d., p.4). "The shift in student demand and the new Internet communication technology has created real opportunity to innovate teaching. For the most part though the innovations *are* occurring online, and lecture remains the dominant teaching tool in the classroom" (Vignare, 2006, p.3). Vignare also raises an intriguing question: How will blended courses using online learning instructional strategies *change* teaching? The role of the instructor *is* shifting but this particular question still remains.

Blended learning reported in the present chapter was implemented, mainly because blended learning was considered to be an effective first step in order to implement fully online courses in the future. Even though this is the first step, "maximizing success in a blended learning initiative requires a planned and well-supported approach that includes a theory-based instructional model, high-quality faculty development, course development assistance, learner support, and ongoing formative and summative assessment" (Dziuban, Hartman, Moskal, p.3, 2004).

Conclusion

Student self-assessments reported in the present chapter were administered not for grading students but for examining how students would respond to a particular instructional approach ("blended instruction" in this case) and how they would learn. In reading all the students' narrative self-evaluations, the author of this chapter has been struck by how seriously most students reflected on their blended learning. It is clear that self-reflection activities encourage students to continue the self-evaluation process through the course work; indeed, the objectives of self-reflection are to enable students to self-assess their knowledge, monitor their learning progress, and judge if they have achieved the required learning outcomes (Rosenbaum, Lobas, & Ferguson, 2005). Teachers can then use this information to refocus their teaching to help students make their learning more efficient and more effective (Angelog & Cross, n.d.).

The characteristics of quality "online" learning are categorized in five areas (MDE, n.d., pp. 9-11): (1) develop lifelong learning skills (lifelong learners demonstrate information and communication skills; thinking and problem-solving skills; and interpersonal and self-directional skills); (2) use of technology tools (in the digital world, students need to learn to use the tools that are essential to everyday life and workplace productivity); (3) content alignment and use of media (online courses and learning experiences that utilize sound instructional design standards and make use of rich multimedia content can be more engaging for students); (4) educator,

expert, and student involvement (students learn best in an online learning environment when they have the opportunity to interact with educators and with other students); and (5) sustained learning (meaningful online learning activities require a period of time for students to practice using technology tools).

The above five characteristics can be applied to "blended" online learning as well. A report, *Blending in: The extent and promise of blended education in the United States*, found that 55% of all institutions in the United States offer at least one blended course, while 64% offer at least one online course (Nagel, 2007). Blended online instruction is becoming more commonplace in the institutions of higher learning; not only in the United States but also throughout the world.

Now the following three questions should be emphasized (Reeves, Herrington, & Oliver, 2005): (1) What is the evolving role for instructors in blended learning to create effective online experiences? (2) How can instructors motivate students to learn in the blended environment? And (3) what pedagogical techniques are effective for blended environments?

It perhaps needs to be emphasized that course designs are extremely important to maximize online learning. Design research "has grown in importance since it was first conceptualized in the early 1990s…but many researchers continue to conduct studies that principally seek to determine the effectiveness of the delivery medium, rather than the instructional strategies and tasks" (Reeves et al., 2005, p. 96). Design research requires that faculty members:

- define pedagogical outcomes and create learning environments that address them;
- emphasize content and pedagogy rather than technology;
- give special attention to supporting human interactions and nurturing learning communities;
- modify the learning environments until the pedagogical outcomes are reached; and
- reflect on the process to reveal design principles that can inform other instructors and researchers, and future development projects. (Reeves et al., pp. 109-110)

These requirements are the necessary steps to enhance the quality and usefulness of design research in the use of MOODLE for a blended online course. In order to enhance and maintain high quality "blended" instructional practices, future studies should examine actual student performance with concrete learning tasks (not self-evaluations or reflection papers) to determine whether these are consistent with teaching and learning effectiveness in the use of course management tools (also called "virtual learning environments") such as MOODLE.

Finally, although the present study is only the beginning to identify the right mix and the use of course management systems such as MOODLE that can enhance teaching and learning effectiveness, this study has clearly indicated, at least, two things: (1) *online* learning brings flexibility to the *blend,* and (2) student self-assessment is indeed a process by which students learn more about their learning. Online education is becoming an important "long term" strategy for many institutions of higher education. Nevertheless, *blended* learning will be a more significant growth area than fully online learning in the future of higher education.

Appendix A

Grading Rubric for the Research Proposal Writing Project

Component	Target	Acceptable	Unacceptable
Introduction A. Problem B. Review of the literature C. Research questions D. Significance of the study	▪ title is clearly stated ▪ the rationale for the importance of the research focus is clearly stated ▪ research problem and question are clearly defined ▪ at least 6-7 readings from journals/web are cited ▪ review is well-organized with subheadings ▪ sources are correctly cited in text (APA style) ▪ reference list is in correct form and complete ▪ the significance of the study is clear and well written	▪ title is clearly stated ▪ the rationale is presented but one or more elements may be ambiguous ▪ research problem and question are of marginal ▪ at least 4-5 readings from journals/web are cited ▪ review is organized, but has no subtopic structure ▪ all sources are cited, but style problems may exist ▪ reference list is complete but shows problems with format ▪ the significance of the study is reasonably well written	▪ title is missing or ambiguous ▪ rationale is missing or one or more elements may be missing ▪ research problem and question are unclear ▪ fewer than 2-3 readings from journals/web are cited ▪ review is disorganized, shows no logical order ▪ citations are confusing ▪ some or all references are missing: many format errors ▪ the significance of the study is either not present or very poorly described
Points available 40	40-30	29-11	10-0
Method A. Participants B. Data collection C. Data analysis D. Limitation	▪ participants and sampling are clearly described ▪ data collection methods specifically described and related to research questions ▪ methods are appropriate for research questions ▪ time line is reasonable ▪ analysis procedures described and clearly linked with the research questions ▪ appropriateness of data analyses is discussed ▪ strong connection is made between data collection and data analysis ▪ limitations for undertaking the study are clearly described	▪ participants and sampling are reasonably described ▪ data collection methods are related to research questions, but description needs more specificity ▪ methods are appropriate for research questions ▪ time line is reasonable ▪ analysis procedures are described, but not fully linked to research questions ▪ connection is made between data collection and data analysis but not fully developed ▪ limitations for undertaking the study are described but lack clarity	▪ participants are not clearly described ▪ data collection methods are unclear or unconnected to research questions ▪ methods are dubious for research questions ▪ time line is not reasonable. ▪ analysis procedures are missing or confusing ▪ little or no connection is made between data collection and data analysis ▪ limitations are not described
Points available 20	20-16	15-8	7-0
The Format and Style References	▪ proposal is clearly written ▪ it is well-organized ▪ no distracting spelling or grammatical errors ▪ all elements of research questions are addressed ▪ paper contains only few errors in using APA style	▪ proposal is clearly written ▪ well-organized but contains some clarity problems ▪ few distracting spelling or grammatical errors ▪ most elements of research questions addressed ▪ paper contains several errors in using APA style	▪ writing unclear ▪ poor organization ▪ distracting spelling or grammatical errors ▪ some elements of research question are addressed ▪ paper contains many errors in using APA style
Points available 40	40-30	29-11	10-0
TOTAL 100			

Notes

The author is grateful to Dr. Kyle Smith at the University of Guam for his critical suggestions on the earlier draft of this chapter.

References

Angelo, T. A., & Cross, P. K. (n.d.). Classroom assessment techniques. Retrieved April 17, 2007 from http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/ assess -1.htm

Assessment Rubrics.(n.d.). Retrieved November 25, 2006, from http://edtech. Kennesaw.edu/ intech/rubrics.htm

Beck, R. J., Livne, N. L., & Bear, S. L. (2005). Teachers' self-assessment of the effects of formative and summative electronic portfolios on professional development. *European Journal of Teacher Education, 28*(3), 221-244.

Conant, A. (n.d.). Self-assessment. Retrieved April 20, 2007, from http://www. maslibraries.org/ infolit/samplers/spring/self.html

Curtz, T. (n.d.). Teaching self-assessment. Retrieved November 22, 2006, from http://www. evergreen.edu/washcenter/resources/acl/e1.html

Dougiamas, M. (1998). A journey into constructivism. Retrieved July 31, 2006, from http://dougiamas.com/writing/constructivism.html

Dziuban, C. D., Hartman, J. L., & Moskal, P. D. (2004). Blended learning. *EDUCAUSE: ECAR Research Bulletin, 30*(7), 1-12. Retrieved March 30, 2008, from http://www.educause. edu /ecar/

Education Place. (n.d.). Professional development. Retrieved April 25, 2007, from http://www.eduplace.com

Frank, M., Lavy, I., & Elata, D. (2003). Implementing the project-based learning approach in an academic engineering course. *International Journal of Technology and Design Education, 13*, 273-288.

Garfield, J. B. (1994). Beyond testing and grading: Using assessment to improve student learning. *Journal of Statistics Education, 2*(1). Retrieved November 23, 2006, from https:// www. amstat. org/publications/jse/v2n1/garfield.html

Graham, C. R. (2004). Blended learning systems: Definition, current trends, and future directions. C. J. Bonk, & C. R. Graham. (Eds.). *Handbook of blended learning: Global Perspectives,* local designs. San Francisco, CA: Pfeiffer Publishing. Retrieved December 7, 2006,from http://www.uab.edu/it/instructional/technology/docs/blended_learning_systems.pdf

Kim, K-J., & Bonk, C. J. (2007). The future of online teaching and learning in higher education: The survey says. Retrieved January 20, 2008, from http://connect.educause.edu/ Library/ EDUCAUSE+Quarterly/TheFutureofOnlineTeaching/4

Ko, S., & Rossen, S. (2004). *Teaching online: A practical guide*. Boston, MA: Houghton Mifflin. Learning Centered Teaching Practices. (n. d.). Learning centered teaching practices. Retrieved April 25, 2007, from http://www.usip.edu/learningmodules/let.htm

Lim, B-R. (2004). Challenges and issues in designing inquiry on the Web. *British Educational Communications and Technology, 35*(5), 627-643.

Loacker, G. (2003-04). Taking self assessment seriously. *Essays on Teaching Excellence, 15(*2). Retrieved April 25, 2007, from http://teaching.uchicago.edu/pod/pod2/03-04/Loacker.htm

McMillan, J. H. (2001). *Classroom assessment*. Needham Heights, MA: Allyn & Bacon.

Michigan Department of Education. [MDE]. (n. d.). Michigan merit curriculum guidelines: Online experience. Retrieved May 8, 2007, from http://www.michigan.gov/mde

Nagel, D. (2007). Research: Blended versus online learning. *Campus Technology*, 3/12/2007. Retrieved May 8, 2007, from http://www.campustechnology/article.aspx?aid=45404

Ornstein, A., & Levine, D. U. (2003). *Foundations of education*. Boston, MA: Houghton Mifflin.

On Course. (2007). On course principles. Retrieved November 22, 2006, from http://www.oncourseworkshop.com/On%20Course%20Principles.htm

Reeves, T. C., Herrington, J., & Oliver, R. (2005). Design research: A socially responsible approach to instructional technology research in higher education. *Journal of Computing in Higher Education, 16*(2), 97-116.

Rolheiser, C., & Ross, J. A. (n.d.). Student self-evaluation: What research says and what practice shows. Retrieved April 26, 2007, from http://www.cdl.org/resource-library /articles /self _eval.php

Rooney, J. E. (2003). Blending learning opportunities to enhance educational programming and meetings. *Association Managment, 55*(5), 26-32.

Rosenbaum, M. E., Lobas, J., Ferguson, K. (2005). Using reflection activities to enhance teaching about end-of-life care. *Journal of Palliative Medicine, 8*(6), 1186-1195.

Shelly, G. B., Cashman, T. J., Gunter, R.E., & Gunter, G. A. (2004). *Integrating technology in the classroom*. Florence, KY: Thomson Learning.

Shulman, J. H., Whittaker, A., & Lew, M. (2002). *Using assessments to teach for understanding*. New York and London: Teachers College Press.

Smith, C. B. (2003). Alternative forms of assessment. (ERIC Database #ED482404)

Smyth, K. (2004). The benefits of students learning about critical evaluation rather than being summatively judged. *Assessment and Evaluation in Higher Education, 29*(3), 369-378.

Sterling, M. (2007). Service-learning and interior design: A case study. *Journal of Experiential Education, 29*(3), 331-343.

Teaching Today. (2006). Performance assessment. Retrieved November 23, 2006, from http://www.glencoe.com/sec/teachingtoday/educationupclose.phtml/2

Vignare, V. (2006). Blended learning: Education innovation and productivity. Retrieved May 8, 2007, from http://campustechnology.com/articles/40730/

Walkington, J., Christensen, H. P., & Kock, H. (2001). Developing critical reflection as a part of teaching training and teaching practice. *European Journal of Engineering Education, 26*(4), 343-350.

Weimer, M. (2002). *Leaner centered teaching*. San Francisco, CA: Jossey-Bass.

Woodward, H., & Munns, G. (2003). Insiders' voices: Self-assessment and student engagement. Retrieved April 25, 2007, from http://www.aare.edu.au/03pap/mun03451.pdf

Innovative Applications of Some Basic Cognitive Principles to Multimedia Instruction and Learning

Renae Low
Putai Jin
The University of New South Wales, Sydney, Australia

Introduction

There is a trend in education and vocational training to increasingly use multimedia materials and procedures. In many aspects, such a type of learning appears interesting and totally new to older generations. For example, despite some concerns about shifting audience attention from the speaker to a large screen, more and more teachers, trainers, and lecturers nowadays are using PowerPoint slides as a classroom tool in addition to their verbal communication with students and, in turn, students are often explicitly (e.g., part of the course requirements) or implicitly (e.g. "effective" delivery may lead to high ratings) encouraged to use similar methods in their group or individual presentations. In conferences, where interactive and high-level learning often occurs, although we can still appreciate some speakers' verbal communications, many others tend to use graphs and tables to enhance their presentations. It seems that there is a "common" belief about the effectiveness of multimedia in learning, delivery, presentation, and, more widely, in educational practices. In this chapter, we discuss certain essential issues related to multimedia learning based on evidence provided by educational psychology research in this area. In particular, this chapter clarifies some theoretical aspects about cognitive processes, links theory to practice, and provides recommendations for future research.

What Is Multimedia Learning?

Multimedia, a term increasingly used in the sectors of education and entertainment during the recent decades, has slightly different meanings for different users. In information technology, multimedia is a combination of different forms of media (i.e., the ways a large number of people receive information), which can be electronically recorded, manipulated, and delivered, such as music video, movie in DVD format with subtitles, and web-based advertisement containing text, sound and pictures. In education and psychology of learning, multimedia is not necessarily (although often) related to computer systems and has a wider meaning, which generally refers to any use of combined media (e.g., verbal and visual), in contrast to a single medium (e.g., verbal or visual), to send and receive information. Since the delivery of learning material in the modern educational settings is largely through visual and audio modes, according to Mayer's (2005) suggestion, any presentation of both words and pictures is regarded as multimedia. In Mayer's (2005) terminology, the material in words, such as spoken text, printed text, or a combination of both, is basically considered in *verbal form*; on the other hand, the material in pictures, such as figures, photos, sketches, or dynamic graphics, is

categorically considered in *pictorial form*. This conceptual framework allows us to include any types of learning material in research and professional practice.

Thus, in this context, multimedia learning occurs when learners establish mental representations from both words (i.e., elements of learning material in *verbal form*) and pictures (i.e., elements of learning material in *pictorial form*). When Mayer (2005) categorizes words as elements in verbal form, probably this statement is based on the forms of modern European phonetic written languages. In some other cultures, words can be both verbal and pictorial. For instance, the Chinese character of "湖" ("lake") is the combination of verbal form "胡" ("hu") and symbol"氵" ("water"). Indeed, multimedia learning is part of human history. For instance, the continuity of aboriginal culture has relied heavily on their paintings and story-telling since their ancestors moved from Asia to Oceania continent some forty thousand years ago. This type of learning nowadays has a variety of vehicles, such as computer-aided distance learning courses and video demonstration in the classroom. Because of the advancement of information technology and recent innovative approaches used by students, instructors and researchers in education, psychology and other disciplines, multimedia learning has become one of the major characteristics of modern education, thus attracting more and more attention of all stakeholders, including students, parents, teachers, software designers, and policy makers.

In this article, we examine the research evidence in regard to the conceptual framework of multimedia learning proposed by Mayer (2005) and discuss the cognitive aspects of such learning. This is important because, as summarized by Clark and Feldon (2005), previous reviews indicate that multimedia delivery modes may not result in effective learning. The following sections focus on some basic cognitive principles that can be used to improve the design of multimedia learning material and instruction.

The Modality Principle and Applications

One of the critical factors of problem solving and learning processes is working memory, which is the capacity of memory store to temporally hold and process information in active mental activity. The main features of working memory are its limited capacity (Miller, 1956) and short duration (Peterson & Peterson, 1959) when we are dealing with novel information. Such limitations have a dual function: on the positive side, working memory only allows essential but not random, dysfunctional information to be gradually sent to long-term store, hence the cognitive system would maintain its relative stability and achieve its incremental progress; on the negative side, if the sensory information overflows (e.g., beyond the capacity of working memory), then effective comprehension, understanding, and thus learning cannot occur. Since modern learning material and instructions are mainly received via eyes and ears, a question of interest is: "If the working memory is so limited and seems to be the bottle-neck of human information process, will a combination of visual and verbal input somehow increase the capacity, thus facilitate learning?" In other words, can a dual-mode presentation, which is in the format of multimedia, actually improve our learning?

According to Baddeley (1986, 1992, 1999) and Paivio (1986), the working memory can be divided into two relatively independent paths, namely, 1) a visual-spatial sketch pad, which temporally holds and processes information from diagrams, pictures, and other visual based forms; and 2) a phonological loop to deal with auditory information (see Figure 1). The relative independence of the two paths was supported by Murdock's (1971) study, in which providing a visual probe had noticeable impact on the recall of visual targets but did not have significant effect on the recall of auditory target words. Similarly, the auditory probe interfered with only the recall of auditory targets but not with visual ones. There is evidence that working memory can be expanded by using both visual and auditory processors instead of a single-mode processor (Penney, 1989; Brünken, Steinbacher, Plass, & Leutner, 2002; Brünken, Plass, & Leutner, 2004; Low & Sweller, 2005).

Figure 1: Working memory paths

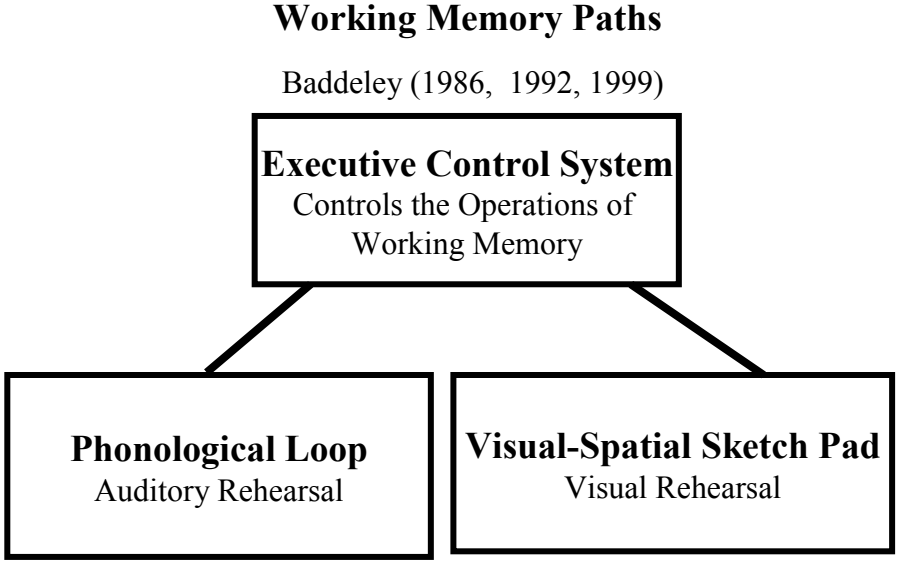


Figure 1. Working memory paths

The modality effect refers to the occurrence of increased working memory capacity by effectively using a multiple-mode presentation rather then a single mode input. Mousavi, Low and Sweller (1994) tested this hypothesis in educational settings, in which geometry problems and related instructions were used. There were two ways of data presentation: audio-visual and visual-visual. In the audio-visual presentation, diagrams were given as visual information and the related text was provided via audio input, whereas in the visual-visual presentation, both diagrams and associated text were in a visual format. The data obtained from this series of experiments demonstrated that learners in the audio-visual group performed much better than did those in the visual-visual group. This basic modality effect was confirmed in a number of studies. For

instance, Tindall-Ford, Chandler and Sweller (1997) reported increased effective working memory and improved learning outcomes under audio-visual conditions in comparison with visual-visual conditions in electrical engineering courses in which the learning material was high in element interactivity. Adopting the scale recommended by Pass and Merriënboer (1993), Tindall-Ford and colleagues found that the cognitive load was lower under audio-visual conditions than visual-visual conditions for learning such material. Applying the modality principle, Jeung, Chandler and Sweller (1997) reported improved learning outcomes by using visual indicators to highlight the most complex parts of information in the spoken text. In an industrial training course, beginners' learning experience was enhanced from dual-mode presentations delivered by the instructor (Kalyuga, Chandler, & Sweller, 2000).

Using web-based or computer-aided instructional design, Mayer and his colleagues (Mayer & Moreno, 1998; Moreno & Mayer, 1999; Moreno, Mayer, Spires, & Lester, 2001) tested the modality effect in a number of courses. In general, they found that students performed better in problem solving under the condition that scientific explanations were given as pictures plus narration (or spoken text) than under the condition of pictures together with on-screen text. According to Mayer's (2005) interpretation, when learners are dealing with pictures and related on-screen text, their visual channel may become overloaded while their auditory channel is unused. When words are narrated or the spoken text is provided, the learners can use their auditory channel to process such information, and the visual channel will deal with the pictures only. The redistribution of information flow can lead to enhanced multimedia learning. When the information contained in a picture is too complex, simultaneous presentation of corresponding auditory information may still be beyond the capacity of working memory. In this case, the sequencing method can be used to reduce cognitive load (Schnotz, 2005). For instance, the picture can be presented before its related text (Kulhavy, Stock, & Caterino, 1994). Research in this direction is promising.

The Split-Attention Principle and Applications

To facilitate desirable learning, instruction needs to be designed to minimize extraneous cognitive load and to use working memory effectively so that essential information can be stored in long-term memory, which, in turn, can enhance the effective capacity of working memory when the learners gain more expertise. Cognitive load theory has used this cognitive architecture to innovatively devise instructional procedures in many educational settings. One of the principles derived from cognitive load theory is the split-attention principle.

Split-attention refers to the phenomenon when learners are required to integrate multiple sources of critical information but those sources are physically or temporally separate from each other. When the cognitive load imposed by the need to mentally integrate the disparate sources of information is excessive, normal learning can be hindered. One of the pioneering studies on split-attention was reported by Tarmizi and Sweller (1988), who used worked examples in the high school course of geometry. The rationale of their study to use worked examples was that the previous literature had

indicated that using worked examples was an effective method for the learning of algebra (Cooper & Sweller, 1987; Sweller & Cooper, 1985) and other contents in mathematical-related domains (Zhu & Simon, 1987). Their original hypothesis was that, if using worked examples is helpful in learning algebra, the same method should work well in geometry. Surprisingly, using worked examples did not produced better learning outcomes than using conventional problem-solving strategies in their initial geometry experiment. They found that the mental process to deal with two physically separate resources, namely, the diagram and the textual solution, was cognitively too demanding for the learners, especially when those learners were inexperienced. When Tarmizi and Sweller (1988) changed the format of presenting geometry worked examples to an integrated version, positive learning outcomes were obtained. They argued that, by using the integrated format, the extraneous cognitive load was reduced and thus the learners could use their working memory efficiently and effectively.

Tarmizi and Sweller's (1988) findings have led to a number of studies on the split-attention effect. For instance, presentations using integrated format were found to be effective in the learning of coordinate geometry (Sweller, Chandler, Tierney, & Cooper, 1990), physics, computer programs, and the training of electrical apprentices (Sweller and Chandler, 1994). In line with this direction of research, Mayer and associates (Mayer & Anderson, 1991, 1992; Mayer & Sims, 1994; Moreno & Mayer, 1999) have discovered that split-attention could also occur with temporal separation, thus leading to unnecessary extraneous cognitive load. In the area of language learning, Yeung, Jin and Sweller (1998) discovered that the integrated format, which combined explanatory notes with reading passages, was helpful in reducing the cognitive load related to vocabulary search and facilitating the process of reading comprehension for young children who are native speakers in Australia as well as inexperienced English as a second language (ESL) learners in Hong Kong. More recently, Hung (2006) applied the split-attention principle in a series of experiments in Vietnam. The participants were undergraduate students in the discipline of geography studying ESL. When learning a text entitled "The early aborigines" that was related to their discipline, students in the integrated format group benefited more than those in the split-attention group.

In a multimedia learning environment, the split-attention effect may take place because two or more sources of information are often presented to the learners. Research suggests that multiple sources of information need to be integrated into an optimal format to minimize extraneous cognitive load and to make the material users-friendly. Those sources of information must be intelligible and complementary to each other (mere replications are not useful and could be harmful to the learning process). As pointed by Sweller (1994), the integrated format was effective when the learning material had the features of high element interactivity (i.e., the elements in the learning content must be simultaneously processed because they interact). Under this condition, the intrinsic cognitive load is relatively high and the employment of an integrated method can be helpful. On the other hand, if the learning material or task has the feature of low element interactivity (i.e., elements in the learning content have little interaction and thus can be processed individually), this will impose very low intrinsic cognitive load. Therefore, the adoption of an integration method is unlikely to have noticeable impact on learning

outcomes. Research also shows that learner's expertise should be taken into account for multimedia course design (to be discussed later).

The Redundancy Principle and Applications

According to the redundancy principle, redundant (repetitive or unnecessary) information tends to obstruct rather than enhance learning. At the first glance, this statement seems to be counterintuitive. An instructor or a web-based course designer may consider that providing same information in different forms or presenting additional detailed-information for the topic would enhance learning experience, or at least this teaching method would not produce worse learning outcomes. However, cognitive load theory suggests the possibility of negative redundancy effects. Because working memory is extremely limited in terms of its capacity and duration, when the learners are exposed to material containing the same information in multiple forms or some unnecessary elaborations, their cognitive functioning can be inhibited and their learning process may be negatively affected. For instance, to teach pupils to learn a noun, say, the name of an animal (horse), a teacher can write the word on a flashcard or on the whiteboard and read it (presenting essential information via both visual and audio channels). One may further think that it is a good idea to show pupils a flashcard containing both the word and picture and at the same time provide pronunciation. Such a type of instruction sounds more "interesting" and more "informative", and this can be easily done by using modern information technology. However, controlled experiments to test the picture-word effect on the whole indicated that vocabulary learning outcomes under the condition of simply containing the information of written word plus sound was much better than under the condition of presenting written word, picture, and sound simultaneously (Miller, 1937; Solman, Singh, & Kehoe, 1992). This phenomenon can be explained by the cognitive load theory: adding picture to the presentation of written word and sound is not necessary and thus redundant, and the redundancy can have negative impact on the effective utilization of limited working memory to process and transfer the information to the long-term memory.

In the multimedia learning context, the redundancy principle has been demonstrated and used in a number of studies (Mayer, 2001; Sweller, 2005). In one study, a series of experiment was carried out to test the redundancy effect in a computer course (Sweller & Chandler, 1994; Chandler & Sweller, 1996). The learners were divided into two groups: participants in one group learned a specially designed computer manual that combined text with diagrams and did the work on computer; and participants in the other group simply learned the computer manual on screen but did not do the actual work on computer. Because the act of working on the computer was largely irrelevant to the real task with objectives to understand the program, participants in the first group could not use working memory efficiently to transfer the knowledge of programming into their long-term memory. In other words, the computer work was redundant and occupied some working memory resources that should be used for learners to assimilate the appropriate information. Such interference resulted in poor test results for the instructional design that violated the redundancy principle. In another series of experiments on the usage of computer manuals, researchers reported that computer manuals with minimized

explanatory text were more effective and user-friendly than conventional manuals (Carroll, 1990; Carroll, Smith-Kerker, Ford, & Mazur-Rimetz, 1987). Similarly, other researchers found that a reduced or summarized text was superior to a full text (some parts may be redundant) in terms of learning outcomes (Mayer, Bove, Bryman, Mars, & Tapangco, 1996; Reder & Anderson, 1980, 1982).

In the research area of learning English as a foreign language (EFL), Hirai (1999) noticed that, for less proficient Japanese EFL learners, their listening rate was far behind their reading rate. Diao and Sweller (2007) thus proposed that, if novice EFL learner were exposed to both auditory and visual information for reading comprehension, such poor audio-visual correspondence might result in a redundancy effect. They tested this hypothesis in China and found that the Chinese ESL learners who were exposed to simultaneous presentations of spoken and written text had higher mental load and produced lower test scores in both word decoding and reading comprehension than those who were given written information only. In sum, the redundancy principle can be applied to many learning tasks. Using multiple forms of the same information or providing unnecessary explanatory information in addition to the essential elements may be destructive for the learning processes.

The Learner Expertise Principle and Applications

According to Mayer (2005), multimedia learning has two major approaches, namely, the technology-centred approach and learner-centred approach. In general, modern history of the technology-centred approach, as demonstrated in the adoption of radio broadcasting lessons, video education programs and television schools, indicates a three-stage cycle: (1) initial public excitement about and general promises of the cutting-edge technology, (2) promotion of state-of-art device and usage, and (3) disappointment about the actual learning outcomes. This is mainly because the technology-centred approach has failed to include learner characteristics as critical factors in the equation of learning outcomes. Recent multimedia learning research has tackled one of the important aspects of learner characteristics, that is, learner expertise.

According to the learner expertise principle, the effectiveness of most instructional design strategies is contingent upon the learner's prior knowledge and skills. As suggested in the classic work by Newell and Simon (1972), novices and experts have different ways of problem solving. When designing and delivering a course, such differences in knowledge acquisition and skill application must be taken into account. This is demonstrated in a series of experiments on language learning (Yeung et al., 1998). The main theme of the experiments was to ascertain the role of explanatory notes in reading comprehension. In their initial experiments, the integrated format (i.e., the text and directly related explanations are integrated into the passages) was more helpful than the separated format for young children and junior EFL learners. This finding was consistent with the principle of split-attention. However, in further experiments, experienced learners, such as senior university students and advanced ESL learners, did not benefit from explanatory notes with an integrated format in reading comprehension. The participants with high-level language proficiency found that the information about

the explanations of many words was redundant and annoying but hard to ignore in the integrated format, and thus they reported having high cognitive load. In contrast to the split-attention effect shown in initial experiments using inexperienced learners, the redundancy effect occurred in the experiments using learners with high prior knowledge.

Researchers have recently conducted a number of studies in relation to the learner expertise principle. Pollock, Chandler, and Sweller (2001) discovered that novice learners, but not learners with certain prior knowledge, benefited from the delivery that provided isolated element instruction followed by interacting element instruction. In contrast, when a task consisting of imagining the computer procedures was used to learn spreadsheet applications, because the imagining technique required complex schemas to deal with interacting elements in mental representations, only high-knowledge learners produced better test results under the imagination condition than under the conventional condition of simply studying the material (Cooper, Tindall-Ford, Chandler, & Sweller, 2001). In fact, for low-knowledge learners, this imagination method had a negative effect on their learning outcomes (Cooper et al., 2001). Similarly, in a study using an on-screen animation with simultaneously narrated explanation, the trainees with little experience in the domain benefited significantly under this condition; when those trainees became more experienced after several intensive training sessions, such advantages disappeared; at the end of the experiment when the trainees had already gained sufficient knowledge and skills, the initially effective method eventually became counter-productive (Kalyuga et al., 2000). Such a type of learner expertise by delivery strategies interaction (sometime called the expertise reversal effect, see Kalyuga et al., 2000) was partially supported or replicated in subsequent studies (Carney & Levin, 2002; Kalyuga, Chandler, Tuovinen, & Sweller, 2001; Kalyuga, Chandler, and Sweller, 2001).

It should be pointed out that the learner expertise plays a very complex role in the learning processes, sometimes like a two-edged sword. On the one hand, the high-level knowledge structures in a specific domain stored in long-term memory allow the experienced learners to activate the schematic knowledge and bring it back to working memory as a single high-level element that contains many interacting components. In this way, experts have reduced cognitive load in comparison with novices who have to sort out interacting elements at the basic level. This advantage for experienced learners enables them to learn more effectively and efficiently than beginners (Chi, Glaser, & Farr, 1988). On the other hand, when experienced learners are given a learning task that requires establishing an entirely new conceptual framework, they tend to apply their own knowledge constructions and use their already established conceptual models spontaneously, which may be conflicting with the new conceptual framework contained in the learning material (Mayer, 1989). The discrepancy between the existing constructs and to be-learned constructs may cause cognitive overload for experienced learners. It is recommended that course designers and instructors investigate the interaction between presentation strategies and learner expertise to ensure that the material and method of delivery match learners' prior knowledge and skills.

Conclusion and Recommendations

Modern information technology has provided a variety of platforms and vehicles for the design and delivery of multimedia learning material. However, the technology-centered approach cannot guarantee effective learning via multimedia means. The entire learning process must take the learner's cognitive factors into account. We recommend that multimedia course designers and instructors consider the applicability of the following basic cognitive principles in their professional practice: the modality principle, the split-attention principle, the redundancy principle, and the learner expertise principle. The following take-home messages are provided for teaching professionals, course designers, and other interested educators:

1. When the original learning material contains two visual sources of information, for instance, a diagram and text in a geometry problem, the instructor should check whether learners find it too difficult to mentally integrate those two sources of information for them to be information are intelligible. In other words, the instructor needs to examine whether such cognitive processes impose a heavy load on working memory. If the answer is yes, then the instructor may consider an alternative way of content delivery - spreading the load between the visual and the auditory components in the working memory system. Using the modality principle, we can not only alleviate the demands on one working memory path, but also to a certain extent increase the capacity of entire working memory.

2. When the worked example consists of two or more sources of information that require mental integration, the disparate sources of information may interfere with effective learning, especially for novice learners. This process imposes a cognitive load that is extraneous simply because of the particular format used. According to the split-attention effect principle, the learning material that includes multiple sources of information can be integrated in order to reduce extraneous cognitive load. For example, if the separate sources of related information are hard to bold together mentally, then placing the explanatory note at the appropriate location in the diagram can reduce learners' cognitive load for information integration and thus free some working memory resources for effective learning.

3. When instructions consist of two or more sources of related information with one information source being entirely self-explanatory, the second or the rest sources of information may merely reiterate the content of the first source in different formats. For example, in a self-contained diagram with an associated statement that simply re-describes the content of the diagram, the text includes no new information and probably imposes unnecessary, extra load on working memory. Using the redundancy principle, the instructor can streamline instructional procedures to ensure that learners are only exposed to essential, non-redundant course information.

4. When learners have gained a certain degree of expertise in the targeted area, some course information initially presented to novices may not be essential anymore and may even become fully redundant. This type of redundant information can also impose an extraneous cognitive load on the limited working memory and thus interfere with learning processes. Therefore, the instructor should be mindful that an instructional format that is beneficial for beginners may loose its merits with the increasing expertise of learners and may eventually hinder the learning processes for individuals with higher expertise. According to the learner expertise effect principle, we need to conduct timely analysis of learners' expertise levels and adjust instruction formats and delivery procedures.

Finally, it should be noted that the bulk of research evidence critically evaluated in this paper reveals only the tip of iceberg about effective and efficient learning in technology-rich, multimedia modern education settings. There are, of course, other cognitive factors involved in complex learning, and we cannot afford to ignore the important role of learners' emotion and motivational aspects in their learning processes. Further exploration of cognitive factors, learner characteristics, and their interactions would be helpful in enhancing multimedia learning and teaching.

References

Baddeley, A.D. (1986). *Working memory*. Oxford, England: Oxford University Press.

Baddeley, A.D. (1992). Working memory. *Science, 255,* 556-559.

Baddeley, A.D. (1999). *Human memory*. Boston: Allyn & Bacon.

Brünken, R., Steinbacher, S., Plass, J. L., & Leutner, D. (2002). Assessment of cognitive load in multimedia learning using dual-task methodology. *Experimental Psychology, 49,* 109-119.

Brünken, R., Plass, J. L., & Leutner, D. (2004) Assessment of cognitive load in multimedia learning with dual task methodology: Auditory load and modality effects. *Instructional Science, 32*, 115-132.

Carney, R. N, & Levin, J. R. (2002). Pictorial illustrations still improve students' learning from text. *Educational Psychology Review*, *14*, 5-26.

Carroll, J. M. (1990). *The Nurnbergfunnel: Designing minimalist instruction for practical computer skill*. Cambridge, MA: MIT Press.

Carroll, J. M., Smith-Kerker, P., Ford, J., & Mazur-Rimetz, S. (1987). The minimal manual. *Human-Computer Interaction*, *3*, 123-153.

Chandler, P., & Sweller, J. (1996). Cognitive load while learning to use a computer program. *Applied Cognitive Psychology, 10,* 151-170.

Chi, M. T. H., Glaser, R., & Farr, M. J. (Eds.). (1988). *The nature of expertise*. Hillsdale, NJ: Erlbaum.

Clark, R. E., & Feldon, D. F. (2005). Five common but questionable principles of multimedia. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 97-115). New York: Cambridge University Press.

Cooper, G., & Sweller, J. (1987). The effects of schema acquisition and rule automation on mathematical problem-solving transfer. *Journal of Educational Psychology, 79,* 347-362.

Cooper, G., Tindall-Ford, S., Chandler, P., & Sweller, J. (2001). Learning by imagining procedures and concepts. *Journal of Experimental Psychology*: *Applied*, *7*, 68-82.

Diao, Y., & Sweller, J. (2007). Redundancy in foreign language reading comprehension instruction: Concurrent written and spoken presentations. *Learning and Instruction, 17*, 78-88.

Hirai, A (1999). The relationship between listening and reading rates of Japanese EFL learners. *Modern Language Journal, 83,* 367–384.

Hung, H. C. M. (2007). *Split attention in reading comprehension: A case of English as a foreign/second language*. Unpublished Master by Research (in Education) thesis, The University of New South Wales, Australia.

Jeung, H., Chandler, P., & Sweller, J. (1997). The role of visual indicators in dual sensory mode instruction. *Educational Psychology*, *17*, 329-343.

Kalyuga, S., Chandler, P., & Sweller, J. (2000). Incorporating learner experience into the design of multimedia instruction. *Journal of Educational Psychology, 92,* 126-136.

Kalyuga, S., Chandler, P., & Sweller, J. (2001). Learner experience and efficiency of instructional guidance. *Educational Psychology, 21,* 5-23.

Kalyuga, S., Chandler, P., Tuovinen, J., & Sweller, J. (2001). When problem solving is superior to studying worked examples. *Journal of Educational Psychology, 93,* 579-588.

Kulhavy, R. W., Stock, W. A., & Caterino, L. C. (1994). Reference maps as a framework for remembering text. In W. Schnotz & R. W. Kulhavy (Eds.), *Comprehension of graphics* (pp. 153-162). Amsterdam: Elsevier Science B. V.

Low, R., & Sweller, J. (2005). The modality principle in multimedia learning. In R. E.

Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 147-158). New York: Cambridge University Press.

Mayer, R. E. (1989). Models for understanding. *Review of Educational Research*, *59*, 43-64.

Mayer, R. E. (2001). *Multimedia learning*. New York: Cambridge University Press.

Mayer, R. E. (2005). Introduction to multimedia learning. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 1-16). New York: Cambridge University Press.

Mayer, R. E. & Anderson, R. (1991). Animations need narrations: An experimental test of a dual-coding hypothesis. *Journal of Educational Psychology, 83,* 484-490.

Mayer, R. E. & Anderson, R. (1992). The instructive animation: Helping students build connections between words and pictures in multimedia learning. *Journal of Educational Psychology, 84,* 444-452.

Mayer, R. E., Bove, W., Bryman, A., Mars, R., & Tapangco, L. (1996). When less is more: Meaningful learning from visual and verbal summaries of science textbook lessons. *Journal of Educational Psychology*, *88*, 64-73.

Mayer, R. E. & Moreno, R. (1998). A split-attention effect in multi-media learning: Evidence for dual processing systems in working memory. *Journal of Educational Psychology, 90,* 312-320.

Mayer, R. E. & Sims, V. K. (1994). For whom is a picture worth a thousand words? Extensions of a dual-coding theory of multimedia learning. *Journal of Educational Psychology, 86,* 389-401.

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review, 63*, 81-97.

Miller, W. (1937). The picture clutch in reading. *Elementary English Review, 14,* 263-264.

Moreno, R., & Mayer, R. E. (1999). Cognitive principles of multimedia learning: The role of modality and contiguity. *Journal of Educational psychology, 91*, 358-368.

Moreno, R., Mayer, R. E., Spires, H.A., & Lester, J.C. (2001). The case for social agency in computer-based multimedia learning: Do students learn more deeply when they interact with animated pedagogical agents? *Cognition and Instruction, 19,* 177-214.

Mousavi, S., Low, R., & Sweller, J. (1995). Reducing cognitive load by mixing auditory and visual presentation modes. *Journal of Educational Psychology, 87,* 319-334.

Murdock, B. B., Jr. (1971). Four-channel effects in short-term memory. *Psychonomic Science*, *24*, 197-198.

Newell, A., & Simon, H. A. (1972). *Human problem solving*. Englewood Cliffs, N.J.: Prentice-Hall.

Paas, F., & Van Merrienboer, J. (1993). The efficiency of instructional conditions: An approach to combine mental-effort and performance measures. *Human Factors, 35,* 737-743.

Paivio , A. (1986). *Mental representing: A dual coding approach*. Oxford, England: Oxford University Press.

Penney, C. G. (1989). Modality effects and the structure of short-term verbal memory. *Memory & Cognition, 17*, 398-422.

Peterson, L., & Peterson, M. J. (1959). Short-term retention of individual verbal items. *Journal of Experimental Psychology, 58*, 193-198.

Pollock, E., Chandler, P., & Sweller, J. (2002). Assimilating complex information. *Learning and Instruction*, *12*, 61-86.

Reder, L. & Anderson, J. R. (1980). A comparison of texts and their summaries: Memorial consequences. *Journal of Verbal Learning and Verbal Behaviour, 19,* 121-134.

Reder, L. & Anderson, J. R. (1982). Effects of spacing and embellishment on memory for main points of a text. *Memory and Cognition, 10,* 97-102.

Schnotz, W. (2005). An integrated model of text and picture comprehension. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 49-69). New York: Cambridge University Press.

Solman, R., Singh, N., & Kehoe, E. J. (1992). Pictures block the learning of sight words. *Educational Psychology, 12,* 143-153.

Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*, 295-312.

Sweller, J. (2005). The redundancy principle. In R. E. Mayer (Ed.), *Cambridge handbook of multimedia learning* (pp. 159-167). New York: Cambridge University Press.

Sweller, J. & Chandler, P. (1994). Why some material is difficult to learn. *Cognition and Instruction, 12,* 185-233.

Sweller, J., Chandler, P., Tierney, P., & Cooper, M. (1990). Cognitive load as a factor in the structuring of technical material. *Journal of Experimental Psychology: General, 119,* 176-192.

Sweller, J., & Cooper, G. (1985). The use of worked examples as a substitute for problem solving in learning algebra. *Cognition and Instruction, 2*, 59-89.

Tarmizi, R., & Sweller, J. (1988). Guidance during mathematical problem solving. *Journal of Educational Psychology, 80,* 424-436.

Tindall-Ford, S., Chandler, P., & Sweller, J. (1997). When two sensory modes are better than one. *Journal of Experimental Psychology: Applied, 3,* 257-287.

Yeung, A. S., Jin, P., & Sweller, J. (1998). Cognitive load and learner expertise: Split-attention and redundancy effects in reading with explanatory notes. *Contemporary Educational Psychology, 23*, 1-21.

Zhu, X., & Simon, H. (1987). Learning mathematics from examples and by doing. *Cognition and Instruction, 4,* 137-166.

Enhancing Motivation and Self-Regulated Learning in Multimedia Environments

Putai Jin
Renae Low
The University of New South Wales, Australia

Introduction

Learning in multimedia contexts has been investigated extensively during recent decades. Most studies in this field are related to instructional design, course structure and delivery methods. For instance, cognitive load theory has been developed to examine the effectiveness and efficiency of a wide range of instructional designs (e.g., Low & Sweller, 2005; Sweller, 1994). This line of research has established basic principles (such as modality principle, split-attention principle, and redundancy principle) for teaching and learning, particularly in the multimedia environments. Meanwhile, more and more researchers and practitioners have realized the indispensable role of learners' motivation and self-regulation in effective learning. Various theories and models in regard to motivation and self-regulation strategies have been proposed, tested, and developed in both research and educational settings (Astleitner & Wiesner, 2004). There is growing evidence to help identify the essential elements that are associated with motivation and self-regulated learning, especially in multimedia environments. In the Cambridge Handbook of Multimedia Learning, Mayer (2005) has urged both researchers and practitioners to adopt learner-centered approaches instead of technology-centered approaches to the design and delivery of multimedia learning content. Clark and Feldon (2005) have further challenged the assumption that technology-rich multimedia instruction is more motivating and thus more productive than conventional instruction. If an online course is equipped with multimedia contents that are organized in accordance with sound cognitive principles, will all students benefit from this design? For those whose educational alternatives are restricted by distance or limited by work/family commitment, the benefits are obvious. However, some students may enroll in an online course just because it is convenient and may not put sufficient time and effort in this course; therefore their learning outcomes are questionable.

According to critical review and meta-analysis, motivational factors such as task value and self-determination should be taken into account for the optimization of multimedia learning (Clark & Feldon, 2005). Bernard and colleagues (2004) conducted a comprehensive meta-analysis of empirical studies on distance multimedia learning and reported a bi-modal pattern of learning effectiveness. This finding reveals that distance multimedia instruction works very well in some cases but works extremely poorly in some other cases. According to their analysis, whether or not learners are actively involved in the targeted course is essential to learning outcomes. Researchers and instructors should examine student motivational dispositions such as task choice, self-efficacy, persistence, effort, and perceived task value. There is research evidence to suggest that the form of animations, a widely used multimedia technique, may distract the

learner and even interfere with learning processes (Clark & Feldon, 2005), and the phenomenon of getting lost in the hypermedia environments is not uncommon (Svinicki, 1999). Furthermore, Tallent-Runnels and associates (2006) report in a recent review that learning outcomes of web-based courses are almost the same as traditional ones; they suggest that we must ascertain learners' goals, needs, and interests in taking a multimedia course for the instructional design.

There are at least three challenging aspects in regard to the understanding of motivation and self-regulated learning in multimedia environments. The first aspect is how to conduct motivational analysis. When we use an information delivery method or design a data collection program, we cannot assume that one way is better than another before we ascertain potential users' preferences. For instance, in a study investigating the data quality of questionnaire administration, Hardré, Crowson, Xie, and Ly (2007) reported that the paper-based group was better than both computer-based and web-based groups, and the outcome of superior data quality was largely due to the factor that users favored the paper-based mode over computer- and web-based modes. Such results indicate that adopting information technology does not necessarily lead to high motivation and it is necessary to include motivational analysis in the design and evaluation of an educational program.

The second challenge is about how to carry out motivational training. As pointed out by Clark (1983, 1994), the potentially unlimited capacity of multimedia instruction does not necessarily facilitate learning without learner's active participation in the entire process. A typical case is the introduction of Web Course Tools (WebCT) to institutions, colleges, and schools during the recent decade. In many such organizations, various measures have been taken to ensure that every student has access to WebCT, including course outlines, lecture notes, quizzes, virtual discussion rooms, review sessions, and audio/video records of lectures (at least in the library or at other on-campus terminals). What would happen next? According to Hoskins and Van Hooff's (2005), only those students already highly-motivated and academically-able benefited from the WebCT facilities provided, such as bulletin board usage. Students with low levels of motivation may not bother to click the hyperlink(s) shown on the course description window, and they may consequently put minimal efforts in their exploratory processes or just engage in superficial web-surfing. Here, an essential issue is how to motivate learners in technology-rich contexts. Simply keeping an online logging record perhaps is not sufficient to stimulate those students who have low motivation to learn by using WebCT. A motivational training program tailored for targeted groups is much needed.

The third challenging aspect is how to maintain motivation. Experienced teachers know very well in their professional practice that students' motivation may fluctuate at different stages of learning. For instance, in a study of computer-based learning, students attending a medical course were initially very enthusiastic; however, their attitudes towards computer-based learning became less positive at the end of the course (Hahne, Benndorf, Frey, & Herzig, 2005). The results also indicate that the learning outcomes were significantly correlated with students' prior knowledge, but the impact of the adoption of computer-based learning on the exam scores was not noticeable. The

implication is that curriculum-driven e-course without proper motivational maintenance may carry a risk of deteriorating students' positive attitude towards computer-based learning and thus may not attain the expected learning outcomes.

The main purpose of this paper is to analyze and discuss the issues associated with motivation and self-regulated learning in multimedia environments from social cognitive perspectives. First, a review will be focused on motivational theories, conceptual models and critical variables that are related to learners' motivation and self-regulation. Then, the paper will evaluate the effectiveness of various applications in promoting task interests, learners' attention, persistence and self-regulated learning. In accordance with research evidence, recommendations will be provided for researchers, teaching professionals and educational policy-makers to explore how to strengthen motivational determinants and establish a benign learning atmosphere in the settings of multimedia education.

Motivational Determinants Associated with Self-Regulated Learning

In the field of learners' motivation and self-regulated learning, researchers have so far examined a number of factors that are closely linked to the learners' choice of tasks, persistence on those tasks, learning goal orientations, self-confidence, and achievement (Wigfield & Eccles, 2000; Zimmerman, 2008). Attempts have been made to integrate various theories and models from social cognitive perspectives. This section focuses on a distinctive array of elements that have significant impact on individual achievement motivation and self-regulated learning, namely, self-concept in specific domains, expectancy, self-efficacy in specific tasks, goal setting, self-determination, initial values, tendency of negative academic procrastination, and learner characteristics. Those variables have their distinctive features but can be integrated into the social cognitive framework (Maddux, 1999; Naylor, Pritchard, & Ilgen, 1980).

Self-concept in Specific Domains

According to Harter (1996), many contemporary concerns about the self are grounded in William James's study. James (1902) noted a distinction that existed between "I" (self-as-know) and "Me" (self-as-known). The "I" was viewed as the subjective self that organized and interpreted one's experiences. In contrast, the "Me" was the objective or empirical self created by the "I" self. It was the "Me" self that was widely studied in the field of psychology and was labeled as "self-concept". James (1902) also suggested a multifaceted, hierarchical nature of self-concept. Since then, theories of self-concept have proliferated.

Shavelson, Hubner, and Stanton (1976) suggested that self-concept was formed by multiple facets and was ranked in a hierarchical structure. It posited a general (global) self-concept at the apex of the structure beneath which were academic and nonacademic self-concepts, each of which was further divided into self-concepts in various areas. The nonacademic branch consists of three facets, namely, social, physical and emotional self-concepts, whereas the academic branch comprises different subject areas such as

Mathematics, Language, Science, History and so on. Findings in this area have revealed that academic self-concepts are domain-specific with a hierarchical, multidimensional structure (Marsh, Byrne, & Shavelson, 1988; Marsh & Shavelson, 1985). For instance, confirmatory factor analysis has identified four distinct English skill-specific self-concept constructs, namely, listening, speaking, reading, and writing, which can be represented by a higher order English self-concept (Lau, Yeung, Jin, & Low, 1999). It has been further discovered that domain-specific self-concepts and their interaction have significant impact on academic achievement in different domains (e.g., Lee, Yeung, Low, & Jin, 2000; Marsh & Yeung, 1997).

As pointed out by Thomas and Gadbois (2007), self-concept includes both self-evaluation and knowledge about oneself, as such it can influence the strategies that students use and the effort that they exert. After the attainment of a passable outcome, persons with high self-concept would expect to succeed more in comparison with those having low self-concept (McFarlin & Blascovich, 1981); this may be due to the social cognitive process that those with low self-concept would experience a risk of disconfirming the favorable outcome that they have already obtained (Baumeister, Tice & Hutton, 1989). Low self-concept clarity is associated with academic self-handicapping and decreased academic achievement (Thomas & Gadbois, 2007). Because of those motivational potentials, the importance of self-concept is often reflected in educational policy statements and a self-concept enhancement program is regarded as one of the central goals in education and child development. Empirical evidence shows that motivational self beliefs are crucial for effective domain-specific self-regulation (Alexander, 1995; Marsh, Hou, Artelt, Baumert, & Peschar, 2006). In short, it is widely recognized that self-concept is an important factor that contributes to educational outcomes and is seen by many psychologists and educationalists as a premium motive for learners' behaviour, attitudes, and aspirations.

Expectancy

Based on Lewin's (1939) psychological field theory, Vroom (1964) proposed expectancy-value theory to depict motivational force. According to this theory, valence, instrumentality, and expectancy (VIE) are the main motivational determinants. Valence is the perceived importance of an outcome; instrumentality refers to the belief that performance will lead to a desired consequence; and expectancy designates the subjective probability of effort that lead to a specific outcome. The VIE theory emphasizes the role of volitional and calculative processes in individual decision-making. It is a rational theory with considerable amount of empirical support, though some researchers have commented that the mental computations may not be so complicated in integrated neural networks (Lord, Hanges, & Godfrey, 2003) and individuals may only use a limited amount of information to reach satisfactory solutions rather than pursuing best solutions (Simon, 1945).

In addition to action-outcome-expectancies (the probability of success) and outcome-consequence-expectancies (instrumentality) that have been widely employed in previous motivation studies, Rheinberg, Vollmeyer and Rollet (2000) have introduced the

construct of situation-outcome-expectancies to the model of self-regulated learning. In the context of multimedia learning, the situation-outcome-expectancies refers to "the assumption that the just given situation will lead to the desired outcome on its own without the need to take any action" (Rheinberg et al., 2000, p.510). According to Astleitner and Hufnagl (2003), the students with low situation-outcome-expectancies were more engaged in active learning than the students with high situation-outcome-expectancies in hypermedia courses. Their explanation is that students with low situation-outcome-expectancies tended to seek support to reach a given goal, whereas students with high situation-outcome-expectancies did not believe that more actions would change learning outcomes. It is evident that expectations have significant impact on engagement in learning.

Self-Efficacy in Specific Tasks

The concept of self-efficacy, developed from social learning theory, represents an individual's perceptions of one's own capabilities in tackling a task to obtain desired outcomes (Bandura, 1977, 1993, 1997). There are two distinctive features in the construct of self-efficacy that differs from self-concept and expectancy, respectively. First, self-efficacy is task-specific and thus related to a unique environment (e.g., a student is required to submit a drama assignment with text and video attachments), whereas self-concept is a relatively general belief about oneself that can be either overall (global self-concept) or in a certain domain (e.g., self-concept in Mathematics). The second distinctive element of the construct of self-efficacy is that the judgment of the behavior focuses on one's capability of performing a specific task regardless of the value attached to the given task (a student feels being able to submit a passable drama assignment but may not deem this task truly valuable), whereas the expectancy-value model includes value variables (e.g., valence - the importance of outcomes resulted from an individual's actions).

Research in a variety of areas (such as work, sports, and self-regulated learning) shows that self-efficacy is one of the best predictors of performance (Bandura, 1993; Burke & Jin, 1996; Klassen, 2007; Pajares, 1996, 1997; Paulsen & Feldman, 2005; Schunk, 1989, 1991; Shores & Shannon, 2007; Souvignier & Mokhlesgerami, 2006). Individuals with low self-efficacy for an achievement task tend to avoid attempting it; those with high self-efficacy would exert great effort and perseverance when encountering difficulties in the execution of an assigned task. In recent years, the rapid development in computer hardware and software has provided unlimited opportunities for multimedia instruction. In line with this advancement, research on self-efficacy has been extended to computer-aided multimedia learning. Researchers (e.g., Murphy, Coover, & Owen, 1989; Zweig & Webster, 2004) have developed and validated computer self-efficacy scales, which are in accordance with the guidelines of assessing self-efficacy for specific tasks (Bandura, 1986). There is growing evidence (e.g., Crippen & Earl, 2007; Joo, Bong, & Choi, 2000; Whipp & Chiarelli, 2004) that self-efficacy plays a key role in web-based learning across different disciplines and different education levels.

Goal-setting

According to a review by Locke & Latham (2002), there appears to be a positive relationship between the levels of goals and performance. In other words, higher goals tend to be associated with higher levels of effort and performance. Moreover, they have reported that setting specific, difficult goals is probably a more productive strategy than just urging individuals to do their best. This is because the do-your-best strategy lacks an external framework of reference, whereas specifically defined, relatively difficult targets can reduce ambiguity in goal-oriented actions. Locke and Latham (2002) have further pointed out that goals with relatively high standards of performance can enhance self-efficacy and raise motivation, if a) timely feedback is provided, and b) individuals have the opportunity to participate in goal-setting. If individuals know how they progress, they can make necessary adjustment in their actions to match what the specific goal requires. In addition, individuals who have participated in the decision making processes of goal-setting tend to feel responsible for the fulfillment of their challenging goals. Based on data gathered from the empirical research, Locke and Latham (2002) have proposed an expanded motivation model to integrate goal-setting and self-efficacy. The model is derived from wider social cognitive perspectives: assigned goal influences both self-efficacy and personal goal; self-efficacy shapes personal goal; and both self-efficacy and personal goal are determinants of performance.

During the recent years, researchers have attempted to identify different types of goal orientations, which are regarded as one of the foundations of learning motivation (DeShon & Gillespie, 2005; Elliot & McGregor, 2001; Lee, Sheldon, & Turban, 2003; Midgley, Kaplan, & Middleton, 2001; Zweig & Webster, 2004). In general, there are four types of goal orientations: learning (mastery) orientation, learning avoidance orientation, performance orientation, and performance avoidance (learned-helplessness) orientation. Among them, the mastery orientation, which is characterized by a desire to increase one's competence by mastering new skills, appears to be conducive to positive learning experiences and outcomes (Bruning, Schraw, Norby, & Ronning, 2004). In contrast, performance orientation, which refers to a desire to merely demonstrate one's competence, has less positive impact on learning; both learning avoidance orientation and performance avoidance orientation have negative impact on achievement. Furthermore, research shows that students having mastery orientation are more likely to be engaged in self-regulated learning (Dembo, 2004; Hagen & Weinstein; 1995; Kolic-Vehovec, Roncevic, & Bajsanski, 2008; Souvignier & Mokhlesgerami, 2006; Wolters, 1998). In multimedia environments, students with mastery orientation when facing failure or difficult situations tend to adopt an adaptive response pattern, which is characterized by using more resources on their tasks, spending more time for problem-solving, and seeking more information to form new strategies (Moos & Azevedo, 2006; Gerjets & Scheiter, 2003; Whipp & Chiarelli, 2004). Furthermore, researchers (Gerjets & Scheiter, 2003; Goldman, 1991) suggest that the cognitive load theory, which examines the effectiveness of instruction and learning (Sweller, 1994; Sweller, van Merriënboer, & Pass, 1998; Yeung, Jin, & Sweller, 1998), can be further developed to investigate how to help learners set up proper and challenging goals that are specific to the task. They

suggest that teacher goals, student goals and appropriate learning strategies should be incorporated into the cognitive load theory.

Self-determination

Self-determination theory, originally proposed by White (1959) and Deci & Ryan (1985), states that there are two types of motivation, extrinsic or intrinsic. Whereas those with strong extrinsic motivation often work or study in order to obtain external rewards, individuals having strong intrinsic motivation often find the major incentives are from doing a job or taking a course just because it is interesting and stimulating. Motivation is conceptualized as a continuum with intrinsic motivation at one end and extrinsic motivation at the other, and individuals may have mixed motivations. According to a number of theorists in this area, intrinsic motivation (e.g., enjoying doing something just because it is challenging) to some extent reflects a basic human need for competence and self-determination (e.g., Deci & Ryan, 1985; Deci, Vallerand, Pelletier & Ryan, 1991; Reeve, Nix, & Hamm, 2003). Due to positive environmental influences and personal learning experience, it is possible for individuals who are initially motivated by external incentives to gradually gain the feelings of competence and thus become internalized with the learning/work tasks and turn to be self-determined for their further actions. More recently, Ryan and Deci (2000) have added another construct, "amotivation", to the theoretical framework of self-determination. Amotivation refers to the state of having no intention to act and it is next to the boundary of extrinsic motivation.

Since the formation of intrinsic and extrinsic motivation is a continuum (Deci & Ryan, 1985; Vandergrift, 2005), under certain circumstances, it is possible for learners to shift from being extrinsically oriented to being intrinsically oriented. For example, some students who do not fully understand the importance of an e-learning course may at first put some effort (e.g., download and read basic course material) and time (log into specific user accounts daily) just enough to obtain a satisfactory grade; during the learning period, those initially extrinsically motivated students may gain more knowledge about the subject, possess better learning skills, and develop a sense of control over this type of learning mode; eventually they may become more self-determined in their learning of the course. The essential factor for facilitating self-determination and maintaining intrinsic motivation, according to Ryan and Deci (2000), is to generate social contextual conditions (such as timely feedback) that are conducive to learners' feelings of competence, effectiveness, autonomy, and relevancy. In this way, the learners' volition can be enhanced (Scheiter & Gerjets, 2007). As pointed out by Deimann and Keller (2006), because there are so many distractions and "seductive" details in multimedia learning environments, educators should consider more applications of self-determination theory in their daily teaching practice.

Initial Values

Recently, Vellmeyer and Rheinberg (2006) have presented a cognitive motivational process model to depict self-regulated learning with different tasks. Their research evidence includes experimental data gathered from a linear system, a

hypermedia program (a 51-page history topic, each page had links to other pages and many pages had hyperlinks to audio/video materiel and text boxes that contained additional content), and university-level classes. This model emphasizes the formation of initial motivation of rich learning under various conditions. This effort is consistent with the revised notion of Law of Initial Value (LIV), which states "within the middle range of in initial state, the higher the initial value the greater the organism's reactivity" (Jin, 1992, p. 182). Research has demonstrated that LIV applied to both physiological and psychological variables (cf. Jin, 1992; Myrtek & Foerster, 1986).

If the initial states of motivation to a certain extent affect subsequent learning preference, efforts and achievements, a question of interest is: how can we foster initial motivation of self-regulated learning? The experiments conducted in this area (e.g., Vellmeyer & Rheinberg, 2006) have provided some clues. First, four factors, namely, probability of success, anxiety (fear of failure), interest, and challenge, were found to be linked to the latent variable initial motivation via hierarchical cluster analysis. They have also identified three patterns of initial learning motivation: a) the high motivation pattern in which learners believed that they would succeed and they were interested, challenged, but not anxious; b) the low motivation pattern indicated by low probability of success, interest, challenge and also low anxiety; and c) the high anxiety pattern in which individuals were anxious and challenged and had low self-ratings of probability of success and interest. Among them, the learners with initially high motivation performed best and those with initially low motivation worst, and in the middle was the highly anxious learners' performance. Thus an important measure of self-regulated learning in multimedia environments is to motivationally and emotionally prepare learners before the commencement of a course.

Tendency of Negative Academic Procrastination

Procrastination is the action or habit to postpone until a later time. In an extremely ambiguous environment or when facing great uncertainty of consequences, individuals may somehow benefit from the option of "wait and see" (i.e., wait until more information comes along and see what would happen in the next phase). Such would-be-positive effects, which could be the outcomes of a functional delay to avoid hasty and unproductive activities (Chu & Choi, 2005), are not within the scope of this article. Rather, the analysis here is focused on the prevailing (and probably epidemic) phenomenon of negative academic procrastination and associated motivational variables. According to Steel (2007), the form of negative procrastination is characterized by the deferment of actions without good reasons. Thus negative academic procrastination can be defined as voluntary delay of certain necessary academic activities (reading assigned material, doing pre-view or revision, completing exercise, conducting literature search or empirical research, writing up an essay or an experiment report, proposing a thesis outline, etc.) despite expecting the detrimental consequences of such delay. A survey by Day, Mensink, and O'Sullivan (2000) has revealed that some degree of procrastination appeared almost universal among university students and about one in three of the respondents regarded themselves as severe, general procrastinators. In addition, research shows that students of typical procrastination patterns spent about one-third of their time

mucking around and engaging a variety of irrelevant, unproductive activities (Pychyl, Lee, Thibodeau, & Blunt, 2000). Overall, there is a negative correlation between tendency of procrastination and performance, and negative procrastination may lead to self-regulated failure (Steel, 2007; Wolters, 2003).

The tendency of academic procrastination has been exacerbated in multimedia environments (Davis, Flett, & Besser, 2002). Students enrolled in multimedia courses have increasing opportunities and means to access distracting activities, such as checking instant messages via Windows Live Mail, (e.g., entering a PC or online game) and non-course material (such as checking instant messages via Windows Live Mail, watching video episodes in YouTube, and listening to MP3 music from iTunes). In general, studies in this area have singled out several motivational factors that are closely associated with negative academic procrastination: lack of self-control and self-discipline, task aversion, oppositional attitude (formerly termed "rebelliousness"), fear of failure, improper attribution, impulsiveness, proneness to boredom, irrational beliefs, and low need for achievement (Davis, Flett, & Besser, 2002; Day, Mensink, and O'Sullivan, 2000; Pychyl, Lee, Thibodeau, & Blunt, 2000; Steel, 2007). According to Deimann and Keller (2006), learners' volition needs to be enhanced to deal with common problems like being lost in hyperspace, facing overwhelming cognitive load, and encountering "seducing" information in multimedia environments. Individual differences should be scrutinized to ensure that interventions can pinpoint particular motivational determinants in multimedia learning.

Learner Characteristics

Extensive reviews suggest that learner characteristics should be considered in multimedia learning and teaching (Bernard et al., 2004; Tallent-Runnels et al., 2006). For example, some individuals are visual learners while others tend to be verbal learners (Mayer & Massa, 2003). These two types of learners are different in specific information process ability, cognitive style, and learning preference. Therefore, instruction and course design should provide appropriate avenues and options to match the needs and preferences of different types of learners. According to a recent study, when implementing an interactive multimedia program of Mathematics, processes that were consistent with individual learning styles were conducive to high learning motivation and positive learning experiences (Shiong, Aris, Ahmad, Ali, Harun, & Zaidatun, 2008).

There are some other learner characteristics that may affect motivation, such as technological acceptance (Narciss, Proske, & Koerndle, 2007; Palaigeorgiou, Siozos, Konstantakis & Tsoukalas, 2005; Saadé, Nebebe & Tan, 2007), motivation loss (Miceli & Castelfranchi, 2000), expertise (Yeung et al., 1998), and special traits (Judge, Jackson, Shaw, Scott, & Rich, 2007). For example, in a study of reading comprehension with various instructional aids, learners with certain expertise tended to be less motivated to use explanatory notes than beginners (Yeung et al., 1998). According to a meta-analytic review on the relations between the personality and performance motivation conducted by Judge and Illies (2002), the Big-Five traits are an important source of performance motivation. Neuroticism (the tendency to show poor emotional adjustment in the form of

stress, anxiety, and depression) and Conscientiousness (the tendency to be achievement-oriented and dependable) appear to be correlated with performance motivation. However, the impact of the other three personality traits, namely, Extraversion (the tendency to be sociable, dominant, and positive), Openness to Experience (the tendency to be creative, flexible curious, and unconventional), and Agreeableness (the tendency to be kind, gentle, trusting and trustworthy, and warm) on achievement motivation has not be clearly identified and further examination is needed.

Applying Motivational Strategies to Education Practices

Although studies and course designs in the area of multimedia learning have concentrated on cognitive variables and information processes, more and more researchers, instructors and educational administrators are investigating motivational issues and working on motivation enhancement programs. In general, efforts have been exerted in the aspects of motivational analysis, training, and maintenance. It should be noted that it is more economical and effective to have those measures built in daily teaching and learning practices.

Motivational Analysis

In educational settings, course evaluations, including some motivational indicators (e.g. "The course has stimulated my interests in this particular area"), are often carried out at the end of corresponding course sessions. A summary of learners' experiences after their course completion can provide useful feedback to course conveners for future improvement. On the other hand, motivational analyses before and during the course sessions are at least equally important and should be recommended so that current learners can benefit from motivational approaches. There are three types of resources available for motivational analysis. First, resources for motivational analysis can be drawn from well-established conceptual framework of social cognitive theories and models. For example, Bandura's (1986) seminal work has offered general guidelines and detailed steps to examine self-efficacy and task motivation. Likewise, Locke and Latham (2002) and other researchers (e.g., Midgley, Kaplan, & Middleton, 2001) have provided an evidence-based frame of references for assessing learners' goal structure and orientations. Decades of studies on VIE theory have given solid foundations to measure constructs of expectancies and values (e.g., Lord, Hanges, & Godfrey, 2003; Van Earde & Thierry; 1996; Vroom, 1964; Wigfield & Eccles, 2000). Extensive research of self-determination can provide support for the construction of instruments measuring intrinsic versus extrinsic motivations (Deci & Ryan, 1985; Deci, Vallerand, Pelletier & Ryan, 1991; Reeve, Nix, & Hamm, 2003; Ryan and Deci, 2000).

The second type of resources for motivational analysis is from more education-oriented studies, especially in the field of self-regulated learning (Pintrich, 2000; Pintrich, & Schunk, 2002). For instance, in the Motivated Strategies for Learning Questionnaire (MSLQ) developed and validated by Pintrich, Smith, Garcia, and McKeachie (1991, 1993), there is a motivation section consisting of three types of scales: Valuing, Expectancy, and Affect. The Valuing scales include intrinsic-extrinsic goal orientation

and task value; the Expectancy scales comprise self-efficacy and control of learning; and the Affect scales measure test anxiety. Such a type of systematic examination of learners' motivation is often part of a large-scale enquiry (e.g., Weinstein, Schulte, & Palmer, 1987), which can provide comprehensive information to reflect the multifaceted nature of learning processes. If subject issues are of special interest, instruments like domain-specific self-concept inventories can be adopted (e.g., Lau et al., 1999; Lee et al., 2000; Marsh & Yeung, 1997). It should be noted that survey is not the only means for motivational analysis. As suggested by Zimmerman (2008), other effective methodologies, such as semi-structured interview, requesting learners to keep a learning-related diary, self-talk, and tracing individual log-files in e-learning, where appropriate, can be employed to reveal underlying cognitive and motivational mechanisms and verify the results obtained from learning and motivation questionnaires.

The third type of rich resources for motivational analysis is directly derived from multimedia learning studies. For instance, Song and Keller (2001) conducted a motivational analysis of attention, relevance, and confidence in biology classes using computer-assisted instruction (CAI) and classified students as motivationally adaptive, motivationally saturated, or motivationally minimized. In addition, specific computer self-efficacy and attitude scales have been constructed and used in e-learning settings (e.g., Murphy, Coover, & Owen, 1989; Palaigeorgiou, Siozos, Konstantakis, & Tsoukalas, 2005; Zweig & Webster, 2004). Instruments for internet dependency, diminished impulse control and problematic use are available (Davis, Flett, & Besser, 2002). In the WebCT environment, the adapted Approaches to Studying Inventory (ASI), Instructional Motivation Survey (IMMS) and selected group interviews have been administered to examine students' motivational perceptions, study orientations and attitudes towards online multimedia learning (Entwistle, & Ramsden, 1983; Gao & Lehman, 2003; Hoskins & Van Hooff, 2005; Keller & Suzuki, 2004). To investigate students' motivations of using a CD-ROM for multimedia materiel, goal structure questionnaire has been developed (Greene, Dillon, & Crynes, 2003; Hardré et al., 2007). In an attempt to integrate motivational perspectives and instructional designs in complex e-learning environments, Paas, Tuovinen, Van Merriënboer, and Darabi (2005) have proposed a task involvement index to depict the relation between mental effort and performance.

Motivational Training

Motivational training, in principle, involves cognitive restructuring and priority repositioning (de Jong-Meyer, 2004). The motivational training procedures in educational settings are usually derived from the framework of evidence-based motivational theories and models; and the effectiveness can be checked by using motivational indicators from well-established instruments in a pre-training versus post-training design (Alonso-Tapia & Pardo, 2006; Bereby-Meyer, & Kaplan, 2005; Garcia-Sanchez & de Caso-Fuertes, 2005; Postareff, Lindblom-Ylanne, & Nevgi, 2007; Schober & Ziegler, 2002; Thomas, 1987; Wolters & Daugherty, 2007). Most motivational training programs have adopted social cognitive approaches that emphasize on changing self-efficacy, restructuring personal belief systems, and choosing and pursuing personal goals. However, as pointed out by experts in this area (e.g., Alonso-Tapia & Pardo, 2006; Newman, 1998; Schober

and Ziegler, 2002), the outcomes of motivational training are often mediated by person-environment interactions. For example, in a school climate that is dominated by performance-oriented goal approaches, efforts to promote mastery-oriented motivation may receive considerable resistance.

Another aspect of motivational training that needs to be taken into account is the budgetary factors. Motivational training may require resources and time in addition to daily teaching and learning activities. Such training can be costly and may clash with routine educational undertakings in terms of timetabling. One way to arrange motivational training more efficiently is to integrate motivation workshops into the schedule of yearly orientation or program introduction. Furthermore such as checking instant messages via Windows Live Mail, attempts have been made to examine the potential of online collaborative environments for the practice and promotion of self-regulated learning (e.g., Dettori, Gianneti, & Persico, 2006). Through facilitating the mediation between individual autonomy and group collaboration, trainees have learned how to keep up their motivation and restore positive attitudes to learning activities. Further exploration in this direction is warranted.

Motivational Maintenance

In the area of instruction and learning using multimedia and hypermedia technology, the attention, relevance, confidence, and satisfaction (ARCS) model is an innovative approach to organizing course content in accordance with motivational principles (Keller, 1987; Keller & Suzuki, 2004; Song & Keller, 2001). Four essential conditions have been identified for the learner's high motivation: (1) a lesson must attract and sustain the learner's *attention*, which is supported by research on curiosity, arousal, and boredom; (2) the material and instructional design must build *relevance*, which is derived from the framework of intrinsic motivation and competence as highlighted in self-determination theory; (3) the entire process should enhance learners' *confidence*, which is based on research of self-efficacy and attribution; and (4) the delivery must ensure learners' *satisfaction*, which is in line with reinforcement theory and equity theory. In other words, the ARCS model is a systematic design process to include motivational elements in instructional design and delivery. The model and its simplified versions have been validated in various learning contexts and cultural settings (e.g., Astleitner & Hufnagl, 2003; Gao & Lehman, 2003; Keller & Suzuki, 2004; Means, Jonassen & Dwyer, 1997; Small & Gluck, 1994; Song & Keller, 2001; Visser & Keller, 1990). For instance, the ARCS model can be employed to facilitate motivationally adaptive computer-assisted instruction (Song & Keller, 2001) and proactive learning conditions in WebCT settings (Gao & Lehman, 2003). According to Song and Keller (2001), this optimal learning environment can a) provide appropriate motivational stimulations (e.g., "use inverse and flash in text and patterns in pictures as attention getters", p. 12) to those learners who are bored, and b) eliminate excessive motivational features to other learners who are already motivated and thus may find additional stimulations unnecessary and distracting.

As discussed earlier, self-regulation plays an important role in multimedia learning, especially in Web-based courses. According to Pintrich's (2004) conceptual

framework for assessing learning motivation, after the initial phase of goal-setting, the subsequent monitoring, controlling, and regulating phases must be properly handled. An innovative method, though still at the developing stage, is to use online measures of learners' motivational states (e.g., changes in goal orientation or feelings of novelty) and related responses (e.g., the exact time spent for active online learning or the scope and depth of course information accessed) for optimized instructional adjustments (Winne & Jamieson-Noel, 2002; Winne et al., 2006; Zimmerman, 2008). Such feedback, together with information collected in other effective ways, can provide concrete foundations and timely justifications for further motivational interventions. Formation of specific policies, guidelines and prototypes for the proper online collection and statistical usage of learners' psychological and behavioral information should be on our agenda.

Conclusion

In the era of mass education that emphasizes student-centered learning and multimode delivery, the technology-rich, multimedia environments present challenges as well as opportunities for professionals in education. While great efforts have been exerted in the understanding of cognitive principles associated with knowledge acquisition and problem solving, researchers and practitioners interested in motivational issues have made considerable progress during recent years. From social cognitive perspectives, we need to pay more attention to motivational determinants that are particularly relevant to multimedia learning: self-concept in specific domains, expectancy and value, self-efficacy in specific tasks, goal setting and goal orientation, intrinsic and extrinsic incentives, initial states, tendency of negative academic procrastination, and learner characteristics. On the whole, motivational studies provide a multifaceted conceptual framework for instructional design, course delivery, motivational analysis, motivational training, motivational maintenance, and related educational administration (such as online course evaluations). Attempts have been made to integrate motivational elements into learning programs in which students are not only learning meta-cognitive skills and domain-specific knowledge, but also engaging in activities of applying motivational-enhancement strategies to become learners with self-regulation competence. In this way, multimedia technologies, rather than just being a new type of information carrier like the television that was popularly spread several decades ago, can be effectively used as powerful "motivators" to the rapidly increasing learners.

References

Alexander, P. A. (1995). Superimposing a situation-specific and domain-specific perspective on an account of self-regulated learning. *Educational Psychologist*, *30*, 189-193.

Alonso-Tapia, J., & Pardo, A. (2006). Assessment of learning environment motivational quality from the point of view of secondary and high school learners. *Learning and Instruction*, *16*, 295-309.

Astleitner, H., & Hufnagl, M. (2003). The effects of situation-outcome-expectancies and of ARCS-strategies on self-regulated learning with web-lectures. *Journal of Educational Multimedia and Hypermedia, 12*, 361-376.

Astleitner, H., & Wiesner, C. (2004). An integrated model of multimedia learning and motivation. *Journal of Educational Multimedia and Hypermedia, 13,* 3-21.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review, 84*, 191-215.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*, 117-148.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Plenum.

Baumeister, R. F., Tice, D. M., & Hutton, D. G. (1989). Presentational motivations and personality differences in self-esteem. *Journal of Personality*, *57*, 547-579.

Bereby-Meyer, Y., & Kaplan, A. (2005). Motivational influences on transfer of problem-solving strategies. *Contemporary Educational Psychology*, *30*, 1-22.

Bernard, R. M., Abrami, C., Lou, Y., Borokhovski, E., Wade, A., Wozney, L., Wallet, P. A., Fiset, M., & Huang, B. (2004). How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research, 74,* 379-439.

Bruning, R. H., Schraw, G. J., Norby, M. M., & Ronning, R. R. (2004). *Cognitive Psychology and Instruction.* (*4th* ed.). Upper Saddle River, NJ: Merrill.

Burke, S., and Jin, P. (1996). Predicting performance from a triathlon event. *Journal of Sport Behavior, 19,* 272-287.

Chu, A. H. C., & Choi, J. N. (2005). Rethinking procrastination: Positive effects of "active" procrastination behavior on attitudes and performance. *Journal of Social Psychology*, *14*, 245-264.

Clark, R. E. (1983). Reconsidering research on learning from media. *Review of Educational Research, 53*, 445-459.

Clark, R. E. (1994). Media and method. *Educational Technology, Research and Development, 42*, 7-10.

Clark, R. E., & Feldon, D. F. (2005). Five common but questionable principles of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 97-115). New York: Cambridge University Press.

Crippen, K. J., & Earl, B. L. (2007). The impact of web-based worked examples and self-explanation on performance, problem solving, and self-efficacy. *Computers and Education, 49*, 809-821.

Davis, R. A., Flett, G. L., & Besser, A. (2002). Validation of a new scale for measuring problematic Internet use: Implications for pre-employment screening. *Cyberpsychology and Behavior*, *5*, 331-345.

Day, V, Mensink, D., & O'Sullivan, M. (2000). Patterns of academic procrastination. *Journal of College Reading and Learning, 30, 120-134.*

de Jong-Meyer, R. (2004). Systematic motivational analysis as part of a self-help technique aimed at personal goal attainment. In W. M. Cox & E. Klingcr (Eds.), *Handbook of motivational counseling: Concepts, approaches, and assessment* (pp. 259-281). New York: Wiley.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour.* New York: Plenum.

Deci, E. L., Vallerand, R. J., Pelletier, L. C., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. *Educational Psychologist, 26*, 325-346.

Deimann, M., & Keller, J. M. (2006). Volitional aspects of multimedia learning. *Journal of Educational Multimedia and Hypermedia, 15*, 137-158.

Dembo, M. H. (2004). Don't lose sight of the students. *Principal Leadership*, *4*, 37-42.

DeShon, R. P., & Gillespie, J. Z. (2005). A motivated action theory account of goal orientation. *Journal of Applied Psychology, 90,* 1096-1127.

Dettori, G., Gianneti, T., & Persico, D. (2006). SRL in online cooperative learning: Implications for pre-service teacher training. *European Journal of Education*, *41*, 397-414.

Elliot, A. J., & McGregor, H. (2001). A 2 x 2 achievement goal framework. *Journal of Personality and Social Psychology, 80,* 501-519.

Entwistle, N. J., & Ramsden, P. (1983). *Understanding student learning*. Sydney: Croom Helm.

Gao, T., & Lehman, J. D. (2003). The effects of different levels of interaction on the achievement and motivation perceptions of college students in a web-based learning environment. *Journal of Interactive Learning Research, 14*, 367-386.

Garcia-Sanchez, J., & de Caso-Fuertes, A. (2005). Comparison of the effects on writing attitudes and writing self-efficacy of three different training programs in students with learning disabilities. *International Journal of Educational Research*, *43*, 272-289.

Gerjets, P., & Scheiter, K. (2003). Goal configurations and processing strategies as moderators between instructional design and cognitive load: Evidence from hypertext-based instruction. *Educational Psychologist, 38*, 33-41.

Goldman, S. R. (1991). On the derivation of instructional applications from cognitive theories: Commentary on Chandler and Sweller. *Cognition and Instruction*, *8*, 333-342.

Greene, B. A., Dillon, C., & Crynes, B. (2003). Distributive learning in introductory chemical engineering: University students' learning, motivation, and attitudes using a CD-ROM. *Journal of Educational Computing Research*, *29*, 189-207.

Hagen, A. S., & Weinstein, C. L. (1995). Achievement goals, self-regulated learning, and the role of classroom context. *New Directions for Teaching and Learning*, *63*, 43-55.

Hahne, A. K., Benndorf, R., Frey, P., & Herzig, S. (2005). Attitude towards computer-based learning: determinants as revealed by a controlled interventional study. *Medical Education, 39,* 935-943.

Hardré, P. L., Crowson, M., Xie, K., & Ly, C. (2007). Testing differential effects of computer-based web-based and paper-based administration of questionnaire research instruments. *British Journal of Educational Technology, 38*(1), 5-22.

Harter, S. (1996). Historical roots of contemporary issues involving self-concept. In B. A. Bracken (Ed.), *Handbook of self-concept: Developmental, social and clinical considerations* (pp.1-37). New York: Wiley.

Hoskins, S. L., & Van Hooff, J. C. (2005). Motivation and ability: which students use online learning and what influence does it have on their achievement? *British Journal of Educational Technology, 36,* 171-192.

James, W. (1902). *The principle of psychology*. New York: Holt.

Jin, P. (1992). Toward a reconceptualization of the law of initial value. *Psychological Bulletin, 111*, 176-184.

Joo, Y., Bong, M., & Choi, H. (2000). Self-efficacy for self-regulated learning, academic self-efficacy, and internet self-efficacy in web-based instruction. *Educational Technology Research and Development*, *48*, 5-17.

Judge, T. A., & Ilies, R. (2002). Relationship of personality to performance motivation: A meta-analytic review. *Journal of Applied Psychology*, *87*, 797-807.

Judge, T. A., Jackson, C. L., Shaw, J. C., Scott, B. A., & Rich, B. L. (2007). Self-efficacy and work-related performance: The integral role of individual differences. *Journal of Applied Psychology, 92,* 107-127.

Keller, J. M. (1987). Motivational design and multimedia: Beyond the novelty effect. *Strategic Human Resource Development Review, 1*, 188-203.

Keller. J. M., & Suzuki, K. (2004). Learner motivation and e-learning design: A multinationally validated process. *Journal of Educational Media, 29,* 229-239.

Klassen, R. M. (2007). Using predictions to learn about the self-efficacy of early adolescents. *Contemporary Educational Psychology*, *32*, 173-187.

Kolic-Vehovec, S., Roncevic, B., & Bajsanski, I. (2008). Motivational components of self-regulated learning and reading strategy use in university students: The role of goal orientation patterns. *Learning and Individual Differences*, *18*, 108-113.

Lau, I. C. Y., Yeung, A. S., Jin, P., & Low, R. (1999). Toward a hierarchical, multidimensional English self-concept. *Journal of Educational Psychology, 91*, 747-755.

Lee, F., Yeung, A., Jin, P., & Low, R. (2000). Academic self-concept of talented students: Factor structure and applicability of the internal/external frame of reference model. *Journal for the Education of the Gifted*, *23, 343-367*.

Lee, F. K., Sheldon, K. M., & Turban, D. B. (2003). Personality and the goal-striving process: The influence of achievement goal patterns, goal level, and mental focus on performance and enjoyment. *Journal of Applied Psychology, 88*, 256-265.

Lewin, K. (1939). Field Theory and Experiment in Social Psychology: Concepts and Methods. *The American Journal of Sociology*, *44*, 868-896.

Locke, E. A. & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57,* 705-717.

Lord, R. G., Hanges, P. J., & Godfrey, E. G. (2003). Integrating neural networks into decision-making and motivational theory: Rethinking VIE theory. *Canadian Psychology*, *44*, 21-38.

Low, R., & Sweller, J. (2005). The modality principle in multimedia learning. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 147-158). New York: Cambridge University Press.

Maddux, J. E. (1999). Expectancies and the social-cognitive perspective: Basic principles, processes, and variables. In I. Kirsch (Ed.), *How expectancies shape experience* (pp. 17-39). Washington, D. C.: American Psychological Association.

Marsh, H. W., Byrne, B. M, & Shavelson, R. J. (1988). A multifaceted academic self-concept: Its hierarchical structure and its relation to academic achievement. *Journal of Educational Psychology, 80,* 366-380.

Marsh, H. W., Hou, K., Artelt, C., Baumert, J., & Peschar, J. L. (2006). OECD's brief self-report measure of educational psychology's most useful affective constructs: Cross-cultural, psychometric comparisons access 25 countries. *International Journal of Testing, 6,* 311-360.

Marsh, H. W., & Shavelson, R. J. (1985). Self-concept: Its multifaceted hierarchical structure. *Educational Psychologist, 20,* 107-125.

Marsh, H. W., & Yeung, A. S. (1997). Coursework selection: Relations to academic self-concept and achievement. *American Educational Research Journal, 34,* 691-720.

Mayer, R. E. (2005). Cognitive theory of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 31-48). New York: Cambridge University Press.

Mayer, R. E., & Massa, L. J. (2003). three facets of visual and verbal learners: Cognitive ability, cognitive style, and learning preference. *Journal of Educational Psychology, 95*(4), 833-846.

McFarlin, D. B., & Blascovich, J. (1981). Effects of self-esteem and performance feedback on future affective preferences and cognitive expectations. *Journal of Personality and Social Psychology, 40,* 521-531.

Means, T. B., Jonassen, D. H. & Dwyer, R. M. (1997). Enhancing relevance: embedded ARCS strategies vs. purpose. *Educational Technology Research and Development, 45*(1), 5-18.

Miceli, M., & Castelfranchi, C. (2000). Nature and mechanisms of loss of motivation. *Review of General Psychology, 4(3)*, 238-263.

Midgley, C., Kaplan, A., & Middleton, M. (2001). Performance-approach goals: Good for what, for whom, under what circumstances, and at what cost? *Journal of Educational Psychology, 93*, 77-86.

Moos, D. C., & Azevedo, R. (2006). The role of goal structure in undergraduates' use of self-regulatory processes in too hypermedia learning tasks. *Journal of Educational Multimedia and Hypermedia*, *15*, 49-86.

Murphy, C. A., Coover, D., & Owen, S. V. (1989). Development and validation of the computer self-efficacy scale. *Educational and Psychological Measurement, 49*, 893-899.

Myrtek, M., & Foerster, F. (1986). The law of initial value: A rare exception. *Biological Psychology*, *22*, 227-237.

Narciss, S., Proske, A., & Koerndle, H. (2007). Promoting self-regulated learning in web-based learning environments. *Computers in Human Behavior, 23,* 1126-1144.

Naylor, J. C., Pritchard, R. D., & Ilgen, D. R. (1980). *A theory of behavior in organizations*. New York: Academic Press.

Newman, R. S. (1998). Students' help seeking during problem solving: Influences of personal and contextual achievement goals. *Journal of Educational Psychology*, *90*, 644-658.

Paas, F., Tuovinen, J. E., Van Merriënboer, J., & Darabi, A. A. (2005). A motivational perspective on the relation between mental effort and performance: Optimizing learner involvement in instruction. *Educational Technology, Research and Development, 53,* 25-34.

Pajares, F. (1996). Self-efficacy beliefs in achievement settings. *Review of Educational Research, 66*, 543-578.

Pajares, F. (1997). Current directions in self-efficacy research. In M. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 10, pp. 1-49). Greenwich, C. T.: JAI Press.

Palaigeorgiou, G. E., Siozos, P. D., Konstantakis, N. I., & Tsoukalas, I. A. (2005). A computer attitude scale for computer science freshmen and its educational implications. *Journal of Computer Assisted Learning, 21,* 330-342.

Paulsen, M. B., & Feldman, K. A. (2005). The conditional and interaction effects of epistemological beliefs on the self-regulated learning of college students: Motivational strategies. *Research in Higher Education*, *46*, 731-768.

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M.Boekaerts, P.R. Pintrich & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 451-502). Mawah, NJ: Lawrence Erlbaum.

Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review, 16*, 385-407.

Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education: Theory, research and applications (2nd ed.)*. Upper Saddle River, NJ: Merrill/Prentice Hall.

Pintrich, P. R., Smith, D., Garcia, T., & McKeachie, W. (1991). *A Manual for the Use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. Ann Arbor, MI: The University of Michigan.

Pintrich, P. R., Smith, D., Garcia, T., & McKeachie, W. (1993). Predictive validity and reliability of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational Psychological Measurement*, *53*, 801-813.

Postareff, L., Lindblom-Ylanne, S., & Nevgi, A. (2007). The effect of pedagogical training on teaching in higher education. *Teaching and Teacher Education*, *23*, 557-571.

Pychyl, T. A., Lee, J. M., Thibodeau, R., & Blunt, A. (2000). Five days of emotion: An experience sampling study of undergraduate student procrastination. *Journal of Social Behavior and Personality*, *15*, 239-254.

Reeve, J., Nix, G., & Hamm, D. (2003). Testing models of the experience of self-determination in intrinsic motivation and the conundrum of choice. *Journal of Educational Psychology, 95,* 375-392.

Rheinberg, F., Vollmeyer, R., & Rollet, W. (2000) Motivation and action in self-regulated learning. In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.), *Handbook of Self-regulation* (pp. 503-529). San Diego, CA: Academic Press.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67.

Saadé, R. G., Nebebe, F., & Tan, W. (2007). Viability of the "Technology Acceptance Model" in multimedia learning environments: A comparative study. *Interdisciplinary Journal of Knowledge and Learning Objects, 3,* 175-183.

Scheiter, K., & Gerjets, P. (2007). Learner control in hypermedia environments. *Educational Psychology Review, 19*, 285-307.

Schober, B., & Ziegler, A. (2002). Theoretical levels in the evaluation of motivational trainings. *European Journal of Psychological Assessment, 18*, 204-213.

Schunk, D. H. (1989). Self-efficacy and cognitive skill learning. In C. Ames & R. Ames (Eds.), *Research in motivation in education. Vol. 3: Goals and cognitions* (pp. 13-44). San Diego: Academic Press.

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist, 26*, 207-231.

Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research, 46,* 407-441.

Shiong, K. B., Aris, B., Ahmad, M. H., Ali, M. B., Harun, J., & Zaidatun, T. (2008). Learning "Goal Programming" using an interactive multimedia courseware: Design factors and students' preferences. *Journal of Educational Multimedia and Hypermedia, 17*, 59-79.

Shores, M. L., & Shannon, D. M. (2007). The effects of self-regulation, motivation, anxiety, and attributions on mathematics achievement for fifth and sixth grade students. *School Science and Mathematics*, *107*, 225.

Simon, H. A. (1945). *Administrative behavior: A study of decision-making process in administrative organization*. New York: Free Press.

Small, R. V., & Gluck, M. (1994). The relationship of motivational conditions to effective instructional attributes: A magnitude scaling approach. *Educational Technology, 34*, 33-40.

Song, S. H., & Keller, J. M. (2001), Effectiveness of motivationally adaptive computer-assisted instruction on the dynamic aspects of motivation. *Educational Technology, Research & Development, 49,* 5-22.

Souvignier, E., & Mokhlesgerami, J. (2006). Using self-regulation as a framework for implementing strategy instruction to foster reading comprehension. *Learning and Instruction*, *16*, 57-71.

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin, 133,* 65-94.

Svinicki, M. (1999). New directions in learning and motivation. *New Directions for Teaching and Learning, 80*, 5-27. San Franciso: Jossey-Bass.

Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*, 295-312.

Sweller, J., van Merriënboer, J. J. G., & Pass, F. G. W. C. (1998). Cognitive architecture and instructional design. *Educational Psychology Review,10*, 251-296.

Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., & Liu, X. (2006). Teaching courses online: A review of the research. *Review of Educational Research, 76,* 93-135.

Thomas, C. R. (1987). The "Yagottawanna" Group: Improving student self-perceptions through motivational teaching of study skills. *School Counselor*, *35*, 134-172.

Thomas, C. R., & Gadbois, S. A. (2007). Academic self-handicapping: The role of self-concept clarity and students' learning strategies. *British Journal of Educational Psychology*, *77*, 101-119.

Van Earde, W., & Thierry, H. (1996). Vroom's expectancy models and work-related criteria: A meta-analysis. *Journal of Applied Psychology, 81,* 575-586.

Vandergrift, L. (2005). Relationship among motivation orientations, metacognitive awareness and proficiency in L2 listening. *Applied Linguistics*, *26*, 70-89.

Visser, J. & Keller, J. M. (1990). The clinical use of motivational messages: An inquiry into the validity of the Arcs model of motivational design. *Instructional Science, 19*, 467-500.

Vollmeyer, R., & Reinberg, F. (2006). Motivational effects on self-regulated learning with different tasks. *Educational Psychology Review, 18,* 239-253.

Vroom, V. H. (1964). *Work and Motivation*. New York: Wiley.

Weinstein, C. E., Schulte, A. C., & Palmer, D. R. (1987). *LASSI: Learning and Study Strategies Inventory*. Clearwater, FL: H. & H.

White, R. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, *66*, 297-333.

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation, *Contemporary Educational Psychology, 25*, 68-81.

Whipp, J. L., Chiarelli, S. (2004). Self-regulation in a web-based course: A case study. *Educational Technology Research and Development*, *52*, 5-22.

Winne, P. H., & Jamieson-Noel, D. (2002). Exploring students' calibration of self-reports about study tactics and achievement. *Contemporary Educational Psychology*, *27*, 551-572.

Winne, P. H., Nesbit, J. C., Kumar, V., Hadwin, A. F., Lajoie, S. P., Azevedo, R. et al. (2006). Supporting self-regulated learning with gStudy software: The learning kit project. *Technology, Instruction, Cognition and Learning*, *3*, 105-113.

Wolters, C. A. (1998). Self-regulated learning and college students' regulation of motivation. *Journal Educational Psychology*, *90*, 224-235.

Wolters, C. A. (2003). Understanding procrastination from a self-regulated learning perspective. *Journal of Educational Psychology, 95,* 179-187.

Wolters, C. A., & Daugherty, S. G. (2007). Goal structures and teachers' sense of efficacy: Their relation and association to teaching experience and academic level. *Journal of Educational Psychology*, *99*, 181-193.

Yeung, A. S., Jin, P., & Sweller, J. (1998). Cognitive load and learner expertise: Split-attention and redundancy effects in reading with explanatory notes. *Contemporary Educational Psychology, 23*, 1-21.

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological development, and future prospects. *American Educational Research Journal*, *45*, 166-183.

Zweig, D. & Webster, J. (2004). Validation of multidimensional measure of goal orientation. *Canadian Journal of Behavioral Science, 36,* 232-243.

Education Policy, Reform, and School Innovations in the Asia-Pacific Region

PART V:

TEACHER EDUCATION AND PROFESSIONAL GROWTH

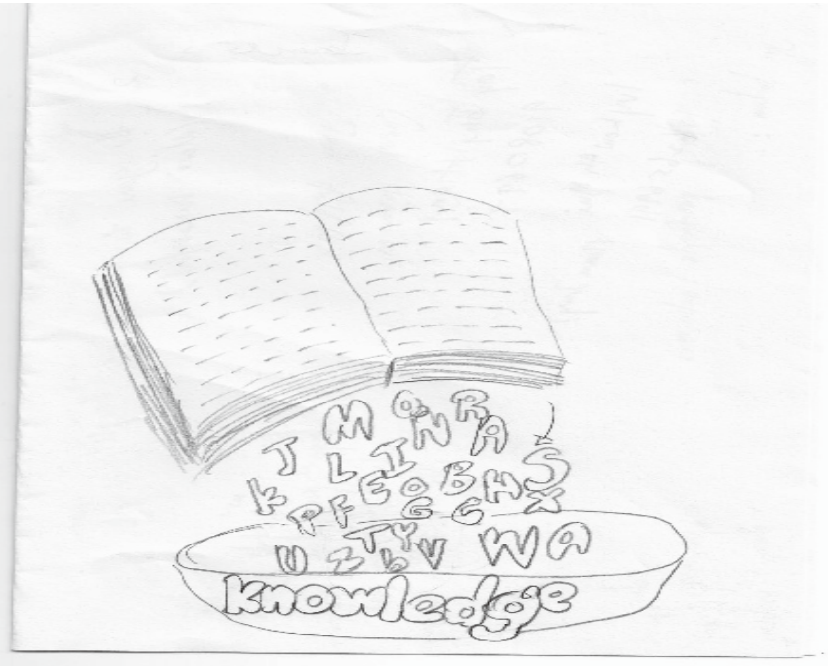
Changing Teacher Images: Work in Progress

Christine Chen
Association for Early Childhood Educators (AECES), Singapore

Introduction

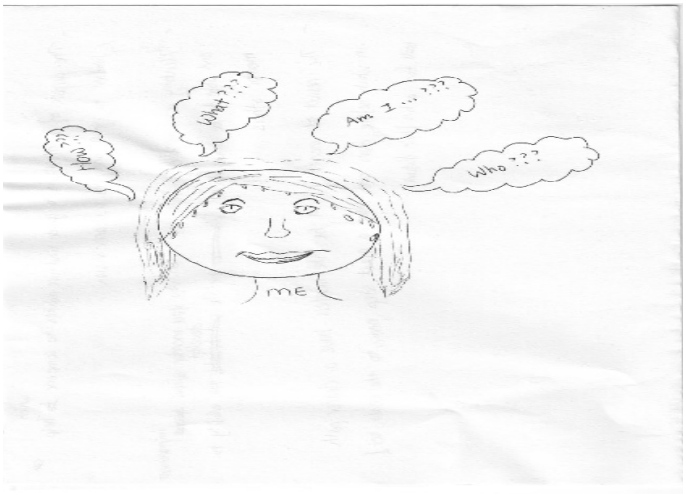
Many researchers (Glickman & Bay, 1990; McIntyre, Bryd & Fox, 1996 and Segall, 2002) have written about the importance of student practicum as the most valuable aspect of teacher education. However, according to Bennett, Katz and Beneke (2005) student teachers cited the need for better field experience. So, how could we improve the practicum experience for our student teachers? What images do we need to change? It is the author's belief that the terms *supervision* and *supervisor* conjure negative images and emotions. Reitzug (1997) summarizes the images described in supervisory textbooks that "portray teachers as mindless and voiceless individuals who should respond robotically to supervisor's commands" (p. 29). In Singapore, it is quite a common practice for practicum supervisors to ask students to submit their lesson plans for correction and improvement before they get implemented during the supervisory visit. As such, images of helplessness and the "empty vessel" have been documented in teachers' drawings of their self-image. The following images emerged from the mentoring workshop conducted in July, 2007. Figure 1 reinforces Reitzug's (1997) teacher image of "mindless and voiceless individuals" which is akin to an "empty vessel" receiving words of wisdom from the supervisor who is being represented by an open book filling up the vessel with knowledge.

Figure 1: Teacher's Image of Mindless and Voiceless Individuals



The following Figure 2 depicts the teacher's apprehensions and self-doubt. The teacher draws herself with beads of perspiration streaming down from her hair-line and waiting in anticipation of her supervisor's arrival.

Figure 2: Teacher's Apprehensions and Self-doubt



How can these disempowering images be changed? Gimbert and Nolan (2003) reported the change in designation of the "university supervisor" to "professional development associate" (PDA) with the intention of helping stakeholders recognize that the PDA plays a different role from that played by former student teaching supervisors. For the same reason, the author coined the term Practicum Mentor to replace Practicum Supervisor in the teacher education program of the Association for Early Childhood Educators, (Singapore) - AECES to evoke a more positive image.

Changing teacher images has been a learning journey for the author and since teacher images like the ones illustrated above arise from teacher education practices in Singapore, this article starts with describing preschool teacher education in Singapore, followed by the birth of the Association, the strategic plan of preparing practicum mentors studying the mentoring relationship to inform practice; and ends with the implications for practice and re-visiting the strategic plan.

Pre-school Teacher Education in Singapore

Pre-school Teacher Education at the basic level was first undertaken by the Adult Education Board for teachers working with young children in various community and private settings, but "there was no systematic training of teachers until 1969" (Sharpe, 2000, p. 126). In 1977, the then Teachers' Training College which today is National Institute of Education, took over the responsibility for this basic training.

In 1988, the Child Care Centers Act and Child Care Centers Regulations required all child care centers to have trained teachers for licensing purposes. Nationally accredited courses were developed for child care teachers and center supervisors. There were three levels of training; the basic course of 120 hours, the intermediate course of

210 hours and the advanced course or the preschool management and administration course of 150 hours (Sharpe, 2000).

Since 2000, the Ministry of Education (MOE) and the Ministry of Community Development, Youth and Sports (MCYS) have put in place measures to help improve pre-school education by:

- raising the minimum professional qualifications of pre-school teachers and principals/supervisors; and

- introducing an accreditation framework for pre-school teacher training agencies with the setting-up of the MOE-MCYS Preschool Qualification Accreditation Committee (PQAC).

The PQAC also introduced the framework required for the Certificate in Preschool Teaching (470 hours) and the Diploma in Preschool Teaching (700 hours) for teachers. For the leaders, PQAC introduced the Diploma in Preschool Leadership (500 hours). For the training of child care assistants and infant care educators, MCYS has in place the Basic or Fundamentals course or the Certificate in Infant and Toddler Care Course (MCYS, 2008). These two courses do not come under the purview of the PQAC.

On 4th, March 2008, the MOE and MCYS made the announcement that, to raise the quality of pre-school education, the minimum academic and professional qualifications for pre-school teachers will be raised. It requires all teachers entering the field, from January, 2009, to have attained 5 "O" levels (one of which must be a passing mark in English at a B4 level) and a Diploma in Pre-school Teaching. However, practitioners already in the field will not be affected by this new requirement. This announcement heralds a new era for teacher education whereby it is expected that training hours for practitioners will be increased along with the increase in the minimum standards, as it did in year 2000 when the first minimum standard was set.

The MOE and the MCYS, in recent years, have been working very closely to ensure that the care and education of young children are in the good hands of qualified teachers. As described in the foregoing paragraphs, preschool teacher education started with the Adult Education Board from its humble beginnings of the basic course. It is with such humble beginnings that the Association for Early Childhood Educators (Singapore)-AECES was born.

The Birth of the Association

The birth of the Association came about through the efforts of two pioneering groups; one, the Preschool Teachers Association (PSTA) and the other, the Association for Child Care Educators (ACCE). These two groups were charged with a strong desire to forge ahead from their humble beginnings. The pioneers of PSTA, started in 1975, believed that education of young children is a profession in its own right and they set a requirement that only teachers who have been trained can join PSTA. The pioneers of

ACCE responded to childcare teachers' poor image of being viewed upon as babysitters. The ACCE was initiated in 1990 to promote professionalism in childcare. Since the pioneering groups both had the same vision of having early childhood education recognized as a profession, the two organizations merged to give birth to the Association for Early Childhood Educators (Singapore)-AECES (referred to as the Association).

The vision of the Association is that the early childhood educator is recognized as a professional who makes a difference in laying the foundation for learning. Its mission is to promote quality programs for young children and their families by providing professional development for early childhood educators. Therefore, in line with its mission and vision, the Association, since its inception has been engaging in teacher education, starting at the basic level. Today, the Association is one of the 21 training agencies conducting the courses that are accredited by PQAC (2008), as well as, working with families and community agencies to promote quality programs (AECES, 2008).

As a teacher educator with the Association, the author reflects on practice, reflecting on, and in action. "Reflection-on-action is reflection on experiences in the past and analyzing and summarizing past experiences in order to make generalizations that may influence future actions; reflection-in-action is reflection on experiences as they are occurring in order to handle experiences at hand" (Weasmer and Woods, 2003 p.66). Looking back at how, slowly but surely, standards are being raised, an area of concern still remains with teacher images of themselves during supervised practicum. As the literature has reported, student practicum is an invaluable learning experience in teacher education. Therefore, she formulated a strategic plan to change the image from a disempowering one, to one in which students and mentors are learning from each other.

The Strategic Plan

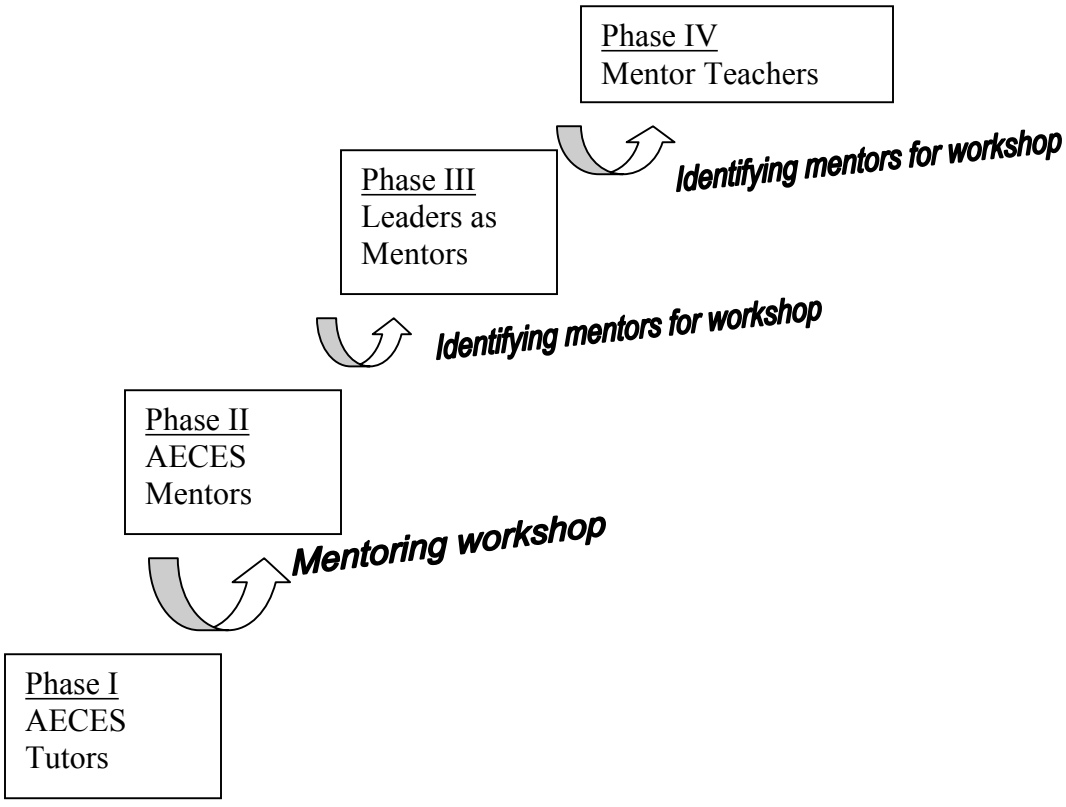
The strategic plan evolved during the 15 years that she has been President of the Association and it includes four phases of development. The first phase is growing a team of AECES Tutors for our teacher education programs. These AECES Tutors facilitate learning in the classroom. The term tutor was deliberately chosen to evoke the sense of bonding between the student and teacher. It conjures an image of the tutor sitting next to the student to coach him/her one-on-one. The term practicum supervisor was changed to practicum mentor. With that, she introduced mentoring workshops for AECES Tutors, who were prepared to play the role of the AECES Mentor (Phase II), guiding and coaching student teachers during their practicum.

The mentoring workshop addressed the foundation for mentoring by having participants recall their life journeys and identify their personal mentors. As they identified their life mentors and re-told stories of what their mentors did to them, they discovered what mentors did and the characteristics of a good mentor. Participants were then asked to prescribe expectations for themselves and their mentees and craft out their roles and responsibilities. The participants would then engage in role play and practice the skills of coaching and mentoring during practicum visits, based on their roles and responsibilities; the knowledge of the professional development stages (Bellm, et. al.,

1997); and the development stages of the mentoring relationship (Chen, 2000). Also, during the workshop, it was highlighted that not all teacher educators may have the necessary attributes and dispositions of being a good mentor, therefore, participants were asked to reflect on their suitability of undertaking the mentoring role. An outline of the workshop is found in Appendix I.

Such preparation workshops for mentors are crucial in ensuring meaningful learning experiences for student teachers as confirmed by Boz and Boz (2006). The researchers, in their study of prospective teachers in Turkey believed that if their mentors were prepared in the way described in the Youens and Bailey's (2004) study, their student teachers, would not have faced with interference from their mentors during their practicum. The mentoring workshops enabled the Association to nurture a cadre of AECES Mentors and the next phase in the strategic plan is to have the AECES Mentors identify mentors in the field who are center leaders and who can act as on-site mentors for students on practicum. This includes having the leaders attend the mentoring workshop to prepare them for the mentoring role of Leaders as Mentors (Phase III). The leaders will then identify teachers in the classroom to pass the mentoring baton the prospective Mentor Teacher (Phase IV). The Four- Phased Model of the strategic plan is shown in Figure 3.

Figure 3: The Four Phased Model



The above model has provided direction for the Association in developing a pool of AECES Tutors (Phase I) who in turn were groomed to be AECES Mentors (Phase II). In 2004, a study was conducted to provide a reality check on how the relationship between the AECES practicum mentors and their student teachers (mentees) had been developing.

Studying the Mentoring Relationship

The purpose of the 2004 study was to investigate the development of the mentoring relationship; the learning that took place; and to gather data for improving practice. Its two key research questions are: How did the mentoring relationship develop? How did learning take place and what did the mentees learn? Data from this research were analyzed using these two key questions (Stringer, 1996). The sample for this study comprised of 7 female mentees who were selected, based on convenience, from the list of students enrolled in the Preschool Diploma Programme for the practicum period Jan-June 2004.

The mentees had completed two practicum experiences, one on teaching strategies and another on the Learning Model proposed by Chen (2005). Four of the mentees had the same AECES Mentor for both practicum experiences, while three had two different AECES Mentors. They were interviewed with the Interview Guide (Chen, 2000) found in Appendix II for about forty-five minutes and the interviews were later transcribed. The remaining three mentees, who were not able to meet for the face-to-face interview, completed the Interview Guide as written self-reports. As a result, there were a total of four transcribed interviews and three written self-reports.

The data collected described the mentoring relationship as perceived by the mentees. These mentees were mentored by all female AECES Mentors who had been AECES Tutors and acted as practicum mentors for five to fifteen years. These mentors had attended the workshop for mentors conducted by the Association and had gone through the mentor selection process. The following paragraphs report the findings, organized along the two key research questions: How did the mentoring relationship develop? And, how did learning take place and what did the mentees learn?

Findings

How the Mentoring Relationship is Developed?

The relationship started with the mentor calling the mentee over the phone; followed by three to four scheduled school site visits and sometimes additional conferences outside the school. One mentee reported, “the subsequent two meetings were at Mc Donald’s, both of us dressed in jeans and T-shirts”. Other mentees report on the “comfort” zone that helped move their relationship along. They describe the conditions that made them feel comfortable. One mentee reported how her mentor made her feel comfortable at their very first contact over the telephone.

> *The first impression through her voice, I found that she is very friendly….you can feel that when she talks, that somehow you can hear her laughing, smiling and you can imagine that she probably has a smiling face.*

Another mentee reported how her mentor's small talk at the first school visit made her feel more comfortable.

> *We started talking casually first, so we actually warmed up after that….. before moving into the classroom…. removes the pressure.*

Establishing the "comfort" level is crucial in the development of the relationship especially when student teachers feel helpless and view themselves as "empty vessels". The relationship often starts with a certain degree of apprehension and cautiousness as one mentee expressed her nervousness and apprehension.

> *Initially I was nervous and apprehensive about the meeting as I wasn't sure if I was living up to her expectations. My first impression of her was that of a very serious person. She seemed very formal in her dealings and I felt uncomfortable.*

Another mentee had the same apprehension at the first meeting but after establishing the comfort level with the mentor she reported:

> *Initially, when I met her, I may not ask her many questions, but the second time, I had a lot of questions that I come across, then it is like I can ask her more freely.*

It appears that the "cautious and formal" stage for the participants was short lived as the experienced mentors worked hard in establishing the conditions that helped their mentees feel comfortable. Once the "comfort" level was established, the relationship progressed to the next stage of "sharing and openness". One mentee reported how her mentor openly expressed her willingness to share.

> *I am just here to share and not to just watch and pinpoint errors but to see what can be improved on. She used the word improved instead of correction.*

According to the mentee such a statement "gives the student confidence" and it is through this sharing and openness that mentees learn to relate theory to practice. As one mentee described, she learnt "the use of theoretical knowledge in practical application".

The study found that the relationship between the mentees and mentors involved lots of sharing and most of the time the sharing included of personal experiences as well. Mentees reported that:

She shared with me her experiences with previous candidates.

She also shared about her work, her experiences overseas and her faith – she's a Christian.

The mentor asked more personal questions like "What you intend to do after the course? Which church are you worshipping in?" The mentor also shared her own personal experiences in bringing up children.

After the discussion, she talked more about herself and we shared some personal things…also asked about my life…….telling me about her previous job….she told me she has two grown up sons…when she learnt that my husband is Japanese….. she was talking to me about her visit to Japan and so the conversation lasted for quite a long while.

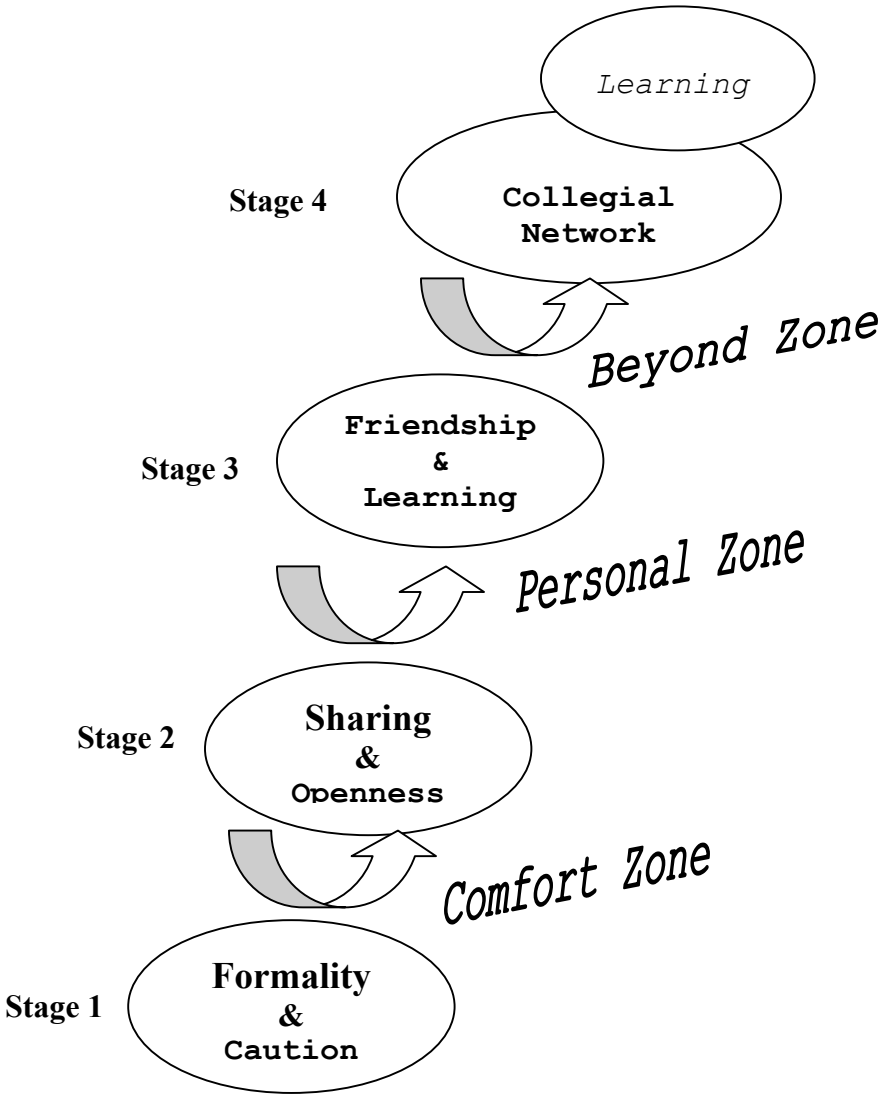
The engagement in personal discussions helps "push" the relationship to the next stage of "friendship and learning". It is through the sharing that learning takes place and friendship develops. One mentee described the status of their relationship:

……..we are still friends.

This gives evidence that the relationship has gone beyond the formal mentor and mentee relationship and has matured to include collegial network, collegiality and learning in a community of learners.

The above paragraphs have described how the relationship developed and it appears that the formal relationship grew out of an established "comfort" level between the mentee and mentor. If the mentee and mentor "were not able to establish an acceptable level of comfort, the relationship would have 'petered out" (Chen, 2000 p.128). However, when the mentor and mentee were able to establish the comfort level or "comfort zone" (Chen, 2000), the relationship moved on to a more open stage of "sharing". When the sharing includes personal sharing, the relationship developed into the stage of friendship, learning and beyond (Chen, 2000). The relationship seemed to have developed along similar lines to that proposed in the Stage and Zone Model (Chen, 2000). The Stage and Zone Model (Figure 4) consists of four stages: formal and cautious, sharing and open, friendship and learning; and collegial network. It has also three zones: comfort, personal and beyond. The zones act as the "push" or the positive conditions that cause the movement of the relationship from one stage to another. As such, the zones promote the development of the relationship that leads to learning. The Stage and Zone Model is illustrated in Figure 4.

Figure 4: The Stage and Zone Model



The Stage and Zone model is presented in the mentoring workshop to help mentors understand the development of the relationship and the pivotal role that the "comfort zone" plays. It is hoped that this knowledge will help mentors navigate and nurture their relationship in ways that would result in collegiality and continuous learning. How then did learning take place? And what did the mentees learn?

How Learning Took Place and What Mentees Learned?

According to the mentees, the learning process included the modeling that the mentors provided in the teaching and learning relationship. It included giving feedback, suggestions and tips, providing guidance, being positive, setting expectations and giving directions:

She briefed me on the requirements and sets clear expectations.

However, the most appreciated strategy is the mentor's assurance and encouragement which provided the environment conducive to learning.

Through this teaching and learning relationship, the mentees learnt about advocacy and sharing with others on issues that are important in this field.

> *At first, I thought they (mentors) were just doing what they were supposed to do – meet up with students, get the reports done etc….. At the end ….I felt that they were doing more than that! They are actually advocating for early childhood education. I am encouraged by their passion. My impression of them has changed from that of basic respect for a mentor to that of admiration.*
>
> *I am more motivated to share with others without any strings attached, what I know about early childhood education.*

Mentees were able to articulate what they understood about the relationship.

> *Mentoring relationship involves a more knowledgeable and experienced adult guiding and encouraging another who is still groping in the dark.*
>
> *Mentoring is …..where an experienced person acts like a guardian to scaffold the less experienced person's learning process.*
>
> *A mentoring relationship would be one where I can avail myself of the expertise of my mentor. Someone who will be my 'guardian angel' to guide me, my facilitator, my counselor, one whom I could turn to in times of doubt.*

Mentees were also able to identify the barriers to the development of the relationship. They identified the mentee's and mentors themselves as being barriers:

> *…..the unteachable protégé who is not interested and the arrogant and critical mentors.*

In regard to the mentees, they believed that mentees:

> *must be teachable in order for the relationship to work.*

One mentee has this advice for other mentees:

The student themselves must be open with the mentor, and then shouldn't feel that the mentor have come to pin point at us. And then you should be open-minded to accept suggestions or accept their feedback and then from there we can work our way.

In relation to mentors as barriers, they described attributes and dispositions of mentors that are not helpful to the relationship.

Slightly more serious type mentor……I was demoralized…..her sternness and firmness… gave me a very negative side.

she was rather firm and quite a strict lady, so maybe, at that moment, when I was already a little bit emotional so I was a little tense with her. I can say that maybe 50% of my mind is with her, 50% is a fear in me.

Mentees were also able to identify attributes and dispositions that facilitated the development of the relationship. These are described below:

She is friendly, she is warm and she does not give you that kind of pressure.

A very approachable lady. She was very positive and very open to anything.

I think the first impression is very important. The mentor should be approachable.

The warmth and friendliness extended made a difference to the learning.

Other attributes included being positive, humble, reassuring, encouraging, helpful, casual, pleasant and sincere.

I felt that they are not just doing their job….they are actually whole-heartedly able to help the student teacher go through the practicum.

It appears that being approachable was being identified by a few mentees. When asked to describe what being approachable meant, one mentee commented:

Someone that you can talk to, that can give suggestions to you….share something with your mentor and she can encourage you with her experience.

In summary, the study found that the mentoring relationship has developed along the Stage and Zone Model which is similar to the stage model in Chong et al.'s study

(1989) of Singapore school principals mentoring aspiring principals. According to Chong et al., the concepts of learning and friendship from one another are explicit features of the Singapore stage model and have been labeled "the learning relationship".

Gehrke and Kay, (1984) in their study on mentoring relationships in 12 schools (three high schools, three middle and six elementary schools) reported that "…as the relationship continued to develop, it became more professional and personal - in other words, it grew to be more comprehensive. The relationship was more informal and caring as between two friends, yet it was more likely to address professional growth questions in instructional, curricular, and classroom management issues." (p.23). Hence, it is vital that mentors are equipped with the skills to make relationships grow to the stage of maturity which becomes more comprehensive, and more likely to address professional concerns on curriculum, teaching strategies and classroom management issues. The findings in this study suggest that the mentoring relationships progress to its mature stages of "friendship and learning" and "collegial network" as it unveils significant learning that has taken. The mentees reported how they learned from the mentor's modeling of positive attitudes and dispositions. They also benefited from the guidance, feedback and suggestions given to them during the practicum visits. Also, they learnt about advocacy and gained insights into the mentoring relationship in terms of the meaning of mentoring and the barriers to mentoring as well as conditions that promote learning. Findings from this study have implications for practice and they are discussed in the following paragraphs.

Implications for Practice and Re-visiting the Strategic Plan

This study has documented how skilled mentors guide their mentees. The "caution and formality" stage was short lived as the mentors used strategies that not only made their mentees feel comfortable, but engaged them in discussion on personal issues at the same time. As such, the stages and zones were not really distinct phases but occurred all at the same time. The fast development the relationship was brought about by the skillful and experienced mentors who went through a selection process and understood the importance of cultivating relationships (Silva and Dana, 2001). Data also unveiled the crucial role mentors play in guiding mentees through the stages and zones of development to facilitate learning. The information gathered in relation to the development of mentoring as a learning experience provides evidence for advocating preparation program for mentors.

Findings have also been used as teaching and learning material for the mentor workshops currently being conducted for Leaders as Mentors. This information enriches the mentor workshops with valuable insights on how to create the conditions for learning by first making the mentee feel comfortable, sharing experiences, and modeling positive dispositions. Mentors also gain insights into the mentee's perspective on the "comfort zone"; the barriers to the relationship and the attributes and dispositions appropriate for cultivating the mentoring relationship. As such, this study, besides providing evidence for advocacy, enriches the mentor workshops that grow Leaders as Mentors (Phase III).

The mentor workshops for leaders were first initiated in 2007. They seek to prepare leaders for the on-site mentoring role. During the leader's mentoring workshop, the vision of nurturing Teacher Mentors (Phase IV) was crafted to realize the vision of Schools with Mentors (SwiM). SwiM would transform practicum supervision from being a dyadic experience between practicum supervisor and student teacher; to a triadic experience among the student, mentor teacher and AECES practicum mentor. Practicum experiences would no longer put the student in a helpless position, intimidated by the supervisor. Practicum experience would be "collaborative supervision" (Silva and Dana, 2001) where the students elatedly exclaim: "We are in this together!" and "I can contribute too"; the mentor teacher jubilantly remarks: "I can grow teachers" and "I am still learning from my student," and the practicum mentor whole-heartedly re-affirms: "Yes, we are in this together" and "I am learning too!"

The following is a recap of the implementation of the four-phased strategic plan, currently, only Phase I and II have been implemented. Phase III of Leaders as Mentors is still in the process of being implemented and about 80 Leaders have completed the mentoring workshops for year 2007 and 2008. Phase IV, which is the grooming of a cadre of mentor teachers to promote "collaborative supervision" has not been implemented. For this reason, this presentation on changing teacher images is work in progress. However, on the 4th of March 2008, with the announcement of the raising of standards, the Ministry of Education also revealed its plan of grooming a cadre of mentor teachers through its Outstanding Teacher Award. Last year, there were two teachers awarded with distinction and two with the merit award. This is the second year of the Outstanding Teacher Award and the Ministry has involved the Association in the selection process and the setting of criteria for the Award. We view this as a step towards the right direction in speeding up the process in our work in progress.

Conclusion

In conclusion, the story that has unfolded is a story about trying to change teacher images. It started with a focus on the student teacher's disempowering image and simply coining the term practicum mentor to replace practicum supervisor. A four-phased strategic plan was formulated and the journey of implementing the strategic plan has been long and arduous. It included conducting mentoring workshops to prepare AECES Tutors (Phase I) to play the AECES Mentor role (Phase II). This is followed by the study of the mentoring relationship to inform practice and nurture Leaders as Mentors (Phase III). These leaders would identify Mentor Teachers (Phase IV), creating schools with mentors (SwiM) and transforming practicum supervision to collaborative supervision. As the plan is being implemented and the work is still in progress, the realizes that the simple coining of the term practicum mentor is not only for creating change in the student teacher's image but also for crafting out new roles and responsibilities for the practicum mentor. The image painted for the practicum mentor is that of a coach, a resource person and according to one mentee ... "*my 'guardian angel' to guide me, my facilitator, my counselor"*.

The author also learnt that having a plan is not enough; We need to work with policy makers to "ride" with the tide and; working with the Ministry of Education in their Outstanding Teacher Award will hasten the process of implementation towards nurturing Mentor Teachers (Phase IV). As such, with the latest announcement of growing a cadre of mentors through the Teacher Award, the author's work in progress looks very promising and the beginning of seeing the light at the end of the tunnel. She could see "collaborative supervision" come alive. She could see mentor teachers, together with AECES practicum mentors working collaboratively with student teachers to enhance learning for all. She could see student teachers' self-images beginning to change from a disempowering one to one that takes charge of one's learning by having in-puts in one's learning. However, working with the Ministry of Education is not enough. There is a need to work with the Ministry of Community Development Youth and Sports as well to get their agreement on being partners in the Teacher's Award. Both Ministries are involved in policy making in the care and education of our young children and they determine the policy of teacher education and quality standards. So, although her story began with advocating for the change in teacher images, she realizes that she is in fact advocating for higher standards of teacher education, and quality early childhood education for our young children in Singapore.

Appendix I

Content of the Mentoring Workshop

1. Building the Foundation for Mentoring

    1.1 What do you know about mentoring?
    1.2 Life as a journey
    1.3 Crossroads

Objectives:

- To provide opportunities for personal reflection
- To create self awareness
- To identify crossroads and life mentors

2. Introduction to Mentoring

    2.1 What is mentoring?
    2.2 What mentors do
    2.3 What makes a good mentor?
    2.4 Roles and responsibilities
    2.5 Articulating the vision

Objectives:

- To introduce basic mentoring concepts, and reflect on one's own experiences, needs & goals in relation to mentoring
- To create awareness on some of the things mentors do
- To identify the characteristics of good mentors and establish roles and responsibilities
- To develop a unified vision and identify shared values and beliefs

3. Skills for Effective Mentoring

    3.1 Understanding the mentoring process
    3.2 Establishing expectations
    3.3 Communicating
    3.4 Coaching
    3.5 Planning for change and goal setting

Objectives:

- To understand the mentoring process
- To set appropriate expectations
- To develop communication and coaching skills

Appendix II

Interview Guide

Introduction

As I start, I would like to ask you about what you know of the mentoring program in your organization (background, objective, administrative procedures....)

Part One

How the relationship started

1. How exactly did you meet your mentor/protégé?

2. Please describe the early encounters you had with your mentor/protégé.

Part Two

How the relationship developed

3. If I had been an observer during one of your mentor/protégé meetings, describe, for me, a typical meeting.

4. Did the scenarios of the meetings change as the relationship developed?

5. Did the circumstances under which you met change as the relationship developed? (In terms of frequency and request for meeting)

6. What were some of the issues you have a dialogue on during the earlier part and later part of your relationship?

7. How was the dialogue kept going?

8. How were decisions made at the initial and later stages of your relationship?

9. Have your feelings or impressions about your mentor/protégé changed?

10. Relate an incident that made you change your feelings or impressions about your mentor/protégé?

Part Three

How the relationship ended

11. When was the last time you met with your mentor/protégé? Describe the last meeting.

12. Describe how your relationship formally ended?

Part Four

Definition

13. So far you have described your relationship with your mentor/protégé, how then would you define a mentoring relationship?

14. How would you describe the mentor and the protégé?

Part Five

Value of Mentoring

15. Up to this point, you have described the mentor, the protégé, and the mentoring relationship. Looking back at the formal period of your relationship, what have you learnt from being involved in the mentor-protégé relationship, in terms of personal, professional and career development?

16. Do you want to recommend your friend to take part in a Mentor-protégé relationship? If yes, why? If no, why?

17. How can the mentoring program be improved?

18. What do you think were the problems/barriers to a meaningful mentor/protégé relationship?

Closure

19. Is there anything that I have not covered in this interview that you would like to add?

20. May I call you if I have any additional questions?

References

AECES, 2008. http://www. aeces.org

Bellm, D., Whitebook, P. & Hnatiuk, P. (1997). *The Early Childhood Mentoring Curriculum: A Handbook for Mentors.* USA: Gryphon House.

Bennett, T., Katz, L., & S. Beneke., (2005). Teachers evaluate their training retrospectively. NAEYC National Institute for Early Childhood Professional Development, June 5-8, Miami, Florida.

Boz, N. & Boz, Y., (2006). Do prospective teachers get enough experience in school placements? *Journal of Education for Teaching, 32* (4), *353-368.*

Chen, C., (2000). *Formal Mentoring Relationships of Singaporean Chinese in Two Organizations in Singapore*. Unpublished doctoral dissertation, George Washington University.

Chen, C., (2005). Teachers as change agents: A study of in-service teachers' "practical knowledge". *Action in Teacher Education, 26* (4),10-19. Association of Teacher Educators, Reston, VA.

Chong, K. C., Low, G. T., & Walker, A. (1989*). Mentoring: A Singapore Contribution* Singapore Educational Administration Society: Singapore.

Gehrke, N., & Kay, R. (1984). The socialization of beginning teachers through mentor-protégé relationships. *Journal of Teacher Education, 35*(3), 21-26.

Gimbert, B., & Nolan, J., (2003). The influence of the professional development school context on supervisory practice: A university supervisor's and interns' perspectives. *Journal of Curriculum and Supervision, 18* (4), 353-379.

Glickman, C., & Bey, T., (1990). Supervision. In W.R. Houston (Ed.), *Handbook of Research and Teacher Education* (p.549-566). New York: Macmillan.

McIntyre, J. Byrd, D., & Fox, S., (1996). Field and laboratory experiences. In J. Sikula (Ed.), *Handbook of Research on Teacher Education* (p. 171-193). New York: Macmillan.

MCYS, 2008. http://www.childcarelink.gov.sg

PQAC, 2008. http://www. moe.gov.sg/preschooleducation/teacher.htm

Reitzug, U., (1997). Images of principal instructional leadership: From supervision to collaborative inquiry. *Journal of Curriculum and Supervision, 12,* 423-43.

Segall, A., (2002). *Disturbing Practice: Reading Teacher Education as Text.* New York: Peter Lang.

Sharpe, P. (2000). Features of preschool education in Singapore. In Tan-Niam, C.S.L. & Quah. M. L. (Eds.), *Investing in Our Future: The Early Years* (p.123-128). Singapore: McGraw-Hill Book Co.

Silva, D. Y. & Dana. N. F., (2001). Collaborative supervision in the professional development school. *Journal of Curriculum and Supervision, 16* (4), 305-321.

Stringer, E.T. (1996). *Action Research: A Handbook for Practitioners.* Thousand Oaks, CA: Sage.

Weasmer, J. & Woods, A., (2003). Mentoring: Professional development through reflection. *The Teacher Educator, 39*, (1), 64 -76.

Youens, B. & Bailey, M., (2004). The impact of quality assurance on mentor training in initial teacher education partnerships: a UK perspective. *Canadian Journal of Educational Administration and Policy, 32*(1), 1-24. Available from: http//www.umanitoba.ca/publications/cjeap/articles/noma/quality.youens.bailey.html.htm

Zeichner, K., (1996). Designing educative practicum experiences for prospective teachers. In Zeichner, K., Melnick, S., & Gomez, M. (Eds.), *Currents of Reform in Preservice teacher education* (p. 215-234). New York: Teachers College Press.

From One Time Stand-up Comedian Workshops to Year Long Professional Growth of Teachers

Karen Foster
University of Central Missouri, USA

Sarah Al-Juraid
Mild/Moderate Teacher, Louisiana. USA

Introduction

With limited funds available, how can school districts around the globe provide effective in-service sessions for their teachers? As a teacher, how are you assured that you are continually growing and learning in a community of professionals? How can you have input into the quality of workshops offered? If you are an administrator and/or a teacher seeking improved in-service sessions at your school, read on. This article will answer the above questions from a seasoned professional on the tour. After writing a book of reading strategies for the upper grades (Author & Simpson, 1998) and her connection with the university, the author has worked with teachers for the past 15 years, within a myriad of different workshop formats. This article will compare and contrast the one time stand-up comedian format to the more effective long term in-service sessions providing lifelong learning for growing professionals.

One Time Stand-up Comedian Format

I will admit it. I am guilty of taking money from school districts for two hours to one full day for a dog and pony show in-service workshop. Yes, I was the "dog and the pony" as I was the professional educator (i.e. university professor) brought in for a few hours to entertain the teachers in August during the “work days” before school. Although the counselors and coaches that were required to attend did not find it amusing, attendance was mandatory. All of the teachers had work in their rooms to get ready for the first day of school which often did not set a cooperative tone.

However, I worked hard preparing for the big event, spending many hours during two weeks of my summer vacation. I talked to the principal several times trying to clarify expectations of the workshop. Sometimes I was given a broad topic such as reading in the content fields or writing across the curriculum, but often, the information I received sounded like the following quote, “Our standardized test scores are low in comprehension and writing. We are required to have in-service sessions in these areas, but two hours are all we can afford.” Money is tight for all schools. If two hours were all they could afford, occasionally I agreed. Like a prostitute, I recognized that the need was there in the world, I had the skills and experience, and I could use the extra income.

There were many good points about these workshops: First, the learning theory and appropriate research were cited to give the teachers the intellectual rationale of WHY

these practical strategies had a place within their classroom. Secondly, I modeled effective lessons with textbooks from that district and put the teachers through the students' paces. Right-brained introductory questions were used as "hooks" to the topic of the day. Thirdly, outside reading materials from children's literature and informational sources were used and displayed. Fourthly, because of the number of years I had taught literacy methods courses at the university, I might have an ex-student working there who would voluntarily give a personal testimony about the effectiveness of these teaching strategies. It would always be great when one of their own colleagues would say, "Yes, these strategies really work. Try them." Finally, at the end of the workshop, I volunteered to answer questions via e-mail.

Positive Planning for One-Time Workshop Format

1	Learning theory & research
2	Textbooks from district
3	Teachers played student roles
4	Effective lesson plan format
5	Good introductory questions as "hooks" to lesson
6	Outside reading materials
7	Personal testimonials

Although the one-time standup comedian teacher workshop could utilize effective modeling, immersion, and employment of its participants, it invariably plays a bad joke on the district. Principals were not laughing when they spent their budgeted funds on in-service sessions for the year, and few teachers even try these strategies in their classrooms. When I asked administrators if they thought the teachers would apply something from the workshop, a typical nonchalant response was, "A few will try them; others won't." There is very little follow through into the classrooms or change in test scores for the next year. Two hours are not enough to change teachers' thinking or behavior. No one e-mailed me with questions because they were not applying the strategies modeled in the mandatory two hour workshop. Consequently, there were no questions to clarify.

Teacher In-service Research

Historically, what does the research show as effective teacher in-service programs that produce lifelong learners spearheading the classrooms? In simple terms, change in the classroom is a process that occurs over time, not an immediate event (Hord,

Rutherford, Austin, & Hall, 1987). From their extensive research, Hord et al. have concluded that predictable stages exist through which an individual teacher travels to implement a change in the classroom. Instructional change does not occur instantaneously as participants take notes at a conference, but occurs usually over a three-year period.

Likewise, professional development that encourages life-long learning will be ongoing and intensive (Darling-Hammond, 1999, National Staff Development Council, 1995). Principles of inquiry, reflection, and experimentation will offer more than the traditional passive methods of knowledge dissemination such as lecture and handouts. Ideally, the application of the in-service sessions will be embedded in daily school routines generating from participants' questions and issues (Ball, 1996; Darling-Hammond, 1998).

Through a classic and extensive literature search of over 200 research studies, Showers, Joyce, and Bennett (1987) found that for in-service sessions to be effective, four factors needed to be present: teachers had to be exposed to theory, have it demonstrated to them, be given the opportunity to practice, and be given feedback. Understanding the theoretical concepts of the innovation and accepting it are the first steps toward implementation. Lecture format conferences to large groups of trainees provide stimulation for teacher to start or grow in the awareness of an instructional concept.

EFFECTIVE IN-SERVICE TRAINING SESSIONS NEED FOUR PARTS
(Showers, Joyce, & Bennett, 1987)

PRESENTATION OF THEORY

DEMONSTRATION OF NEW STRATEGY

INITIAL PRACTICE

PROMPT FEEDBACK

Other important factors for in-service training to be effective involve teacher attitudes. First, teachers' beliefs determine what is done in the classroom, so the theoretical underpinnings need to be understood. The practical application needs to be modeled, too, but knowing WHY it is done this way is important. In other words, a basic knowledge or skills in a new approach is necessary before teachers "buy" into it. Teachers are not just technicians going through the steps in the classroom. What you observe in a classroom is directed by thoughts regarding what to do, when to do it, and why it will be effective.

Figure 1: Meta Analysis of 200 Research Studies on Staff Development
(Showers, Joyce, and Bennett, 1987)

A meta analysis of nearly 200 research studies, plus a review of the literature on staff development shows that:

1. What the teacher thinks about teaching determines what the teacher does when teaching. In training teachers, therefore, we must provide more than "going through the motions" of teaching.
2. Almost all teachers can take useful information back to their classrooms when training includes four parts: a. presentation of theory, b. demonstration of the new strategy, c. initial practice in the workshop, and d. prompt feedback about their efforts.
3. Teachers are likely to keep and use new strategies and concepts if they receive coaching (either expert or peer) while they are trying the new ideas in their classroom.
4. Competent teachers with high self-esteem usually benefit more from training than their less competent, less confident colleagues.
5. Flexibility in thinking helps teachers learn new skills and incorporate them into their repertoires of tried and true methods.
6. Individual teaching styles and value orientations do not often affect teachers' abilities to learn from staff development.
7. A basic level of knowledge or skill in a new approach is necessary before teachers can "buy in" to it.
8. Initial enthusiasm for training is reassuring to the organizers but has relatively little influence upon learning.
9. It doesn't seem to matter where or when training is held, and it doesn't really matter what the role of the trainer is (administrator, teacher, or professor). What does matter is the training design.
10. Similarly, the effects of training do not depend of whether teachers organize and direct the program, although social cohesion and shared understandings do facilitate teachers' willingness to try out new ideas.

In other words, the purpose of training is not just to implement external visible teacher behaviors, but "to generate cognitions that enable the practice to be selected and used appropriately and integratively" (Showers, Joyce, and Bennett, 1987, p. 85). Secondly, teachers with high self-esteem and flexibility, regardless of their chosen teaching style, will benefit more from the additional training. They aren't afraid to venture out of their comfortable box and try something new. On the other hand, factors that do not affect instructional implementation include teachers' initial enthusiasm for the training, where the training is held, the job the trainer holds (administrator, teacher, or university professor), or who organizes the program (Showers, Joyce, and Bennett, 1987). Figure 1 shows the Meta Analysis of 200 Research Studies on Staff Development.

Although the above four conditions of presentation of theory, demonstration of new strategy, initial practice, and prompt feedback listed above are key components within the workshop timeframe, sustained practice in the classroom was necessary for transfer to be achieved. Showers, Joyce, and Bennett (1987) estimated that as many as twenty-five (25) practice teaching episodes were necessary for total transfer to occur. For this high number of tries over time, the importance of expert coaches supplying feedback, encouragement, and follow-through was stressed.

INSTRUCTIONAL IMPLEMENTATION (JOYCE & SHOWERS, 1995)

TYPE OF WORKSHOP	% OF CLASSROOM IMPLEMENTATION
TRADITIONAL LECTURE w/ NO FOLLOW-UP	LOWEST LEVEL: 5%-10%
REPRESENTATIVE TEAMS FROM MANY SCHOOLS w/ STUDY GROUPS & PEER COACHING IN CLASSROOMS	MUCH IMPROVED: 75%-90%
WHOLE SCHOOL FACULTIES w/ STUDY GROUPS & PEER COACHING IN CLASSROOMS	HIGHEST IMPLEMENTATION: 90%-100%

Furthermore, the design of training was found to be critical to the eventual implementation of the instructional innovation (Joyce and Showers, 1995). It was reported that when volunteer teachers participate in traditional lecture workshops with no follow-up activities, the level of implementation was only about five to ten percent (5%-10%). However, when teacher teams received training with follow-up study groups and peer coaching in their classrooms, implementation rose to 75%-90%. Finally, when whole-school faculties were provided training with study groups and peer coaching as follow-up, the rate of implementation rose to an optimal 90%-100%.

To put it another way, if the transfer of training to the classroom was the desired outcome, no effects of staff development were found until the components of theory, demonstration, practice and feedback were used in combination in the workshop (effect size .39). When coaching onsite was added, the effect size rose to 1.68 (Joyce & Showers, 1995). Looking at many research studies, the average effect size was 1.3 when coaching onsite was utilized in the in-service sessions (Showers, Joyce, & Bennett, 1987). Clearly, coaching onsite is a very important component if instructional changes occur in the classrooms.

INSTRUCTIONAL IMPLEMENTATION (JOYCE & SHOWERS, 1995)

TYPE OF WORKSHOP	EFFECT SIZE of CLASSROOM IMPLEMENTATION
TRADITIONAL LECTURE w/ NO FOLLOW-UP	0 EFFECT SIZE: No implementation
THEORY, DEMONSTRATION, PRACTICE, & FEEDBACK in THE WORKSHOP	0.39 EFFECT SIZE
THEORY, DEMONSTRATION, PRACTICE, & FEEDBACK IN THE WORKSHOP PLUS COACHING IN THE CLASSROOMS	1.68 EFFECT SIZE
PEER COACHING IN THE CLASSROOMS	1.3 EFFECT SIZE (Average)

In addition to experiential and practice components, Boudah and Mitchell (1998) found that professional activities that also considered the participants' needs were more effective than the traditional lecture workshop format (see table above). Using a control group with no follow up after the one day workshop whose topic was chosen by the administration, the "authentic professional development model" involved participants choosing the topic for the workshop, observing modeling with students, practicing individually, 1.5-2 hours of onsite training, as well as trainer observation and feedback in the teachers' classrooms. Researchers found significant differences in use of the new strategy at least one time: 95% for the "authentic professional group" with coaching onsite compared to 38.5% of the control group with only the lecture format and no follow-up. More than one time use was 36% for the "authentic professional group" compared to 8.3% for the control group. Clearly, in addition to the criteria listed above of modeling, practice, feedback, and coaching onsite, eliciting the participants in the topic

for the in-service adds to the transfer of the training to the classroom.

INSTRUCTIONAL IMPLEMENTATION (BOUDAH & MITCHELL, 1998)

TYPE OF WORKSHOP	% of CLASSROOM IMPLEMENTATION	
	ONE TIME USE	MORE THAN ONE TIME USE
CONTROL GROUP: Topic chosen by administrator No Follow-up	38.5%	8.3%
AUTHENTIC PROF. DEV. MODEL Topic chosen by participants Training onsite Modeling with students Observing and feedback in classrooms	36%	96%

Moreover, like other types of experimentation, there is usually an understandable "implementation dip" as confusion typically accompanies trying out new practices (Fullan, 1993). Once teachers move through the awkward phase of initial implementation, they can move to integration of the practice into daily routine if they are provided with continued practice, feedback, and support. There are many alternative ways of providing the needed feedback, collaboration, dialogue, and reflection including the following (Lang & Fox, 2003):

- action research in the classroom
- case study discussions
- coaching (experienced teachers observing & dialoguing)
- curriculum development
- reflective logs
- mentoring (experienced teachers assisting w/ lesson plans & problem solving)
- networking outside of the school
- portfolios
- study groups
- sessions that train the trainers

With all this in mind, the perceived goals for teachers will dictate the type of workshop needed to achieve it from knowledge level to lifelong learning and integration in the classroom (Lang & Fox, 2003). For some trainees, simply sparking an awareness level of a new concept which will perhaps blossom into understanding and application at a much later date may be the contribution of an in-service session. In this case, a half day to two

day traditional lecture course would meet the goal. However, if initial implementation of a new practice is envisioned, follow-up such as mentoring, peer observation and feedback, as well as study groups are needed as all the research shows. If the teachers want to become fluent in this instructional skill, all the above are needed as well as possible studying student work and action research leading to curriculum development. To adapt and refine the practice further, add university or agency partnerships. To encourage life-long learning, add professional networking to all of the above (See Figure 2).

Figure 2: Matching Teacher Need with Professional Development Designs (Lang and Fox, 2003)

Teacher Need/Learning Outcome	Professional Development Design
Basic information/awareness	½ day, 1-2 days conferences, courses
Initial implementation of new practice	Mentoring, coaching, peer observation and feedback, study groups, action research, studying & analyzing student work
Becoming fluent; Integrating new practice into daily routine	Mentoring, coaching, peer observation and feedback, study groups, data analysis of student work, action research, case studies, & curriculum development
Adapting & refining practice to situation	Study groups, university/agency partnerships, data analysis of student work, curriculum development, & networking
Keeping abreast of best practices & becoming a lifelong learner	Workshops, training, conferences, mentoring, study groups, networking, outside partnerships & professional networks

Summary of Dos and Don'ts for Effective In-service Sessions

In summary, several dos and don'ts have been clearly made regarding the effective instructional in-service sessions. First, the items that should be included in the workshop include the following: Make sure that theory and practical application are both covered. Ask that administrators and supervisors attend and how they will check for follow through in the classrooms. Poll the teachers ahead of time regarding their attitudes and current practices, as well as their wants and needs. Make known when you will return to check their implementation. Require attendance of only appropriate personnel and follow-up with e-mail support. Keep the teachers actively involved, leave handouts/transparencies, and a professional bibliography. Bring snacks and door prizes.

Figure 3: DOS and DON'TS for Effective In-service Sessions

Dos for In-Service	Don'ts for In-Service
1. Do insist principal and supervisors attend.	
2. Do ask how principal will check for workshop's application in the classrooms.	
3. Do get information regarding teachers' attitudes & current teaching practices ahead of time.	
4. Do involve teachers in the planning & goal setting.	
5. Do request follow-up coaching sessions in the classrooms.	1. Don't accept a two hour session.
6. Do state your return dates at the initial meeting & set expectations.	2. Don't apologize but state that you don't want to waste the district's money.
7. Do request grade level representatives to e-mail questions for team.	
8. Do require attendance of only appropriate personnel	3. Don't require attendance of faculty whos job would not use the information.
9. Do supply snacks and door prizes.	
10. Do use that school's textbooks, curriculum, & Standards	
11. Do get teachers actively employed.	4. Don't just lecture.
12. Do cover theoretical information (WHY) as well as practical applications.	5. Don't just cover the HOW TO DO IT.
13. Do leave handouts/transparencies of information covered.	
14. Do include a lengthy bibliography.	

Conversely, there are several reminders of things to avoid: Do not accept a two hour session as this is a waste of the district's money. Don't require attendance of every faculty/staff member. Don't just lecture or cover just the steps of the new skills or strategies (See Figure 3).

Examples of Effective In-Service Designs

Although the formats for professional in-service sessions are limitless, three examples are detailed below that supply the necessary job-embedded "coach" in the classroom: using a research lead teacher hired by the district, linking with university personnel by being a professional development school, and writing a grant hiring an outside consultant.

A. Research Lead Teacher (RLT) Model

In a large suburban elementary school with a heterogeneous student population, a half time teacher was hired to perform the RLT role in helping teachers implement the eight content steps and seven strategies of the Benchmark System (Gaskins & Elliott, 1991) of teaching reading in their classrooms (Spencer & Logan, 2003). After an initial half day workshop that all teachers received, half the teachers volunteered to meet before school one hour a week for nine weeks to discuss problems and successes with the Benchmark Strategies in their classrooms, to be coached weekly in their classrooms and given feedback by the RLT, and to be observed weekly by a trained data collector and given feedback on what the data showed by the RLT. For these discussion sessions, coaching sessions, and observations, the nine Kindergartens' fifth grade teachers were termed the "intervention group." The other nine teachers who just received the half day workshop were termed the "control group."

Data was collected weekly in both the RLT intervention group and the control group. In the enriched RLT intervention group, it took from three to nine weeks with coaching and feedback for full implementation of all the steps of the Benchmark process. Seven of the nine teachers reached and maintained criterion performance for all eight content steps and seven strategy steps in the final three weeks of coaching and feedback.

On the other hand, none of the teachers in the control group implemented all the steps, and indeed, there was a spiraling downward trend as the weeks passed since the initial workshop. Control group teachers were implementing two or three of the content steps compared to eight for the RLT model group. Only one control teacher was implementing one strategy/process steps as compared to seven RLT teachers implementing all seven strategy steps.

RLT MODEL (Spencer & Logan, 2003)

AFTER 9 weeks:	8 Content Steps	7 Process Steps
RLT Intervention Group Weekly sessions before school Coaching and feedback by RLT Observed and given feedback	7 of 9 teachers implementing all 8 content steps	7 of 9 teachers implementing all of the 7 process steps
Control Group No follow-up or coaching No feedback after observation	implementing 2 or 3 content steps	one teacher using one process step

B. Professional Development School Model

Led by the Holmes Group (1997), Professional Development Schools (PDS) were formed when university personnel brought pre-service student interns onsite to work in the classrooms before the student teaching semester. In these schools, professors and classroom teachers collaborate outside of class for a set number of sessions, setting goals together.

One research study queried thirty-five in-service teachers in a large North Texas PDS elementary school with a diversified student population (Cobb, 2000). Of the six themes chosen for the Likert questionnaire, one focused on professional development of the in-service teachers. Data was collected at the end of year 3 and year 4 using a five-point scale: 1 Strongly Agree, 2 Agree, 3 Uncertain, 4 Disagree, 5 Strongly Disagree. Findings were positive at the end of both years. Concerning whether or not the PDS experience made them a better teacher, 74% agreed in Year 3 and 89% agreed in Year 4. Agreeing that the biggest impact of the PDS was in the area of teacher professionalism, 47% agreed in Year 3 with 55% agreeing in Year 4. Only 21% of the teachers in Year 3 felt the PDS experience caused them to rethink their philosophy of teaching with 35% agreeing with that statement in Year 4. Finally, a new question added only to Year 4 focused on the PDS experience introducing them to innovative teaching strategies that were tried in their own classrooms with a resounding 85% agreeing (see Table 1 below).

C. Outside Consultant Model

A rural elementary school in southern Louisiana has written a grant envisioning all the criteria for effective professional development in the area of refining process writing across the curriculum utilizing a mobile wireless lab that will float from classroom to classroom. Although implementation will depend of funding received, the goals of the in-service depend on budgeting a full-time technology aide and a university professor consultant with initial input and weekly follow-up in the third grade classrooms.

Table 1: Impact on In-service on Professional Growth/Educational Philosophies of Teachers (Cobb, 2000)

Strongly Agree = 1, Agree = 2, Uncertain = 3, 4 = Disagree, and 5 = Strongly Disagree

Participation in a professional development school has made me a better teacher.

Year 3					Year 4				
1	2	3	4	5	1	2	3	4	5
22%	52%	9%	17%	0	30%	50%	15%	5%	0

The biggest impact of the PDS has been in the area of teacher professionalism.

Year 3					Year 4				
1	2	3	4	5	1	2	3	4	5
17%	30%	30%	17%	0	15%	40%	35%	5%	0

Our school's participation in the PDS initiative has caused me to rethink my philosophy of teaching.

Year 3					Year				
1	2	3	4	5	1	2	3	4	5
4%	17%	26%	43%	0	10%	25%	35%	30%	0

Our school's participation in the PDS initiative has introduced me to innovating teaching strategies, and I have tried some of these in my own classroom.

Year 3	Year 4				
(new question – added Year 4)	1	2	3	4	5
	25%	60%	10%	5%	0

Prior to the beginning of the new school term, the third grade teachers will participate in a one day workshop conducted by the university consultant, the elementary principal, and the technology aide. The teachers will be introduced to the goals of the project, the wireless lab, and the essential instructional tools needed to begin the writing journey with their students (Calkins, 1986; Graves, 1994). Also early in the school year, the teachers will visit exemplary classrooms that combine technology and process writing.

To ensure follow through of the project's goals, the consultant will spend half a day a week coaching the teaching in their classrooms, as well as meeting once a month for a lunch brainstorming and sharing session. These weekly classroom sessions will include modeling, practice and feedback of technology rich standards-based lessons, peer conferencing, teacher conferencing, and Author's Chair. Managing the classroom with this new format will also be discussed and practiced, as well as differentiating to incorporate all learning styles. Additionally, to enhance the dialogue between the teachers and the educational consultant, weekly electronic journals will be kept. Finally, four more one-hour in-service workshops will be scattered throughout the year. On a daily basis, the technology aide hired by the district will travel with the wireless lab to add instructional and technological assistance.

In summary of the three effective professional development models above, teachers were provided with ongoing job-embedded professional development. With the assistance of the RLT, the university professor linked to a PDS school, or the hired university consultant, the teachers were given the opportunity to observe model lessons, share knowledge, receive individualized feedback, self-reflect, and grow as life-long learners. These results confirm previous research showing that teachers need ongoing support to implement new procedures (Showers, 1990; Schumm & Vaughn, 1995).

Funding Sources

There are several ways that districts can fund the long-term professional development in their schools. First, try to work with a university professor who is already connected with your school through supervising student teachers or as part of a Professional Development School (PDS) experience for the college students. Since this is part of his/her workload already and time is allotted to be present at your school, capitalize on this expertise. Secondly, ask your district to have a team at the central office to assist teachers in writing state and federal grants as well as alerting them of their requirements and deadlines. Demographical information could also be shared about the students themselves that has already been collected. Thirdly, there are national associations with grant opportunities for you to explore by yourself.
After finding the website, type in "grants" in the SEARCH box:

WEBSITES TO FIND GRANT OPPORTUNITIES

Your own state or country's Department of Education

U.S. Department of Education: www.ed.gov (500 grants listed)

National Education Association (NEA): www.nea.org

National Foundation for Improvement of Education (NFIE): www.nfie.org

International Reading Association (IRA): www.ira.org

National Council Teachers of English (NCTE): www.ncte.org

National Council for Teaching Mathematics (NCTM): www.nctm.org

National Science Foundation (NSF): www.nsf.gov

Conclusion

School districts are wasting their money on bringing in a professional to hold a one time teacher workshop because little follow through by the teachers occurs. A much stronger model involves return coaching in the classroom by the paid professional or building personnel. This could be a total of two times or twice a month for the entire year, depending on your budget. At the initial meetings, teachers should be aware of changed principal expectations on observation forms and weekly lesson plans. E-mail contact is also available, even if your "expert" lives out-of-state. Finally, grant monies are available from state, federal, and private organizations to augment regular funding sources. Teachers themselves should have a voice in the topics covered in the in-service sessions as well as the format used. As professionals who want to be life-long learners, teachers should encourage job-embedded in-service projects that involve coaching over time in lieu of the one time stand-up comedian workshops which have proven to be ineffective.

References

Ball, D.L. (1996). Teacher learning and the mathematics reforms. What we think we know and what we need to learn. *Phi Delta Kappan, 77*(7), 501-508.

Boudah, D.J., and Mitchell, V.A. (1998). The real thing: A tradition-breaking model, authentic professional development, shows encouraging results. *Journal of Staff Development 19(*3), 43-47.

Calkins, L. (1986). *The art of teaching writing.* Portsmouth, NH: Heinemann.

Cobb, J. (2000). The impact of a professional development school on pre-service teacher preparation, in-service teachers' professionalism, and children's achievement: Perceptions of in-service teachers. *Action in Teacher Education 22(*3), 64-76.

Darling-Hammond, L. (1998). Teacher learning that supports student learning. *Educational Leadership 55*(5), 6-11.

Darling-Hammond, L. (1999). Target time toward teachers. *Journal of Staff Development 20*(2), p. 31-36.

Fullan, M. (1993). *Change forces: Probing the depth of educational reform.* London: Falmer Press.

Gaskins, I., & Elliott, T. (1991). *Implementing cognitive strategy instruction across the school: The Benchmark manual for teachers.* Brookline Books.

Graves, D. (1994). *A fresh look at writing.* Portsmouth, NH: Heinemann.

Hicks-McCormick, K., & Simpson, P. (1998). *Breaking reading barriers: Twenty smashing strategies producing independent learners.* Topeka, Kansas: Jostens.

Holmes Partnership. (1997). *The Holmes Partnership strategic action plan, 1998-2003.* Washington, DC.

Hord, S.M., Rutherford, W.L., Austin, L.H., & Hall, G. E. (1987). *Taking charge of change.* Alexandria, VA: Association for Supervision & Curriculum Development.

Joyce, B., & Showers, B. (1995). *Student achievement through staff development (2nd Ed.).* White Plains, New York: Longman.

Lang, M., & Fox, L. (2003). Breaking with tradition: Providing effective professional development for instructional personnel supporting students with severe disabilities. *Teacher Education and Special Education 26*(1), 17-26.

National Council Teachers of English (NCTE): www.ncte.org

National Council for Teaching Mathematics (NCTM): www.nctm.org

National Education Association (NEA): www.nea.org

National Foundation for Improvement of Education (NFIE): www.nfie.org

International Reading Association (IRA): www.ira.org

National Science Foundation (NSF): www.nsf.gov

National Staff Development Council (1995). *Standards for staff development: Elementary school edition.* Oxford, Ohio.

Schumm, J. S., & Vaughn S. (1995). Meaningful professional development in accommodating students with disabilities: Lessons learned. *Remedial and Special Education, 16*, 344-351.

Showers, B. & Joyce, B. (1987). Synthesis of research on staff development: A framework for future study and a state-of-the-art analysis. *Educational Leadership 45*, 77-87.

Showers, B. (1990). Aiming for superior classroom instruction for all children: A comprehensive staff development model. *Remedial and Special Education, 11*, 35-39.

Spencer, S., & Logan, K. (2003). Bridging the gap: A school based staff development model that bridges the gap from research to practice. *Teacher Education and Special Education, 26*(1), 51-62.

U.S. Department of Education: www.ed.gov

The Accelerated Teacher Education Program (ATEP) in the Philippines: A Program for the Asatidz

Amor De Torres
Director for Educational Development and Linkages
of Capitol University in Mindanao, Philippines

Noor Mohammad Saada
Coordinator, Philippines-Australia BEAM Project

Introduction

The Philippines' education sector performance is in decline. Once, one of the best in Asia, the country's education system has deteriorated significantly in recent years, in both quality and access. Also, the country's key comparative advantages of a literate and English-speaking labor force are eroding. The decline can be traced to slow economic growth and inadequate government revenues on one hand, with rapid population growth on the other. Corruption and flawed management in the education system exacerbate the problem through inefficiencies in spending.

The problems are manifest in the overall state of education today, characterized by lack of access to education especially by the poor, increased number of school age population dropping out, poor quality teacher training, a shortage of teachers, and poor learning conditions due to overcrowded classes and under-equipped facilities, e.g., lack of books and teaching materials. The situation, however, is most acute in the poorest and conflict-affected areas of the country such as in Mindanao, and in particular, within the Autonomous Region in Muslim Mindanao (ARMM). The 2003 Functional Literacy, Education and Mass Media Survey (FLEMMS) statistics support these observations. Nation-wide, only 55.3 % of the entire population finished elementary education. Of this figure only 28.6% graduated from high school and only 10.2% eventually finished college. The same survey showed that in regions where there is significant Muslim population, the literacy is lower and in the Autonomous Region in Muslim Mindanao (ARMM), where Muslim are Majority population, registered the lowest literacy in the entire country with 65.5%.

In most of the Muslim communities, many children are unable to go to school because there are not enough schools. Neither do these communities have the facility and capacity to implement an Alternative Learning System. Conflict frequently disrupts schooling, and the inability to afford uniforms, books and school supplies also keeps many poor Muslim children out of school. In the latter case, or where no other school is available, any formal education they may get is from *madaris* (i.e., private Islamic schools), most of which are far from equal even to the public schools since they offer only religious and Arabic language instruction.

It is interesting to note that so much funds, foreign funds from generous countries like the USAid in particular have been poured to Mindanao, however, good results seem to be scarce and often challenged by sustainability issues. Nonetheless, foreign agencies continue to flow. One of the most comprehensive aids to education is the Australia's Basic Education Assistance to Mindanao (BEAM) program in partnership with the Department of Education (DepEd). The BEAM Project covers comprehensive interventions - pre-service, in-service, materials development, access to education, student assessment, school-based management and Muslim education; targeting the children, youth and adults in the formal and non-formal education.

The BEAM's Expanded Support to Muslim Education came into existence as a response to the emerging government policy direction for Muslim education articulated in the Medium-Term Philippine Development Plan (2004-2010), President's Mindanao Nation (Our Mindanao) Agenda and the DepEd's Muslim Education Roadmap. The emergent policy direction also is a direct response to education provision of the 1996 GRP-MNLF Peace Agreement. Collectively, these policies aim to contribute to lasting peace and development in Mindanao as well as providing a space and opportunity for marginalized Moro (Muslim) peoples in the larger Filipino society.

In the BEAM Stage 1, there was an active engagement with the Madrasah sector in the ARMM through a facility Harnessing Opportunities in Muslim Education (HOME). Eventually, the gains in this facility feed into and catalyze the DepEd's curriculum development for the integration of Arabic Language and Islamic Values Education (ALIVE) in the public schools and integration of private Islamic schools (*Madaris*) by using the DepEd-prescribed Standard Madrasah Curriculum (SMC) – the teaching of the national curriculum with Islamic Studies and Arabic Language.

In the BEAM Stage 2, the intervention includes supporting DepEd implement the ALIVE Program in public schools with significant Muslim enrollees and the piloting of the SMC in selected Madaris in Regions XI (Southern Mindanao), XII (Central Mindanao) and the ARMM. In order to deliver the ALIVE Program, there emerge a need for special kind of teachers (herein referred to as *Asatidz*; sing (mas) *Ustadz*, sing (fem) *Ustadza*) with Islamic education background as well as meeting the minimum teacher education qualification set by DepEd, the Commission on Higher Education (CHED) and the Professional Regulations Commission (PRC). Consequently, the Accelerated Teacher Education Program (ATEP) was born.

What is the ATEP?

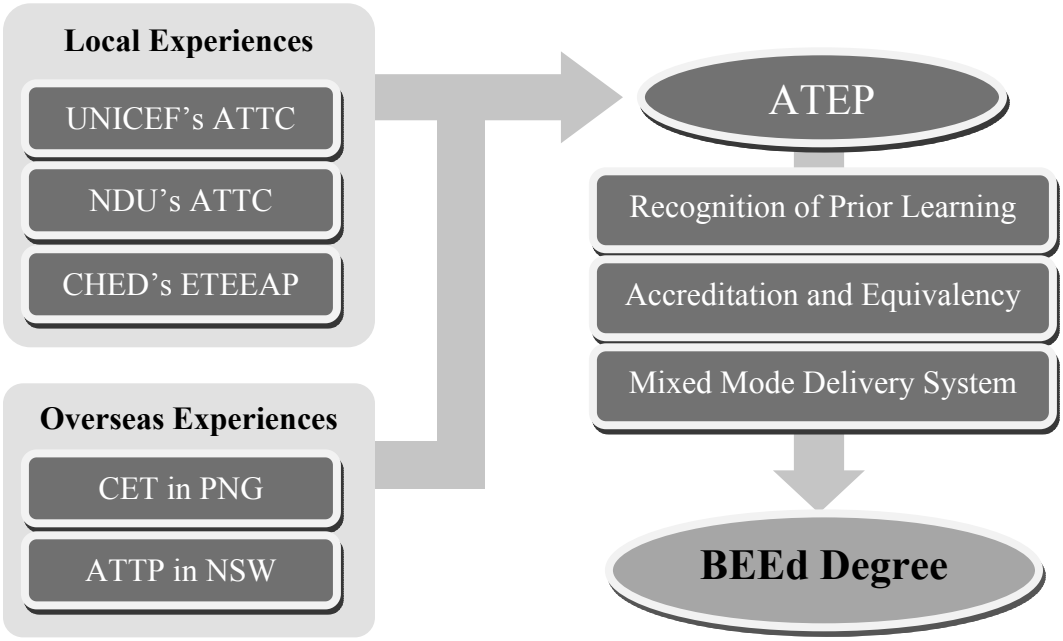
ATEP is a strategy response to the "Professionalization of Asatidz" component of the DepEd Muslim Basic Education Roadmap to meet the teacher supply for Arabic Language and Islamic Values Education (ALIVE) in the public schools and the demands for better teacher qualification in the private madaris. As such, this is a quick-fix track to meet the growing needs for specially trained teachers or asatidz. Based on the current thinking of people running this program from both the Philippine and Australia sides, the long-term track is to integrate Islamic Studies and Arabic Language as specialization in

the regular teacher education programs as well as to develop a diploma program for Muslim teachers who would like to specialize in ALIVE subjects. ATEP is envisioned to build on existing knowledge and skills of the asatidz who have obtained diplomas in Islamic sciences and teaching experience in the Madrasah based on the principle of Recognition of Prior Learning (RPL) and as practiced in the CHED Expanded Tertiary Education Equivalency and Accreditation Program (ETEEAP); and varied exposure to professional education courses through a mixed mode delivery system.

ATEP's Conceptual Development

The ATEP is benchmarked with similar local and overseas experiences. Past local experiences include the UNICEF Accelerated Teacher Training Course (ATTC) from 1978 to 1984 and the Accelerated Integrated Teacher Training for Cultural Communities (AITTCC) from 1994 to 1997 of the Notre Dame University in Cotabato City. The overseas experiences include the AusAID-funded 2-year Certificate in Elementary Teaching Program in Papua New Guinea and the Accelerated Teacher Training Program of the Department of Education and Training in New South Wales, Australia.

Figure 1: Conceptual Development of the ATEP



The degree program awarded in the ATEP graduates is Bachelor of Elementary Education (BEEd) with specialization in Islamic Studies and Arabic Language. This BEEd Program abides by the provision of the CHED Memo 30, s. 2004. The General Education and Specialization subject-clusters will not be taken by the ATEP grantees; instead an Accreditation and Equivalency (A&E) scheme is adopted to credit prior learning and competencies. However, all the Professional Education subjects will be

taken by the asatidz into to immerse them with contemporary teaching philosophies, pedagogies, methodologies and other practices.

Table 1: Schedule of Terms and Subject Offering

Summer	1st Semester	2nd Semester
Preparations for Program Implementation (Up to June)	July – Child & Adolescent Psychology August – Social Dimensions of Education Sept –Facilitating Learning Oct - Field Study 1 (The Learner's Development & Environment)	Nov – The Teaching Profession Dec – Principles of Teaching 1 Jan – Principles of Teaching 2 Feb-Mar ▪ Field Study 2 (Experiencing the Teaching-Learning Process) ▪ Field Study 6 (On Becoming a Teacher)
Summer	**1st Semester**	**2nd Semester**
Assessment of Student Learning 1 Educational Technology 1 Developmental Reading 1	June – Assessment of Student Learning 2 July – Educational Technology 2 Aug – Developmental Reading 2 Sept-Oct ▪ Field Study 3 (Technology in the Learning Environment) ▪ Field Study 5 (Learning Assessment Strategies)	Nov – Curriculum Development Dec – Elective (Education for Peace) and Field Study 4 (Exploring the Curriculum) Jan- Feb – Practice Teaching
Summer 2009	**1st Semester**	
LET Review *Program Wrap Up*	September- LET Examination	

ATEP's Essential Features

There are seven salient features of the ATEP – it allows grantees to earn a degree while teaching, the four-year teacher education curriculum is compressed into a two-year accelerated program through recognition of prior learning, incorporating mixed mode delivery schemes and school-based practice teaching with study focus on professional education subjects based on the CHED-prescribed teacher education program.

Studying while Teaching. The ATEP allows the asatidz to upgrade their teacher education qualification while maintaining teaching jobs either in the public school or pilot Madaris. These asatidz receive scholarship grant to pursue their studies after a rigid screening process.

Intensive Study. It is an intensive 2-year program of 1 summer and 4 regular semesters. A special program consisting of solid curriculum and strong faculty is developed by the participating Teacher Education Institutions (TEIs) in order to provide this program with the end in view of professionalizing the teachers through the licensure examination they will have to take to be able to qualify them to be hired by the Department of Education.

Recognition of Prior Learning and Teaching Experience. Assesses and accredits prior learning (secular and Islamic education) and experience (teaching experience in the Madrasah). Legitimizing their prior experiences through a national equivalency program called the Expanded Tertiary Education Equivalency and Accreditation Program (ETEEAP) has been a helpful instrument in accelerating the asatidz enrolled in the ATEP.

Flexible Delivery Modes. It is delivered using mixed modes (face to face, independent learning through self-instructional modules, scheduled tutorial and supervised field studies and practice teaching). This is a very exacting mode not only for the students (asatidz) but also and equally for the faculty. Under the supervision of BEAM, this program is duly monitored.

Study Focus. Qualified asatidz for the ATEP will undertake an intensive study and experiential learning on Professional Education courses to meet the minimum teacher education requirements of the various government agencies like the DepEd, CHED and PRC. The difficulty and the strenuous requirement have not been kept from the students and with determination and motivation, they moved on.

Curriculum Design. In the design and development of the ATEP curriculum, the group is guided by the standards espoused in CHED Memo Order 30, s. 2004 (Revised Policies and Standards for Undergraduate Teacher Education Curriculum). It is interesting to note that the new requirement of additional units from the previous curriculum had followed in this program which makes it more demanding. It is more of competency-based rather than content-based instructions; with preference for varied assessment practices, a feature of the new teacher education curriculum.

School-Based Practice Teaching. Since the asatidz are already deployed in the public school or private madaris (for those coming from the BEAM pilot madaris), preferably, field study and practice teaching will be supervised in the schools where they are deployed and teaching. This feature of the new teacher education curriculum helps in contextualizing the varied learning experiences of the students.

Harnessing the Benefits of Cycle 1 Piloting

What is unique about the succeeding cycle is that it is benefiting from good practices and learning curves during the piloting. The following strategies have been proven effective for program delivery: Accreditation and Equivalency Scheme (Modified from USEP Davao ETEEAP Experience); Year-Round Bridging Program (NDU Cotabato); Formation Strategy (NDU Cotabato); Assessing Core Skills using Standardized Tests (MSU Marawi, USM Kabacan); Vocabulary Building Strategy (MSU Gensan and Tawi-

Tawi); Use of Dictionary and Preparation of Local Instructional Materials (NDU Cotabato and MSU Genesan); Academic Mentoring and Counseling (NDU Cotabato); Gurong SACCSD (USM Kabacan); Learning Centers (MSU Tawi-Tawi, USM Kabacan and USEP Davao); Cooperative Teaching-Learning for Face to Face Interaction (USEP Davao) and Independent Learning using the Self-Instructional Modules (SIMs). Below are the details of strategic planning for implementation in the program:

Accreditation and Equivalency (A&E) Scheme based from USEP Davao ETEEAP experience. In the CHED-approved program, the BEEd is divided into three (3) subject clusters: General Education, Professional Education and Specialization. The general education and specialization components will be credited through an accreditation and equivalency scheme based on the established ATEP competency matrices for the general education and specialization subjects. Based on these matrices, the ATEP applicants will be assessed as to their knowledge and skills and they need to meet the minimum competencies to be accredited. Their Islamic education either at thanawi (post-secondary) or kulliyah (collegiate) diplomas will be certified through equivalency and transfer of credits.

Year-Round Bridging Program. Those who do not meet the minimum competencies for the General Education subjects must attend the Bridging Program offered throughout the terms; but only in the subjects where they failed to meet the minimum competency. The bridging program is not be content-based, rather a skill-based learning. For example, English 1 will not be focused on covering all the texts, but on enhancing specific language skills on listening, speaking, reading, writing and comprehension that are not fully developed among the concerned students. Therefore, it is expected that creative, non-traditional teaching-learning styles will be put in place for this purpose. This year-round or rolled-out approach to bridging was based on the experience of NDU.

Formation Strategy. Before the start of the term, it is expected that the students and the ATEP Team will go through an orientation that will allow them to establish rapport and beginning confidence on each other. It is also expected the students will be familiarized with the University facilities and resources and on ways to access these facilities and resources in order to enhance the students' learning.

Active Non-Violence. ATEP believes that peace is not just about absence of direct, physical violence or war; nor it is the surrender of one's rights, quest for justice or redress of grievances. But, it is about addressing these issues in non-violent ways. Learning Facilitators strive to integrate peace theme and values into teaching-learning interaction either between facilitator and students, among students or between students and learning materials.

Personal Transformation. Aside from developing teaching competencies and preparing for the Board Examination, every teaching-learning interaction is an opportunity to catalyze the cultivation of values and attitudes that will encourage individual and social action for building more peaceful selves, families, communities, societies and ultimately

a more peaceful world. Therefore, ATEP is a process of behavior or attitude change to support the desired education for peace.

Assessing Core Skills Using Standardized Tests. Based on the program implementation in MSU Marawi, it is of no use for the students to cover all the contents in a given subjects, while they are having difficulty mastering the basic academic skills such as oral and written communication. MSU Marawi administered a standardized reading and learning style assessment. The result of the reading test allows them to segregate the fast from the slow readers. Fast readers can then be tapped to assist slow readers. In USM, an IQ test has been administered to determine general competency and learning style. This provides the ATEP Team crucial information on who are the fast and slow learners, therefore who are in need most of tutorials. Standardized assessment on learning styles allows the learning facilitator to tailor portfolio assessment for every student.

Vocabulary Building Strategy. How do we address poor vocabulary among students especially during class interaction? MSU Gensan provided a handy dictionary to all their students. This allows the student to look for the meaning, correct pronunciation and spelling of the words encountered during teaching-learning interactions. In MSU Tawi-Tawi, spelling drills before and after each session is another way to building word power. Undoubtedly, the ability of the student to express one's opinions and ideas is partly hindered by one's proficiency in the use of and mastery of the English words.

Academic Mentoring and Counseling. Mentoring is the process of assigning a number of students to a faculty, and every faculty is responsible for tracking the academic progress and personal adjustment of the students for the duration of the program. The NDU experience found out that this type of mentoring allows the students to have someone, a kind of 'big sister' or 'big brother', who listens and advises them on how to respond to the demands of the program.

Gurong SACCSD. This is a peer teaching strategy adopted by USM during the ATEP Pilot Phase. It was observed that ATEP students have a hard time adjusting to the level of the University instructors, who are in turn, used to the traditional classroom delivery. The USM Gurong SACCSD as a peer teaching strategy harnesses the strong academic backgrounds of selected academic scholars, especially those excelling in Mathematics and English; pairs a group of ATEP students with one academic scholar. Interaction is based on pre-determined competency focus and time frame; allows ATEP students to learn a particular subject through a peer; and promotes social interaction between Muslim and non-Muslim students. This strategy shows a marked improvement on the learning of the ATEP students at USM.

Learning Centers. The establishment of learning centers as a strategy for scheduled tutorial and follow-up lectures and discussions was adopted by MSU Tawi-Tawi, USM and USEP. For those covering more ATEP students in a large geographical area, the establishment of learning centers in strategic location allows the students to access the tutorial and follow-up lectures. While it reduces travel time and cost for students, it increases time consumption for the instructors. One way towards a win-win solution is to

engage the services of a local college to handle a particular learning area, while the partner university continues to exercise overall and quality control over its operation.

Cooperative Teaching-Learning for Face to Face Interaction. Face to face interaction is limited to the summer term and scheduled tutorials and school visit. Face to face interaction should not be construed and limited to 'chalk and board' method. Based on the USEP experience, this face to face interaction can harness the cooperative teaching-learning strategies, while at the same time insisting on stronger individual responsibility for learning.

***Independent Learning Using the Self-Learning Modules (SLMs*).** The use of self-learning modules (SLMs) focused on developing core competencies is a way of promoting independent learning. It is a strategy adopted which is tailored to the reality that all ATEP scholars are also working full-time teaching Arabic Language and Islamic Values subjects in the public schools. The SLMs allow the students to work at their own pace within a given time frame. Subject requirements can also be tailored based on individual learning style, the quality of prior learning and current assignment in the public school.

The ATEP Experience

Cycle 1 Performance (2006-2007)

The ATEP is the strategy response for Muslim education in the country and a unique program that gives these asatidz a head start and an opportunity to be part of the mainstream education system. The pilot phase (first batch or Cycle 1) was completed in March 2007. Five Mindanao-based universities were engaged – Mindanao State University campuses in General Santos City, Marawi City and Tawi-Tawi; Notre Dame University in Cotabato City; University of Southern Mindanao in Kabacan, North Cotabato and the University of Southeastern Philippines in Davao City.

Performance in the Licensure Examination

The cycle 1 graduates proceeded to take the Licensure Examination for Teachers (LET) in August 2007. Surprisingly, they made a good performance. Out of 258 examinees, 51 passed the LET. Compared to the national passing of 29%, this is not bad. Their performance is even better than a large chunk of private TEIs whose 4-year degree program graduates fared lower or even registered a zero passing percentage in the same examination. Considering the rigor, the limited time for their classes and the basic difficulty in English for most if not all of them, this program has a good chance of meeting its over-all objective.

Permanent Teaching Posts and Deployment

These LET passers have now been provided permanent teaching positions in the public schools. Their presence is even contributing positively to the teacher shortage in

some schools as they are now teaching English or Mathematics aside from Arabic and Islamic Values .

Evaluation of the Pilot Phase

Three months before the culmination of Cycle 1, a triangulated and three-tier evaluation process was put in place by DepEd and the BEAM Project. On one hand, the triangulation involves the end-users (DepEd, asatidz), regulating agencies (Teacher Education Council or TEC, CHED and PRC) and partner-universities (existing and prospective). The three-tier process involves reviewing the pilot design framework and delivery system; critiquing of the self-learning materials; and the proposing the inclusion of good practices and remedying "learning curves" in order to address attune the whole program into an acceptable level of quality delivery.

Cycle 2 Performance (2007-2009)

The delivery of the ATEP Cycle 2 is now on its 2nd year and involves five partner universities – Notre Dame University in Cotabato City; Mindanao State University in General Santos City, Marawi City and Tawi-Tawi; and the University of Southern Mindanao in Kabacan, Noth Cotabato. After the second semester of SY 2008-2009, those who have completed the academic requirements will be awarded the degree and later a board review will be organized to prepare the asatidz to take the LET in September 2009. A total of 209 asatidz are currently enrolled in Cycle 2. The breakdown is reflected in Table 2.

Table 2: Summary of ATEP Cycle 2 Enrollees

Partner University	Area Coverage	Enrolles
1. Notre Dame University - Cotabato City	Cotabato City(Region XII) and Maguindanao (ARMM)	54
2. Mindanao State Univ –Tawi-Tawi	Tawi-Tawi (ARMM)	27
2.1. Learning Center at MSU Sulu	Sulu (ARMM)	17
2.2. Learning Center at Basilan State College	Basilan (ARMM)	27
3. University of Southern Mindanao	Kabacan North Cotabato (RegXII)	29
4. Mindanao State University – General Santos City	Gen. Santos City and Sarangani (Region XII)	24
5. Mindanao State University- Marawi City	Marawi City & Lanao del Sur (ARMM)	31
Total		**209**
6. University of Southeastern Philippines	Davao City, Davao del Norte and Panabo City (Region XI)	
7. University of Mindanao Tagum College	Tagum City, Mati City, Davao del Norte, Compostela Valley and Davao Oriental (Region XI)	

In addition to strategies learned and adopted from the piloting in Cycle 1, a new Arabic Qualifying Examination (QE) was also developed during Cycle 2 period by DepEd and the BEAM Project establishing the minimum content mastery and language proficiency and has become a requisite for accreditation of the Islamic education.

Cycle 3 Performance (2008-2010)

The delivery of the ATEP Cycle 3 is arguably the most exciting phase in the life of the ATEP. Aside from continuing the program in so-called BEAM areas (Regions XI, XII and the ARMM) with 240 enrollees (refer to Table 3 for the breakdown), the ATEP expanded nationwide with ten partner universities handling 435 asatidz (refer to Table 4 for the breakdown).

Table 3: ATEP Cycle 3 in the BEAM Areas

Partner University	Area Coverage	Enrollees
1. Notre Dame University - Cotabato City	Cotabato City(Region XII) and Maguindanao(ARMM)	35
2. University of Southern Mindanao	Kabacan North Cotabato (Region XII)	27
3. Mindanao State University – General Santos City	Gen. Santos City and Sarangani (Region XII)	30
4. Mindanao State University- Marawi City	Marawi City and Lanao del Sur (ARMM)	35
5. University of Southeastern Philippines	Davao City, Davao del Sur, IGACOS and Panabo City (Region XI)	85
6. University of Mindanao – Tagum Campus	Davao del Norte, Tagum City, Davao Oriental, Mati City and Compostela Valley	28
Total		**240**

Awareness and Ownership

It is interesting to note that partner universities listed in Table 4 below were already engaged with the program as early as the evaluation phase of the piloting (Cycle 1). Their engagement includes reviewing the pilot design framework and delivery system; critiquing of the self-learning materials; proposing the inclusion of good practices and remedying "learning curves" in order to address attune the whole program into an acceptable level of quality delivery. Thus, when it is time for them to deliver the program the level of awareness and ownership is higher. The program is perceived not as a finished product for implementation, but a product they have had a say in its design and development.

Further Program Orientation

Because the BEAM Project was the one primarily in-charge of developing the program, DepEd gave the task of orienting ATEP teams in partner-universities to the BEAM team. The orientation is for university policy managers and members (manager, staff, RPL assessors and learning facilitators) of the ATEP Team. As much as possible, this orientation is conducted jointly by representatives of the DepEd, BEAM and Partner University. One senior official usually represents DepEd from the Regional Office and the Regional ALIVE Coordinator. The focus of the orientation includes explaining the program details and cultural immersion. The cultural immersion is to provide non-Muslim team members or those with less contact with Muslim community the opportunity to understand the cultural context of the people targeted by the program. Immediately after the orientation, the ATEP Team brainstorms among themselves as to the details of the delivery of the program, at least as far as the first semester. Thereafter, formal communication will be forwarded to the University's Board of Regents (BOR) for the adoption and recognition of the ATEP. If DepEd and BEAM's presence is necessary, the partner university informs the latter in advance. Normally, the BOR's endorsement of the ATEP is obtained at the earliest possible time.

Table 4: ATEP Cycle 3 outside the BEAM Areas

Partner University	Area Coverage	Enrollees
1. Philippine Normal University – Agusan	Caraga	21
2. MSU-Iligan Institute of Tech	Lanao del Norte, Iligan City, Cagayan de Oro (Region X)	181
3. Western Mindanao State University	Zamboanga City (Region IX)	53
4. Basilan State College	Isabela Cit (Region IX)	17
5. Palawan State University	Palawan and Puerto Princesa City (Region IVB)	41
6. Cebu Normal University	Cebu, Mandaue, Cebu City (Region VII)	39
7. Western Visayas State University	Region VI	16
8. Pampanga Agricultural College	Region III	15
*9. Pamantasan ng Lungsod ng *** ATEP classes have not yet started*	*Manila/NCR*	*29*
10. Mariano Marcos State University	Region I and Cordillera Administrative Region	23
Total		**435**

Mode of Payment

As a government initiative, ATEP is not-for-profit project. The ATEP is a strategy response to government policy. President's Arroyo Mindanao Natin (Our Mindanao) Agenda calls for the recognition and mainstreaming of the Madrasah system. This is further articulated in the Medium-Term Philippine Development Plan (2004-2010) and adopted by DepEd through its Muslim Basic Education Roadmap. A series of department orders and memos were circulated to realize the government's affirmative action for Muslim Filipinos. The responsibility of supporting government policy is integral to the existence of government agencies and state colleges and universities. The Australian aid, through the BEAM Project, supports this government initiative. Australian aid is subject to existing accounting and auditing rules of the Australian Agency for International Development (AusAID), whilst financial support from DepEd as with all government agencies is subject to existing accounting and auditing rules.

Payment Scheme

Payment is based on the actual enrollees by term. Matriculation and other school fees, monthly stipend and other renumeration will be paid to the partner-university based on the certification signed by the Registrar as to the identity and number of ATEP scholars enrolled for a given term. The first payment will be released upon submission of the names and actual number of ATEP enrollees. Payment will be based on existing tuition and other school fees. In order to qualify for the succeeding payment, the previous payment should be liquidated by submitting the following reports: Summary of Academic Performance of the ATEP Scholars in all subjects taken during the term; and Narrative Report (with Photo-documentation) on the Management and Implementation of the ATEP for the given term. It is preferred that these reports be submitted in soft copy to DepEd (for those outside BEAM areas) and BEAM (for the original six partner universities). ATEP is a quick fix strategy responding to an emergent need for qualified teachers of Arabic Language and Islamic Values Education in the public schools. The long-term direction is the development of Arabic Language and Islamic Studies as (additional) specialization in teacher education programs and as a diploma course for Muslim teachers wishing to specialize in these subjects.

Conclusion

The initial success of this program bordered on its insistence to adhere to generic standards in teacher education program development. Recently, CHED approved the program for nationwide implementation. Automatic deputation is granted to partner-universities with Center of Excellence (CoE), Center of Development (CoD) and Level 3 accreditation status. While those not within these categories will have to be evaluated. The second factor is its being clearly grounded on the unique milieu of Muslim community and their unique need in public schooling. The program has become reason for mainly non-Muslim ATEP team members from partner universities to engage and work with Muslim grantees. Thus, every interaction with the grantee is not just a generic teaching-learning interaction; it is also an opportunity for peace building at the personal

level. It is an opportunity to tear down the walls of prejudice and stereotypes, and to build a bridge of understanding, respect and conviviality. To build this bridge, we seek more to understand than to be understood; to listen and to speak with empathy. It is when we put ourselves in other people's shoes that we appreciate their feelings, perspectives and aspirations in life. The third factor in its initial success is the coming together of people from diverse cultural and religious backgrounds. Aside from developing teaching competencies and preparing for the Board Examination, every teaching-learning interaction is an opportunity to catalyze the cultivation of values and attitudes that will encourage individual and social action for building more peaceful selves, families, communities, societies and ultimately a more peaceful world. Therefore, ATEP is a process of behavior or attitude change to support the desired education for peace. ATEP is also be a process of awakening to the existence of and inhumane consequences of the culture of violence and injustices and to their root causes, and the realization that these things have to change and some things have to be done to correct them. ATEP believes that peace is not just about absence of direct, physical violence or war; nor it is the surrender of one's rights, quest for justice or redress of grievances. But, it is about addressing these issues in non-violent ways. Learning Facilitators strive to integrate peace theme and values into teaching-learning interaction either between facilitator and students, among students or between students and learning materials.

The creativity infused into the program development is the fourth factor. ATEP is anchored on respect for diversity. This philosophy manifests itself in the teaching-learning continuum and in the management system. ATEP deviates from the traditional teaching-learning paradigm that put premium on content rather than competency and context. Diversity also implies valuing individual learning styles. ATEP is grounded on the BEAM's Seven-Ribbon Philosophy that will ensure student-centered learning, address learning diversity, incorporate learning competencies, encourage problem-solving, develop higher order thinking skills, involve active learning, and use variety of assessment practices.

References

Accelerated Teacher Training Program Information Package of the NSW Department of Education and Training. Available at http://det.nsw.edu.au/employment/teachnsw/attinfo.htm

Accelerated Teacher Education Program as a Transition to Teaching Strategy Funded by the U.S. Department of Education. This website contains downloadable brochure and power point presentation about the program. Available at http://ate.utsa. Edu /ATEP/ atep.html

Basic Education Sector Reform Agenda (2006-2010). Proposal available online at http:// slf.britishcouncil.or.th/files/documents/philippines/Proposed3BasicEducationSectorReformAgenda.doc?e7d03a3f2782dda33e490634c882a547=9b814c16c532e9326e582c75ee5e842e

CHED Memorandum Order 21 (s. 1997). Policies and Guidelines on the Implementation of the Expanded Tertiary Education Equivalency and Accreditation Program Pursuant to EO 330. Available online at http:// www.ched.gov.ph/ policies/ Digitized % 20CMOs /CMO%201997/ CMO_21_S_1997.pdf

CHED Memorandum Order 30 (s. 2004) – Revised Policies and Standards for Under graduate Teacher Education Curriculum. Available online at http://www. ched. gov.ph/policies/CMO2004/CMO%2030%20S.%202004.pdf

DepEd Memo 56 (s. 2006). Intensified Training of Muslim Teachers of Arabic Language ad Islamic Values in the Public Schools and Guidelines for Selection and Hiring of Asatidz for SY 2006-2007. Available online at http:// www.deped.gov.ph/cpanel/ uploads/ issuanceImg/DM%20No%2056,%20s%202006.pdf

DepEd Muslim Basic Education Roadmap. The original seven components are enumerated and available online at http://www.seameo-innotech.org /inno tech/news/ archive/2005qtr3&4/3rdqtr2005_madrasah.htm

DepEd Order 51 (s. 2004). Prescribing the Enriched Curriculum for Public Schools and Standard Curriculum for Private Madaris. Available online at http://www .deped. gov.ph /cpanel/uploads/issuanceImg/DO%2051_8-28-04_00001.pdf

DepEd Order 46 (s. 2005). Operational Guidelines for the Implementation of DepEd Order 51 (s. 2004). Available online at http://www.deped.gov.ph/cpanel/uploads /issuanceImg/ DO%20No.%2046%20%20s.%202005.pdf

Executive Order 330. Adopting the Expanded Tertiary Education Equivalency and Accreditation Program as an integral part of the Educational System and Designating the Commission on Higher Education as the Authority Responsible for its Implementation" signed by President Fidel Ramos on 10 May 1996. Available online at http://www. lawphil.net/ executive/execord/ eo1996 /eo_330_ 1996.html

Medium-Term Philippine Development Plan (2004-2010). Available online at http:// www.neda.gov.ph/ads/mtpdp/MTPDP2004-2010/PDF/MTPDP2004-2010.html

Philippines-Australia Basic Education Assistance for Mindanao, (2007). *The Accelerated Teacher Education Program (ATEP) Manual*. Davao City, Philippines. Available online at http://www .beam.org.ph/images/ stories/monitoring_and_ evaluation / report_ outputs /KPI_7/ATEP%20Cycle%202%20Manual.pdf

Philippines-Australia Basic Education Assistance for Mindanao. (2007*). ATEP Cultural Notes*. Davao City, Philippines. Available online at http://www.beam. org.ph / images/ stories/monitoring_and_evaluation/report_ outputs/KPI_7/ Culture % 20 Notes.pdf

Philippines-Australia Basic Education Assistance for Mindanao. (2007*). ATEP Performance Evaluation Framework.* Davao City, Philippines. Available online at http://www.beam.org.ph/images/stories/resources/esme/ATEP/ATEP%20Perform ance%20Evaluation%20Checklist.pdf

Philippines-Australia Basic Education Assistance for Mindanao. (2007). *ATEP Subject Competencies.* Davao City, Philippines.

Philippines-Australia Basic Education Assistance for Mindanao. (2007). *ATEP Student Toolkit*. Davao City, Philippines.

USEP-ETEEAP Center. (2004). *USEP-ETEEAP Procedures and Implementing Guidelines: A Handbook*. Davao City, Philippines.

USEP-ETEEAP Center. (2005). Enhanced General Education Curriculum. *Philippine Association for Teacher Education (PAFTE) Journal, 14,* 9-30.

USEP-ETEEAP Center. (2005). Subject Syllabi for BEED Content Courses. *Philippine Association for Teacher Education (PAFTE) Journal, 14,* 31-41.

USEP-ETEEAP Center. (2005). Subject Syllabi for BEED Major in Pre-School Education, Special Education (SPED) and Biological Science. *Philippine Association for Teacher Education (PAFTE) Journal, 14,* 42-47.

USEP-ETEEAP Center. (2005). Subject Syllabi for BSED Majors. *Philippine Association for Teacher Education (PAFTE) Journal, 14,* 51-100.

USEP-ETEEAP Center. (2005). Subject Syllabi for Professional Education Subjects. *Philippine Association for Teacher Education (PAFTE) Journal, 14,* 104-150.

USEP-ETEEAP Center. (2005). Syllabi for Field Studies. *Philippine Association for Teacher Education (PAFTE) Journal, 14,* 152-158.

Education Policy, Reform, and School Innovations in the Asia-Pacific Region

INDEX

Index