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Impact of ICT on teaching and learning in Asia

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About the journal

The International Journal of Education and Development using Information and Communication Technology (IJEDICT) is an e-journal that provides free and open access to all of its content.

Regional economies and communities are facing increasing economic, social and cultural hardship in many parts of the world as economies adjust to the demands of the new orders of commerce and governance. A part of this is the paradox that regional economies and communities can be either enhanced or disadvantaged by information and communication technologies (ICT) products and services. The potential enhancement comes from the increased social, economic and cultural capital that comes from harnessing ICT products and services in a community sense. The disadvantage comes from the power that ICT products and services have in centralizing commerce, service provision and governance away from the regional community.

Unless we get a greater level of access AND adoption of information and communication technology (ICT) for education and development at community level, we will miss the opportunity to turn the "digital divide into a digital opportunity for all, particularly for those who risk being left behind and being further marginalised" ("Declaration of Principles", WSIS-03/Geneva/Doc/4-E, Principle 10). The International Journal of Education and Development using Information and Communication Technology (IJEDICT) is an e-journal, with free and open access, that seeks to address this issue.

IJEDICT aims to strengthen links between research and practice in ICT in education and development in hitherto less developed parts of the world, e.g., developing countries (especially small states), and rural and remote regions of developed countries. The emphasis is on providing a space for researchers, practitioners and theoreticians to jointly explore ideas using an eclectic mix of research methods and disciplines. It brings together research, action research and case studies in order to assist in the transfer of best practice, the development of policy and the creation of theory. Thus, IJEDICT is of interest to a wide-ranging audience of researchers, policy-makers, practitioners, government officers and other professionals involved in education or development in communities throughout the world.

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IJEDICT has a major emphasis on the use of ICT in education for development in hitherto less developed parts of the world. The journal includes descriptive case studies about ICT projects in education in developing countries and in rural and remote regions of developed countries, as well research articles evaluating such projects, developing policy or creating theory. Topics covered include, but are not limited to: distance learning, e-learning, flexible learning and delivery, open learning, e-literacy.

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  Marshall, S., Taylor, W., & Yu, X. (eds.) (2003), *Closing the Digital Divide: Transforming Regional Economies and Communities with Information Technology*, Greenwood Publishing, Westport CT.
- Citations in the text should include the author's name and year of publication where you use the source in the text, as in the following examples:

  In this way, information technology can be seen to effect and influence changes in organisational structure (Orlikowski & Robey 1991).

  Edwards (1995, p.250) views the globalising of distance education as "invested with the uniform cultural messages of modernity".

  Globalisation, especially in relation to open and distance education, will reduce the tolerance of difference and so "how can local issues and contexts be addressed?" (Evans 1995, p.314).
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Editorial: Impact of ICT on teaching and learning in Asia

Stewart Marshall and Wal Taylor
The University of the West Indies, Barbados, West Indies

Welcome to Volume 6 Issue 3 of the International Journal of Education and Development using Information and Communication Technology (IJEDICT).

This Special Issue on the "Impact of ICT on teaching and learning in Asia" has been edited by Siew Ming THANG and Su Luan WONG and we thank them for suggesting the issue and for their hard work in putting it together. We are sure that you you will find the issue as rewarding and enjoyable to read as we did.

The emphasis in IJEDICT is on providing a space for researchers, practitioners and theoreticians to jointly explore ideas about ICT in education using an eclectic mix of research methods and disciplines, and we welcome feedback and suggestions as to how the journal can better serve this community. IJEDICT depends totally on the work of volunteers who are driven by the desire to see knowledge made freely available to all. And we always need more reviewers, so please volunteer – send an email with a brief CV indicating your qualifications, work experience and research interests.

Stewart Marshall and Wal Taylor
Chief Editors, IJEDICT

Original article at: http://ijedict.dec.uwi.edu//viewarticle.php?id=679&layout=html

International Journal of Education and Development using Information and Communication Technology (IJEDICT), 2010, Vol. 6, Issue 3, pp. 3-6.

Guest Editorial: Impact of ICT on teaching and learning in Asia: Focusing on emerging trends, patterns and practice

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Universiti Putra Malaysia, Malaysia

The rapid proliferation of Information and Communication Technologies (ICT) has significantly changed the educational landscape globally. It is now even impossible to imagine future learning environments that are not supported, in one way or another, by ICT. For example, the Internet and World Wide Web have transformed education and school systems and brought about dramatic changes to various aspects of education including distance and online learning, online interactions between teachers and students, virtual classrooms and other components of teaching, learning and training. The conversion of computer games into learning tools has also revolutionized learning. Such impacts are felt much more strongly in Asia in view of the rapid knowledge-based and technological advancement in this region. Hence, it is essential for Asian learners, educators and material designers at all levels to adapt to the continually changing landscape.

Despite the general acceptance that ICT has an important role to play in changing and modernizing educational systems and ways of learning, scientific evidence of the concrete contributions of ICTs to the learning domain, is less evident. In addition to this, publications in this domain have generally focused on Western countries. This special issue attempts to address this gap in knowledge by providing researchers and practitioners in this region a platform to share their concerns and problems in this field.

The articles selected for this special issue are drawn from a variety of background and cover a range of issues. However, they can be divided into three main areas. The first two articles, from Singapore and Indonesia respectively, evaluate inclination towards ICT. The next three are concerned about the roles of ICT in teacher training and professional development of teachers in Japan, Gaza and Malaysia. The last three explore the use of ICT to promote autonomy, develop language learning abilities, and as a tool for research purposes in Malaysia and China.

Timothy Teo and Joyce Hwee Ling Koh in the first article *Assessing the Dimensionality of Computer Self-efficacy among Pre-service Teachers in Singapore: A Structural Equation Modelling Approach* examine the computer self efficacy among students enrolled in a one-year Postgraduate Diploma in Education programme at Singapore's sole teacher training institute. The Structural Equation Modelling statistically confirms that computer self-efficacy is a multidimensional construct underlying three dimensions: Basic Computer Skills, Media-Related Skills, and Web-Based Skills.

Sutrisno Hadi Purnomo and Yi-Hsuan Lee in the second article undertook an *Assessment of Readiness and Barriers towards ICT Programme Implementation: Perceptions of Agricultural Extension Officers in Indonesia*. The study adopts the assessment model of e-Learning Readiness Survey (e-LRS) to measure readiness for ICT programme implementation. The main

finding reveals that the extension officers perceived that three out of the four factors (infrastructure, personal and management) as ready for implementation. However, they felt that farmer readiness, technological and organisational cultures; and demographic variables (regency and age) need to be taken into further consideration before embarking on the programme.

Hiroki Yoshida, in the third article, is concerned with role of structured media/ICT education teacher training curriculum standards in promoting in-service and pre-service teacher training. The standards have been revised twice. In his article, *Development and Formative Evaluation of the "Educational Media In-service Teacher Training Curriculum Standards", he* describes the background, process of the revision, features of the new "curriculum standards" and the results of the formative evaluation. *The 33 teacher consultants and social education consultants involved in the formative evaluation viewed the new "curriculum standards" positively and deemed the standard as pertinent and useful to* enhance teachers' knowledge and skills, promote effective use of educational media, raise media specialists, and help curriculum planners develop training programmes/courses.

Muhammad Kamarul Kabilan and Belal Mousa Rajab in the fourth article, *Research on The Utilisation of the Internet by Palestinian English Language Teachers Focusing on Uses, Practices and Barriers and Overall Contribution to Professional Development*, report on the role of the Internet for language teaching and teacher professional development. The findings based on a questionnaire on 274 English Language teachers in Gaza schools indicate that about 50% of them utilised the Internet for teaching English in the classrooms and for various other activities. Barriers that impede a higher degree of utilisation include those related to time, accessibility and facilities. It is suggested that for the proliferation of Internet practices, there needs to be an increase in funding for technology, an introduction of ICT education, and provision of pedagogical training and administrative support for teachers.

Puvaneswary Murugaiah, Hazita Azman, Azizah Ya'acob and Siew Ming Thang in the fifth article, investigate the use of *Blogging in Teacher Professional Development: Its Role in Building Computer-assisted Language Teaching Skills,* in an attempt to demonstrate that teachers' involvement in a community of practice can assist them in the development of appropriate skills and knowledge to teach in the technological-enhanced classroom. The study is based on a study involving Malaysian Smart School English language teachers who shared their knowledge and experiences with other member through blogging. The findings suggest that teacher collaboration via blogs can expose teachers to skills that are critical for computer-assisted teaching and help them to enhance existing competences.

Ranjit Kaur and Gurnam Kaur Sidhu in *Learner autonomy via Asynchronous Online Interactions:* A *Malaysian Perspective*, the sixth article in the issue, explore the extent asynchronous learning promote autonomy among a group of first-year B.Ed.TESL adult distance learners studying at a local university in Malaysia. The findings indicate that they lacked the confidence needed to learn autonomously. Although they displayed some confidence in planning, they required help in organising, monitoring and evaluating their learning which suggest that necessary steps have to be taken to ensure they are empowered with the necessary skills and tools to help them manage their own learning more effectively.

The seventh article by Zhihong Lu, Leijuan Hou and Xiaohui Huang entitled *A Research on a Student-centred Teaching Model in an ICT-based English Audio-video Speaking Class,* examines the feasibility of using a student-centred teaching model to improve students' communicative language ability in an English audio-video speaking class (EAVSC) in computer-assisted language learning (CALL) environment. The authors' university undertook two quantitative

longitudinal case studies. Analysis of correlated data reveals that this specific teaching model is effective in improving students' communicative language abilities, especially in speaking.

Finally, in the last article, *Extracting and Comparing the Intricacies of Metadiscourse of Two Written Persuasive Corpora,* Swee Heng Chan and Helen Tan used the concordancing software, monoConc Pro 2.2. to analyse the use of Metadiscourse (MD) in writing samples of a group of Malaysian undergraduates (MU) and benchmarked them against an established standard, the open access British Academic Written Essays (BAWE) corpus, available online. The study reveals, based on comparison of nature and manner of MD that the MU writers despite obtaining distinction (A1 and A2) in their English subject for their higher secondary school leaving certificate, were still at the evolving writer's stage and have not approximated closely to the writing ability of the BAWE writers. It concludes by discussing the implications of the findings for writing improvement in educational institutions.

ACKNOWLEDGEMENTS

We would like to thank Professor Stewart Marshall for giving us the opportunity to publish this special issue which will not be possible without his guidance and support and the contributions of our team of reviewers who painstakingly went through the articles and gave invaluable feedback to the authors. They are as listed below.

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Assessing the dimensionality of computer self-efficacy among pre-service teachers in Singapore: a structural equation modeling approach

Timothy Teo and Joyce Hwee Ling Koh
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ABSTRACT

This study examines the computer self-efficacy among pre-service teachers (N=708) at a teacher training institute in Singapore. Data were collected through self-reported ratings on a 7-point Likert-type scale. Exploratory factor analysis (EFA) was performed on an initial sample (N=354) and the result revealed that pre-service teachers' computer self-efficacy was explained by three factors: Basic Computer Skills (BCS), Media-Related Skills (MRS), and Web-Based Skills (WBS). Using a separate sample (N=354), a confirmatory factor analysis was performed and this supported the three-factor structure from the initial EFA. A comparison of alternative models revealed that the correlated three-factor and second-order (three-factor) models had the best fits; and were adequate representations of pre-service teachers' computer self-efficacy.

Keywords: *computer self-efficacy; pre-service teachers; confirmatory factor analysis; structural equation modelling, model comparison*

INTRODUCTION

Teachers are expected to use ICT for teaching and administration in today's educational systems (Haydn & Barton 2008). They also act as change agents for technology integration in their schools (Zhao et al 2001). Teachers use technology in two ways (Tubin 2006); one of which is where technology is used to attain the same traditional goals under the same conditions, without significant changes to the classroom activities. The second way is to use technology to expand classroom boundaries, connect students to real-world events, and guide students to become independent learners. It is possible that teachers' use of technology is influenced by their beliefs about teaching and learning. For example, a teacher who believes that students who learn best through teacher-led instruction will tend not to encourage students to explore a technology tool for learning. A study on student teachers' beliefs about teaching and learning and technology use found a positive and strong correlation between teachers' beliefs in constructivist teaching and constructivist (or user-centered) use of technology (Teo et al 2008).

Teachers are generally open-minded about integrating technology into their teaching (Zhao & Frank 2003), but it has been observed that their technology adoption has been slow and below expectations (Selwyn 2003) Research studies have found that teachers' external work environments (Ertmer 2005) or teachers' attitude towards computer use (Teo 2010; Teo et al 2008) may influence how they use technology for teaching. However, Ertmer (2005) argued that although the environmental conditions affecting technology use (e.g. technology infrastructure) have improved, few studies have examined how personal factors such as teachers' beliefs affect technology use in teaching. From their study, Zhao and Cziko (2001) identified that teachers' perceived ability to use technology, i.e. computer self-efficacy affects their technology use. It is a

significant predictor of the intention to use technology (Teo 2009a). In other words, teachers' beliefs about their ability to use technology play an important part in shaping their responses to instructional reforms, including technology integration for teaching and learning (Selwyn et al 2001). It is therefore worthwhile to examine the dimensions underlying their computer self-efficacy, so as to devise strategies to better scaffold their technology adoption process.

Computer Self-Efficacy

Self-efficacy refers to one's belief of their capability to perform a specific task (Bandura 1997). Bandura stated that the focus is not on the actual skills but the judgements one has of what one can do with whatever skills one possesses. Individuals who perceive themselves capable of performing certain tasks or activities are defined as being high in self-efficacy, and are more likely to attempt these tasks and activities; and vice versa. In the context of computer use, computer self-efficacy refers "*to a judgment of one's capability to use a computer*" (Compeau & Higgins 1995, p.192). For example, Compeau and Higgins found that an individual's use of technology was affected by their self-efficacy and that participants with higher self-efficacy beliefs used computers more often and experienced less computer-related anxiety. The authors also noted that individuals with higher computer self-efficacy beliefs tend to see themselves as able to use computer technology. Those with lower computer self-efficacy beliefs tend to become more frustrated and anxious when working with computers; and hesitate to use computers when they encounter obstacles.

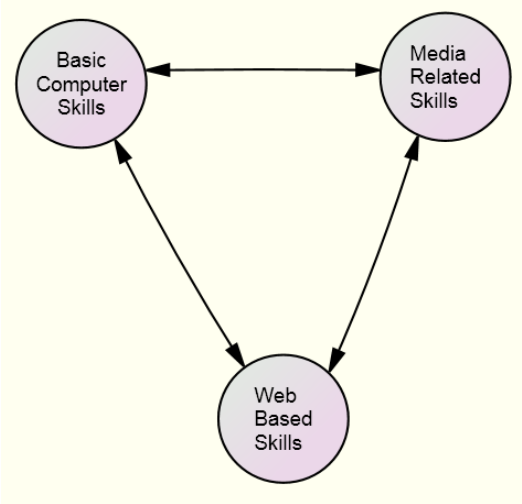
Computer self-efficacy has a major impact on an individual's expectations towards using computers (Compeau & Higgins 1995) and individuals who did not see themselves as competent computer users tend not to use computers (Oliver & Shapiro 1993). Studies conducted at the work force (Burkhardt & Brass 1990; Harrison & Rainer 1997) found that computer self-efficacy increases performance and reduces computer induced anxiety. Albion (2001) has noted that teachers' computer self-efficacy is a significant factor determining their patterns of computer use. For pre-service teachers, their computer self-efficacy significantly predicted their ability to integrate technology use in the classroom (Litterell et al 2005; Zhao et al 2002).

Computer self-efficacy can be viewed as application-specific and measured as one's perceived confidence for the different domain-specific skills with respect to computer use (Marakas et al 1998). A popular measure, the computer self-efficacy scale, was created by Murphy et al (1989) for measuring individuals' perceptions of particular computer-related knowledge and skills. The 32-item scale measures three levels of computing skills: beginner's level, advanced level, and a level associated with mainframe computers. Since then, many researchers have adapted the original Murphy's computer self-efficacy scale (Davis & Davis 1990; Harrison & Rainer 1997), while others have adapted a slightly modified version of the Murphy scale (Torkzadeh & Koufteros 1994; Zhang & Espinoza 1998). Computer self-efficacy scales have also been developed for teachers (e.g. Enochs et al 1993; Kinzie et al 1994; Ropp 1999; Wang et al 2004). However, a difficulty faced with using existing computer self-efficacy scales is the need to replace items associated with out-dated technology such as computer diskettes and CD-ROM databases (Abbitt & Klett 2007). The proliferation of Web 2.0 and media tools for educational has also made it important to consider these technologies as part of teachers' computer self-efficacy evaluation. Recent studies have started to explore more specific types of computer self-efficacy, e.g. internet self-efficacy (Lee & Tsai 2010). Less attention has been paid on developing a generic computer self-efficacy scale that incorporates basic computer skills, web-based skills, and skills with media tools.

Purpose of the Study

The purpose of this study is therefore to examine the dimensions of pre-service teachers' computer self-efficacy. Figure 1 shows the dimensions of computer self-efficacy in this study. In Figure 1, pre-service teachers' computer self-efficacy was hypothesised to comprise three dimensions: (1) Basic Computer Skills, (2) Media-Related Skills, and (3) Web-Based Skills. The research question examined was: Can the computer self-efficacy of pre-service teachers be adequately explained by three dimensions: Basic Computer Skills, Media-Related Skills, and Web-Based Skills?

Figure 1*: Dimensions of Computer Self-Efficacy*



METHOD

Research Participants and Data Collection

Participation in this study was voluntary and 708 pre-service teachers were recruited from a cohort of 786 students enrolled in the one-year Postgraduate Diploma in Education programme at a teachers' institute in Singapore. They responded to an invitation issued by the author and those who agreed to take part in this study were given a URL to access an online survey questionnaire. The mean age of all participants was 26.39 (SD=4.68). All participants were briefed on the purpose of this study and told of their rights to withdraw during or after they had completed the questionnaire. No course credit or rewards were given to the participants who, on average, took less than 10 minutes to complete the questionnaire. In structural equation modeling, it is recommended that proposed initial model be validated with another sample that was not used in the initial model development (Schumacker & Lomax 2004). Therefore, the sample of this study (n=708) was randomly split into two (n=354).

Measures

A 13-item survey questionnaire was developed to measure participants' computer self-efficacy in addition to demographic information. Each item was meant for participants to report their computer self-efficacy with respect to different types of basic, web-based, and media-based technologies. For example, "I am able to use the Internet to search for information and resources" and "I am able to use digital media collection tools (e.g. digital camera, digital video camera) for teaching or administration purposes". The actual technology tools (e.g. PowerPoint) were included in the questionnaire items to help participants relate to their personal experiences when responding to these items. In addition, as faculty members in the institution where the participants in this study were selected from, the authors had a good understanding of the technology tools that the pre-service teachers were exposed to. Each item was measured on a seven-point Likert scale with 1=strongly disagree to 7=strongly agree. Ten of these items were used in Teo (2009b) which loaded on three factors and were found to possess high composite reliabilities ranging from .88 to .89.

Statistical Analysis

Structural equation modeling (SEM) was used as the main technique for data analysis in the study. Data were screened for missing data and outliers. This was followed by exploring the factor structure implicit in the 13 items and establishing convergent and discriminant validities. Subsequently, the number of factors retained through exploratory factor analysis was confirmed using confirmatory factor analysis. Finally, the research model and various alternative models were compared against each to select the best fitting model that explained the dimensionality of computer self-efficacy of pre-service teachers in Singapore. To obtain reliable results in structural equation modelling, researchers recommend that a sample size of 100 to 150 cases (e.g. Kline 2005). In addition, Hoelter's (1983) conception of the critical N, which refers to the sample size for which one would accept the hypothesis that the proposed research model is correct at the .05 level of significance, was examined. The Hoelter critical N for the model in this study was 99. The sample size of this study was 354 for both the initial model and validation samples; and therefore the total sample for this study was considered adequate for the purpose of structural equation modelling.

RESULTS

Descriptive Statistics

All mean scores were above the mid-point of 4.0 except for three items. The standard deviations ranged from .74 to 1.84 and the skewness and kurtosis indices were within the recommended values of |3| and |10| respectively (Kline 2005). These values suggested that the data distribution was univariate and the sample size of 354 satisfied the minimum requirement for factor analysis as there were, over 20 cases per variable.

Exploratory Factor Analysis

Initially, the factorability of the 13-items scale was examined. Several well-recognised criteria for the factorability of a correlation were used. Firstly, all items correlated at least .3 with at least one other item, suggesting reasonable factorability. Secondly, the Kaiser-Meyer-Olkin measure of sampling adequacy was .87, above the recommended value of .6, and Bartlett's test of sphericity was significant (χ^2 (78) = 2338.91, p < .001). Finally, the communalities were all above .3, further

confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was conducted with all 13 items.

Principal components analysis was used because the primary purpose was to identify and compute composite scores for the factors underlying computer self-efficacy among the pre-service teachers. The initial eigenvalues showed that the first factor explained 38.78% of the variance, the second factor explained 19.97% of the variance, and a third factor explained 8.03% of the variance. Based on the rotated component matrix, one item was eliminated because it did not contribute to a simple factor structure and failed to meet a minimum criteria of having a primary factor loading of .60 or above (Hair et al 2006). The item was "I am able to use digital media collection tools (e.g. digital camera, digital video camera) for teaching or administration purposes." A principal components factor analysis of the remaining 12 items, using Varimax and Oblimin rotations was conducted, with the three factors explaining 68.5% of the variance. All items had primary loadings over .60. The factor loading matrix for this final solution is presented in Table 1.

From the items, the factors were labeled as *Basic Computer Skills* (BCS, Items 1, 2, 3, 4, & 10), *Media-Related Skills* (MRS, Items 5, 6, 7, & 8), and *Web-Based Skills* (WBS, Items 9, 11, & 12). The internal consistency for each of the factors was examined using Cronbach's alpha. The alphas were moderate -- .71 for *BCS* (5 items), .83 for *MRS* (4 items), and .68 for *WBS* (3 items). Overall, these analyses indicated that three distinct factors underlie pre-service teachers' computer self-efficacy and these factors had moderate internal consistency. Table 2 shows the descriptive statistics for the composite score data of the three factors retained from the principal components analysis. The results show an approximately normal distribution for in the current study. Thus, the data were well suited for further statistical analyses.

Table 1*: Factor loadings and communalities based on a principle components analysis with Oblimin rotation for 12 items (N = 354)*

No	Item	1	2	3	h^2
BCS1	I am able to use the internet to search for information and resources	**.79**	-.05	.30	.71
BCS2	I am able to use word processor to create, edit and format documents for specific purposes. (e.g. Microsoft Word)	**.87**	.00	.28	.84
BCS3	I am able to use Presentation Software (e.g., Microsoft PowerPoint) for classroom delivery	**.81**	.11	.34	.79
BCS4	I am able to use spreadsheet to record data, compute simple calculations and represent data in the form of tables and graphs (e.g. Microsoft Excel)	**.74**	.33	-.24	.70
BCS5	I am able to use email (e.g., Hotmail, Outlook, Yahoo, Gmail, and MyEdumail) for communication	**.67**	-.16	.48	.70
MRS1	I am able to use website Editors (e.g. Microsoft FrontPage, and Macromedia Dreamweaver) to create and/or modify web pages	.03	**.85**	.05	.72
MRS2	I am able to use video editing software (e.g. Microsoft MovieMaker, Adobe Premier, and Ulead VideoStudio)	.01	**.77**	.30	.68
MRS3	I am able to use graphic Editors (e.g., Microsoft	.14	**.64**	.37	.57

No	Item	1	2	3	h^2
	Paint, Adobe Photoshop) to create and/or modify resources for teaching				
MRS4	I am able to use animation software (e.g., Macromedia Flash, Authorware, and Director) to create animations	-.02	**.88**	.02	.77
WBS1	I am able to use blogging for personal use	.13	.32	**.74**	.66
WBS2	I am able to use conferencing Software (e.g., Yahoo, IM, MSN Messenger, ICQ, and Skype) for collaboration purposes	.38	.05	**.69**	.62
WBS3	I am able to use a learning management system (e.g. Blackboard, IVLE, WebCT, and Moodle) to support teaching	.22	.27	**.59**	.46
	Eigenvalue	3.26	2.82	2.15	---
	Total Variance explained	27.15	23.46	17.93	---

Note: Factor 1= Basic Computer Skills; Factor 2=Media-Related Skills; 3=Web-Based Skills

***Table 2**: Descriptive statistics for the composite scores of the three factors measuring pre-service self-efficacy (N = 354)*

	No. of items	M	SD	Skewness	Kurtosis	Alpha
Basic Computer Skills	5	6.26	.66	-2.09	10.52	.71
Media-Related Skills	4	3.56	1.45	.21	-.63	.83
Web-Based Skills	3	5.52	1.17	-1.12	1.57	.68

Confirmatory Factor Analysis

The research model in this study was tested with the structural equation model approach, using AMOS 7.0 (Arbuckle 2006). The parameters were estimated using the Maximum Likelihood (ML) estimator and data were tested for reliability and validity using confirmatory factor analysis (CFA) on a separate sample of participants (n=354). The model in this study included 12 items which loaded on three constructs. Prior to testing the model, convergent and discriminant validities of the constructs in this study were examined.

Convergent validity was established by examining the item reliability, composite reliability (internal consistency), and the average variance extracted for each construct (Fornell & Lacker 1981). Item reliability was measured by the critical ratio (CR) where the value of 1.96 or more indicated that an item was significantly different from zero at the $p < .05$ level. The R^2 measures the proportion of variance in the construct was explained by an item. At the construct level, the average variance extracted (AVE) was computed as a measure of the overall amount of variance that was attributed to the construct in relation to the amount of variance attributable to measurement error. Convergent validity was judged to be adequate when average variance extracted equalled or exceeded 0.50. Table 1 shows the analysis of the measurement model. All parameter estimates were significant at $p < .001$ and most of the R2 values were above .40. Composite reliability using Cronbach's alpha was moderate for all constructs, ranging from .68 to .83. All AVEs are above the recommended value of .50, indicating that convergent validity is achieved.

***Table 3**: Results for the measurement model*

Latent Variable	Item	UE	SE	CR	R^2	Alpha	AVE (= > .50)*
Basic Computer Skills						.72	.62
	BCS1	1.233	.799	15.726	.638		
	BCS2	1.523	.954	15.613	.910		
	BCS3	1.492	.901	15.189	.812		
	BCS4	1.285	.483	8.704	.233		
	BCS5	1.000	.672	***	.451		
Media-Related Skills						.83	.62
	MRS1	1.152	.829	12.539	.688		
	MRS2	.954	.659	11.225	.434		
	MRS3	.940	.696	9.972	.484		
	MRS4	1.000	.757	***	.573		
Web-Based Skills						.68	.51
	WBS1	1.104	.574	8.434	.330		
	WBS2	.974	.737	9.744	.543		
	WBS3	1.000	.652	***	.425		

Notes:
USE: Unstandardised Estimate
SE: Standardised Estimate
CR: Known as critical Ratio, this value tests whether a parameter is significantly different from zero.
R^2: This represents the proportion of variance in the latent variable that explained by this item.
AVE: Average Variance Extracted= $(\sum\lambda^2) / n$
*Indicates an acceptable level of reliability or validity (Hair et al., 2006)
*** This value was fixed at 1.00 in the model for estimation purposes.

To establish discriminant validity, the variance shared between a construct and any other construct in the model need to be assessed (Fornell et al 1982). This was done by comparing the square root of the average variance extracted for a given construct with the correlations between that construct and all other constructs. If the square roots of the AVEs were greater than the off-diagonal elements in the corresponding rows and columns, it suggested that the given construct was more strongly correlated with its indicators than with the other constructs in the model; and discriminant validity was achieved. In Table 4, the diagonal elements in the correlation matrix were replaced by the square roots of the average variance extracted. The values suggested that discriminant validity was present at the construct level or all the variables in the research model.

***Table 4**: Discriminant validity for the measurement model*

Construct	BCS	MRS	WBS
BCS	(.79)		
MRS	.27**	(.79)	
WBS	.46**	.41**	(.71)

***p*< .01
Diagonal in parentheses: square root of average variance extracted from observed variables (items);
Off-diagonal: correlations between constructs

In testing for model fit, it is customary to use fit indices from various categories. Absolute fit indices measure how well the proposed model reproduces the observed data. Parsimonious fit

indices are similar to the absolute fit indices but they take into account the model's complexity, and incremental fit indices assess how well a specified model fit relative to an alternative baseline (null) model. In this study, the Tucker-Lewis index (TLI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean residual (SRMR) were used. Researchers recommend a minimum value of .90 for TL and CFI, and .08 for RMSEA and SRMR to represent an acceptable model fit (e.g. Schumacker & Lomax 2004). Because the χ^2 has been found to be too sensitive to an increase in sample size and the number of observed variables (Hair et al 2006), the ratio of χ^2 to its degree of freedom (χ^2/df), was used, with a range of not more than 3.0 being indicative of an acceptable fit between the hypothetical model and the sample data (Carmines & McIver 1981). The results revealed an acceptable fit for the research model (figure 1) in this study (χ^2= 124.004; χ^2/df =2.952; TLI=.939; CFI=.961; RMSEA=.074 [.059, .090]; SRMR=.069).

As part of confirmatory factor analysis, several models were computed to compare different conceptualisations of the factor structure. The first was a one-factor model that tested whether all the items loaded on one overall factor. A one-factor model suggested that participants did not differentiate among the factors, and that all items were representative of a unidimensional construct. The second was an uncorrelated factor model that tested whether all the three factors in the model were independent. This model suggested that the three factors were not related to one another and were perceived as three different constructs. The third was a correlated factor model that tested whether the three factors were related to one another. Support for this model indicated that participants had discriminated between the three factors but they were inter-correlated with one another. The fourth was a hierarchical model that tested the notion that a second-order factor existed to account for the relationships among the three factors. Support for this model suggested that while all the three factors were related, they were also related to a higher order factor. A series of CFAs were conducted to test the four models described above. Table 5 shows the fit indices for each model. The results show that models three and four are better fitting models with no differences in their fit indices. In other words, the correlated and second-order models are adequate representations of the dimensions of computer self-efficacy of the pre-service teachers in this study. As such, models three and four would be retained as the models of best fit.

Table 5*: Confirmatory Factor Analysis of alternative models*

Model	χ^2	df	χ^2/df	TLI	CFI	RMSEA	SRMR
1. One-factor	603.045	45	13.401	.615	.737	.187	.160
2. Uncorrelated factor	282.270	45	6.273	.836	.888	.122	.194
3. Correlated factor	124.004	42	2.952	.939	.961	.074	.069
4. Second-order	124.004	42	2.952	.939	.961	.074	.069

*p <.001

DISCUSSION AND CONCLUSION

The aim of this study is to examine the dimensionality of pre-service teachers' computer self-efficacy. Using structural equation modelling, the results show that the pre-service teachers' computer self-efficacy is a multidimensional construct underlying three dimensions: BCS, MRS and WBS. These three dimensions significantly correlate with each other at a moderate level, suggesting that they are indeed perceived as separate skills although collectively, the results

suggest that pre-service teachers perceived these dimensions as a unitary construct for self-efficacy.

This study provides additional insights to theory by statistically confirming the multidimensional nature of the computer self-efficacy, with special reference to users in an educational context such as pre-service teachers. In an age where the use of technology for teaching and learning is pervasive in many educational system, it is important to understand the drivers that predict and motivate technology usage. Research has shown that computer self-efficacy is a significant predictor of usage and intention to use technology. This study provides empirical evidence to support a position that suggests computer self-efficacy to be a multidimensional construct.

The findings of this study also contribute to the measurement of computer self-efficacy by using items which included the use of actual tools (I am able to use word processor to create, edit and format documents for specific purposes, e.g. Microsoft Word) and situations where technology are used (In my lesson, I use technology to teach my student to work collaboratively). Some instrument measuring computer self-efficacy had employed scale items that are worded in very general terms (e.g. I could complete a job or task using the computer if I could call someone for help if I got stuck). The statistical findings from this study suggest that the scores for the items for each dimension could be summed to obtain a composite score. These can then be summed or averaged to arrive that a single score to assess a user's computer self-efficacy. In this study, the item scores obtained from BCS, MRS and WBS could be averaged to obtain three mean scores. These can then be combined into one score to reflect a user's computer self-efficacy.

This study found that Singapore pre-service teachers had high computer self-efficacy with respect to BCS (M=6.26). They also had fairly high computer self-efficacy with respect to their WBS (M=5.52). The latter was similar to a survey of older, in-service Taiwanese teachers conducted by Lee and Tsai (2010). It can be interpreted that the proliferation of computer and web-based technologies has generally improved teachers' confidence with using these technologies. However, Singapore teachers were not confident with their MRS (M=3.56). This could be because media production software for graphics and animation are more specialised tools that were less familiar to the teachers (Koh & Frick 2009). There is a need to enhance Singapore's teachers' computer self-efficacy in these areas so that firstly, they have the confidence to produce media-rich learning objects to support teaching and learning. Secondly, enhancing their self-efficacy with media tools can help them become more confident of facilitating students' use of media production software for learning.

To conclude, this study has validated a three-factor scale for measuring the computer self-efficacy of teachers with respect to BCS, WBS and MRS. Further study of this construct can be carried out so that the relationships between computer self-efficacy and teachers' technology integration practice can be better understood.

Limitations of the Study

The use of self-reports in this study to collect data may lead to the common method variance, a situation that may inflate the true associations between variables. Next, using pre-service teachers may not accurately mirror the experiences of the practicing (in-service) teachers, hence limiting the ability to generalise the results of this study to all educational users. Finally, the total variance explained by each of the variables in this study: BCS, MRS and WBS were 69%, leaving 31% unexplained. There is a possibility that other dimensions may increase the explanatory ability of the research model in this study.

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An assessment of readiness and barriers towards ICT programme implementation: Perceptions of agricultural extension officers in Indonesia

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ABSTRACT

This study investigates agricultural extension officers' perception of readiness and barriers towards implementation of ICT programme. Data were gathered from 312 extension officers affiliated with public organisations of the Ministry of Agriculture in four regencies of Indonesia. Descriptive statistics, exploratory and confirmatory factor analysis, and one-way ANOVA were applied to analyse the data. In order to provide better insights, this study adopts the assessment model of e-LRS to measure the readiness of ICT programme implementation. The first finding reveals that they perceived that three out of the four factors of readiness as positive. The e-LRS assessment revealed that they perceived farmer readiness as lowest and thus considered it as a barrier. The second finding reveals that technological and organisational cultures were also seen as the main barriers of ICT programme implementation. The third findings show that they felt that the two demographic variables, regency and age, must also be considered when ICT programmes are implemented. The results of this study can provide guidance to the government or relevant organisations when considering readiness and barriers towards implementing ICT programmes. In addition, this study advances the theory of adoption behavior and contributes to the foundation for future research aimed at improving our understanding of agricultural extension officers' behavior.

Keywords: *ICT; agricultural extension officers; readiness; perceived barriers.*

INTRODUCTION

The use of information and communication technology (ICT) is becoming progressively more widespread throughout various sectors including education, business as well as agriculture. One of the most popular ICT applications is e-Learning. With e-Learning, we can use available technologies to enhance learning and expand access to education and training in the agricultural sector. The use of e-Learning systems in the field of agricultural extension is becoming popular due to the development of ICT. Omotayo (2005) observes that frontline extension workers who become the direct link between farmers and other actors in the extension of agricultural knowledge and information systems are well positioned to make use of ICT to access expert knowledge or other types of information that could facilitate the accomplishment of the farmers' routine activities.

According to Technical Centre for Agricultural and Rural Cooperation (CTA) (2003), ICT are technologies which facilitate communication and thus the processing and transmission of information electronically. Quoting the United States Agency for International Development, Akpabio et al (2007) clarify that ICT includes technologies and methods for storing, managing and processing as well as communicating information. Scholars Adebayo and Adesope (2007) describe ICT as scientific, technological and engineering disciplines and the management technologies used in the handling of information, processing and applications related to

computers. ICT as an extension tool could enhance the flow of information in the application of agricultural extension services. Ballantyne and Bokre (2003) indicate that agricultural extension, which depends to a large extent on information exchange between and among farmers, has been identified as one area in which ICT can have a particularly significant impact. Further, Annor-Frempong et al (2006) noted that these technologies are increasingly being seen as cost-effective and as practical tools to facilitate information delivery and knowledge sharing among farmers, extension agents and other stakeholders.

Indonesia's economic growth as a big developing country in Asia is supported by the agricultural sector. The fact that Indonesia is an archipelago country covering such a vast area, should allow e-Learning as a suitable choice for ICT implementation to support the nation's effort in delivering education to all the people (Koswara & Maria 2004). Recently, the Indonesian Ministry of Agriculture boosted the ICT programme through a project called FEATI (Farmer Empowerment through Agricultural Technology and Information Project). This is a joint-project with the International Bank for Reconstruction and Development (IBRD). The FEATI project aimed to help the Ministry of Agriculture expand its services through the development of a comprehensively integrated information and knowledge management system with broad outreach and valuable services.

ICT programme implementation in a developing country relies on various facets such as infrastructure, government policy, cultural factors, organisational and human resources. Human resources are one of crucial factors to help diffuse the ICT programme. Hence, this study focuses on the human resources factor to investigate the readiness and barriers perceived by agricultural extension officers (AEO). This study intends to explore factors, which may need to be improved before the ICT programme is implemented. Identifying these factors will help increase the knowledge regarding the officers' perception of using ICT for the agricultural sector. Assuming that these factors can be clearly identified, the information can be used by the extension organisation to increase the use of this approach of learning as well as improve the quality of agricultural learning. This, in turn, will have a positive impact on sustainable agricultural development in Indonesia and the economy of the developing country in general. The results will also serve as a valuable baseline of ICT diffusion, so that the growth or decline of this approach can be tracked.

Therefore, the main purpose of this study is to investigate the AEO readiness and barriers towards ICT programmes in the agricultural sector. This study is performed with the guidance of the following research questions:

- What is the readiness level as perceived by the AEO towards ICT programme implementation?
- What is the barriers level as perceived by the AEO towards ICT programme implementation?
- Do demographic variables (regency, gender, age, education, job category) of AEO affect their perception of readiness and barriers towards ICT programme implementation?

LITERATURE REVIEW

Nowadays, the majority of Asians in developing countries need to build massive ICT infrastructures to take advantage of agricultural information (Woods et al 2002). By using ICT, particularly the Internet, agricultural information is accessed more easily and the scope for communication also enlarges. There are experiences gained from the involvement of ICT within organisations in Asian such as the International Rice Research Institute (IRRI) and Asia Pacific

Regional Technology Centre (APRTC) and Sustainable Development e-Learning Network (SDLEARN). They found that application of ICT on e-Learning in particular, is an effective alternative in addressing the continuing educational needs of agricultural knowledge especially in the areas of sustainable agriculture and natural resource management (Abdon et al 2006).

The benefits of utilisation of ICT as an e-Learning media for agricultural extension and training purposes are well documented (Hafkin & Odame 2002; Richardson, 2005). Chamala and Shingi (1996) confirm that ICT use for extension activities will ultimately transform extension officers into catalysts, who play their roles of empowerment in community organisations, human resource development, problem solving and educating farmers. Furthermore, Richardson (2005) argues that extension organisations have a key role in brokering between communication technologies, providing technologies and services, and the client groups they serve. Woods et al (2002) underlines that the traditional role of extension workers includes assessing and articulating technological needs of the farmers, studying and developing new technology, testing and evaluating new technology, and transferring new technology to farmers. In particular, AEO have a significant role in bridging the technological gap between the existing scientific knowledge base and information and knowledge of the farmers. As of now, the most appropriate target learners of ICT programmes are knowledgeable intermediaries such as AEO.

On the other hand, ICT programme implementation relies on various facets such as the infrastructure, government policy, cultural factors, organisational factors, and human resources. Soekartawi (2005) identifies some problems in developing countries as being related to infrastructure and Internet connection, human resources, policy support from government and pedagogy. He emphasises that human resources is one of crucial factors to diffuse utilizing ICT to learners. Kauffman and Kumar (2005) introduce three stages of diffusion of ICT at the country level of analysis are the ICT readiness stage, the ICT intensity stage and the ICT impact stage. In the first stage of ICT readiness, they argue that when the technology is new to a country or a region, the readiness of its people to adopt it is a crucial issue. On the other hand, Kaur and Abas (2004) noted that ICT readiness assessment allows one to design comprehensive e-Learning strategies and effectively implement ICT goals. Hence, generally ICT readiness assessments help a country's leaders to measure and plan for ICT integration, focus their efforts and identify areas where further attention is required (Krull 2003).

Quoting the Merriam Webster's Online Dictionary, So and Swatman (2006) clarify that readiness is defined as being "*prepared mentally or physically for some experience or action*". In terms of e-Learning, Borotis and Poulymenakou (2004, p.1622) defined e-Learning readiness as "*the mental or physical readiness of an organization for some e-Learning experience or action*". Trinidad (2002) proposes an initial assessment of the Philippines' preparedness for e-Learning which consisted of several technological factors such as computer, internet, and telephone line readiness; educational factors such as network learning, network society, network economy and network policy; English proficiency and computer/internet literacy. Chapnick (2000) differentiates model group factors into eight categories: psychological, sociological, environmental, human resources, financial, technological skill, equipment and content readiness. Another scholar, Watkins (2003) proposes the initial self assessment instrument consisted of 40 statements related to readiness for e-Learning success, which were grouped into 10 scales (e.g. technology access, technology skills, online readings and Internet chat).

A previous study from Mungania (2003) revealed that e-Learning barriers are heterogeneous, encompassing seven types of barriers, namely: (1) personal or dispositional, (2) learning style (3) instructional, (4) situational, (5) organisational, (6) content suitability, and (7) technological barriers. Muilenburg and Berge (2005) determine eight barriers factors to online learning including administrative/instructor issues, social interactions, academic skills, technical skills, learner

motivation, time and support for studies cost and access to the Internet and technical problems. A more recent study by Ali and Magalhaes (2008) divided the barriers in the adoption of e-Learning into two factors: organisational and technical issues. As for the technical barriers, the most commonly cited are system crashes, bandwidth and infrastructure upgrading, accessibility, usability, technical support and perceived difficulties in using such a system. The organisational barriers include lack of time available for training; cost versus value; lack of appropriate content related to specific needs; language barrier (as most of the content is delivered in English); difficulties in measuring e-Learning effectiveness; lack of strategic planning and direction, lack of e-Learning awareness; lack of incentives; and finally, lack of management support (Baldwin-Evans 2004).

Some prior studies have demonstrated that demographic and characteristic background such as age, gender, ethnicity, marital status, level of education, prior experiences with computers and the Internet influence the ICT and or e-Learning adoption (Durndell & Thomson 1997; Whitely 1997; Teo & Lim 2000; Muilenberg & Berge 2005; Ong & Lay 2006). Therefore, this study which examines some key demographic variables which influence the readiness and barriers towards ICT programme implementation in Indonesia will be a significant contribution to knowledge in this area.

METHODS

This study carried out quantitative research to investigate perceptions of readiness and barriers towards ICT programme implementation. The methodology used in this study was the survey method, whereby researchers distribute hardcopies of questionnaires to respondents. Respondents of this study were AEO affiliated with public organisations of the Ministry of Agriculture of Indonesia from Central Java, including Yogyakarta, Indonesia. In the beginning stage, the government determined only four regencies among 35 regencies in Central Java should implement ICT programmes. Hence, all AEO in the four regencies were asked to participate in this study. The questionnaires were administrated to 546 AEO. A total of 336 questionnaires were returned, of which 312 were valid giving an effective response rate of 57.1%. Descriptive statistics, exploratory and confirmatory factor analysis, one-way analysis of variance (ANOVA) and post hoc test Scheffe's Multiple Comparisons were applied to analyse the data using SPSS version 15.

In order to provide better insights on readiness, this study applied the assessment model from Aydin and Tasci's study (2005). They argued that alternatives were designed in a way that provides easy coding and assessment for the users. Moreover, they detailed that the alternatives can easily be coded as 1, 2, 3, 4 and 5, as in a five-point Likert scale. Therefore, the mean score of 3.4 can be identified as the expected level of readiness, while other responses enable organisations to show higher or lower levels of readiness. The mean average of 3.4 was determined after identifying the critical level: 4 intervals/5 categories = 0.8 (see Figure 1).

The questionnaire was developed through two steps. In the first step, the questionnaire was adopted from previous studies. The items of measurement for readiness were adapted from So and Swatman (2006). To measure the organisational culture and individual barriers, this study adapted the questionnaire from Mungania (2003). The items of measurement of technological barriers were adopted from Akpabio et al (2007), while the policy barriers were adopted from Soekartawi (2005). In the second step, several in-depth interviews were conducted with the head of the Extension Development Center and the head of FEATI projects from the Ministry's Agriculture Department to explore the research area and to clarify terminology (e.g. Which are the

most suitable areas to conduct this research? Are the questions easy to understand by the respondents?). A five-point Likert scale was used for 47-items with responses ranging from strongly disagree (1) to strongly agree (5) (refer to Table 2 and 3).

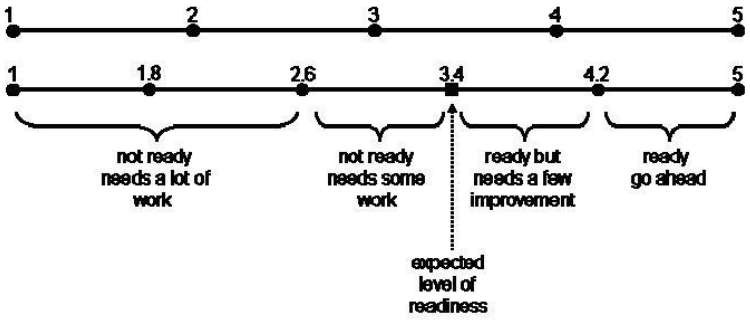

***Figure 1**: Assessment model of the e-LRS*

RESULT AND DISCUSSION

Respondents' Demographic Variables

To provide a better insight into the participants, respondent demographic variables including regency, gender, age, education and job category were analysed. Table 1 show that the four regencies have almost the same number of respondents (around 25%). Gender composition consists of 79.2% male respondents. Most of the respondents are in the age range of 40-50 years old (51.3%). The highest level of education is that of a bachelor degree (60.3%). In terms of job category, a majority of the respondents (50%) are general extension officers, followed by those in forestry (13.1%) and foodstuff crops (11.5%).

***Table 1**: Respondents' demographical profile*

No.	Aspect	Options	Frequency	Percent
1.	Regency	1. Magelang	77	24.7
		2. Kulonprogo	76	24.4
		3. Bantul	80	25.6
		4. Gunungkidul	79	25.3
2.	Gender	1. Male	247	79.2
		2. Female	65	20.8
3.	Age (years old)	1. 20 – 30	26	8.3
		2. 30 – 40	39	12.5
		3. 40 – 50	160	51.3
		4. > 50	87	27.9
4.	Education	1. Senior high school	41	13.1
		2. Vocational	73	23.4
		3. Bachelor degree	188	60.3

		4. Master degree	10	3.2
5.	Job Category	1. General	156	50
		2. Plantation	23	7.4
		3. Forestry	41	13.1
		4. Foodstuff crops	36	11.5
		5. Livestock	26	8.3
		6. Fishery	17	5.4
		7. Contract employee	13	4.2

Reliability Analysis

Cronbach's Alpha was employed to investigate the reliability of the factors. According to Nunnaly (1978), a Cronbach's Alpha score of 0.70 or higher is considered to show proof of internal consistency. The results of exploratory factor analysis of readiness show that values of Cronbach's Alpha are higher than 0.80. As shown in the Table 2, acceptable reliability is demonstrated for each of the variables: 0.910 for farmer readiness, 0.812 for personal readiness, 0.804 for management readiness and 0.833 for infrastructure readiness.

Table 2*: Result of exploratory factor analysis of readiness*

Items Questions	Factor			
	1	2	3	4
Farmer Readiness				
1. The farmers know that ICT can be used as a learning tool	.863			
2. The farmers are capable of managing their time in order to use ICT	.833			
3. The farmers have enough skills to use ICT	.814			
4. I think the farmers are ready to use ICT	.792			
5. Access to the Internet is not a problem for the farmers	.755			
Personal Readiness				
6. I know how ICT can be used as a learning tool		.689		
7. I think ICT is helpful in improving extension and learning		.709		
8. I think it is the right time to promote ICT in agricultural department		.702		
9. I am ready to integrate ICT utilities in my extension programme		.752		
10. I have enough ICT competency to prepare learning materials		.723		
Infrastructure Readiness				
11.The infrastructure in agricultural department can support ICT implementation				.878
12. The technical support is adequate to support ICT				.873
13. The agricultural department can afford the budget to use ICT in extension & learning				.754
Management Readiness				

Items Questions	Factor			
	1	2	3	4
14. My principal / senior management knows what is ICT			.778	
15. My principal / senior management supports the use of ICT			.858	
16. The agricultural department has a plan for ICT implementation in the coming future			.780	
Cronbach's Alpha	**0.910**	**0.812**	**0.804**	**0.833**
Eigenvalue	**6.208**	**2.331**	**1.554**	**1.306**
Cumulative Variance explained(%)	**38.80**	**53.37**	**63.02**	**71.18**

The results of exploratory factor analysis of perceived barriers show that values of Cronbach's Alpha are higher than 0.80. As shown in Table 3, acceptable reliability is demonstrated for each of the variables: 0.863 for the organisational culture barriers, 0.875 for the individual barriers, 0.848 for the technological barriers and 0.866 for the policy barriers.

***Table 3**: Result of exploratory factor analysis of barriers*

Items Questions	Factor			
	1	2	3	4
Organisation culture barriers				
1.Lack of training availability to learn ICT				.804
2.Limitations of technical support from organisation				.807
3.Interpersonal barriers to share among employee				.821
4.Lack of awareness in availability of ICT				.703
Individual barriers				
1.Lack of confidence in ability to use ICT	.653			
2.Lack of learner motivation towards using ICT	.753			
3.Language problems towards using ICT	.797			
4.Less preferences in using ICT	.751			
5.There is a lack of skills to use ICT	.819			
6.Time management problems in learning to use ICT	.741			
Technological barriers				
1.Poor infrastructure development in agriculture sector		.771		
2.The cost of broadband connection too high		.758		
3.Less-availability of ICT in agriculture sector		.789		
4.Low computer literacy level in agriculture community		.740		
5.Restricted use of available ICT in agriculture sector		.777		
6.Poor interconnectivity in the rural area		.692		
Policy barriers				
1.The existing government policies and regulations about ICT are shaky			.828	
2.Law related to ICT policies in agriculture sector are not			.858	

Items Questions	Factor			
	1	2	3	4
support				
3.Policies in implementation that include special rate for telephone or internet for agriculture sector are not support			.828	
4.Budgeting in the availability of ICT in agriculture sector are limited			.871	
Cronbach's Alpha	**0.875**	**0.848**	**0.866**	**0.863**
Eigenvalue	**5.26**	**3.54**	**2.83**	**1.41**
Cumulative Variance explained(%)	**26.28**	**44.00**	**58.16**	**65.20**

Measurement Validation

In this study, all measurement models were evaluated on multiple criteria such as uni-dimensionality, convergent validity and discriminant validity. Before a confirmatory factor analysis (CFA) of the measurement model was performed, an exploratory factor analysis (EFA) was conducted by principal component analysis (PCA) with varimax rotation. In order to decide which of the factors should be extracted and rotated, three methods were used: (1) a cut point of 0.4 and no significant cross loading criteria; (2) screen plot tests and (3) consideration of eigen value magnitude and discontinuity (Hair et al 1998). As shown in Table 2 and Table 3, EFA results from both readiness and perceived barriers suggest a clean four-factor solution (with item loading >0.7 and small cross loading). The four factors of readiness corresponding to farmer, personal, infrastructure and management readiness, while the four factors of barriers are organisational culture, individual, technological and policy barriers.

Then, the four factor model with all indicators of these four constructs of readiness and barriers were estimated using CFA, which showed that both measurement models have acceptable fits. Since the modification of indices and estimated residuals were small, uni-dimensionality was also achieved (Sujan et al 1994). The convergent validity was evaluated with three criteria: (1) factor loading for an item should exceed 0.7, (2) composite reliability should be greater than 0.7, and (3) average variance extracted (AVE) for a construct should be greater than 0.5 (Fornell & Larcker 1981). Finally, discriminant validity was assessed by verifying that every construct's square root of AVE is larger than its correlations with other constructs (Fornell & Larcker 1981).

***Table 4**: Confirmatory factor analysis for convergent and discriminant validity of readiness*

	Items	Composite Reliability	AVE	Factor correlations			
Construct				1	2	3	4
1. Farmer readiness	5	0.911	0.672	**.820**			
2. Personal readiness	5	0.830	0.500	.183	**.707**		
3. Infrastructure readiness	3	0.831	0.623	.467	.159	**.790**	
4. Management readiness	3	0.838	0.635	.356	.351	.425	**.797**

All items loading in CFA were significant at p<0.001 level. The diagonal values are the square root of the AVE for each construct.

These results of confirmatory factor analysis for convergent and discriminate validity of readiness are shown in Table 4. All constructs show good convergent validity as all of the criteria were met. All factor loadings of the reflective indicators exceeded 0.7 and were significant at p<0.001. Composite reliabilities ranged from 0.830 to 0.911, and AVE ranged from 0.500 to 0.672. Each construct's AVE is above its squared correlation with other constructs. Thus, the measurement model exhibits a high degree of convergent and discriminate validities. The results of confirmatory factor analysis of perceived barriers are shown in Table 5. These measurement model also exhibit acceptable convergent and discriminant validity. All constructs show good convergent validity as all of the criteria were met. All factor loadings of the reflective indicators exceeded 0.7 and were significant at p<0.001. Composite reliabilities ranged from 0.851 to 0.876, and AVE ranged from 0.490 to 0.625. Each construct's AVE is above its squared correlation with other constructs.

***Table 5**: Confirmatory factor analysis for convergent and discriminant validity of barriers*

	Items	**Composite Reliability**	**AVE**	**Factor correlations**			
Construct				1	2	3	4
1. Organisational culture	4	0.863	0.615	**0.784**			
2. Individual barriers	6	0.876	0.544	.571	**0.738**		
3. Infrastructure barriers	6	0.851	0.490	.145	.100	**0.700**	
4. Policy barriers	4	0.869	0.625	.134	.126	.148	**0.790**

All items loading in CFA were significant at p<0.001 level. The diagonal values are the square root of the AVE for each construct.

The goodness fit of measurement model was also examined, such as X^2/df which should be less than 5 (Bentler 1989); adjusted goodness-of-fit index (AGFI) which should be larger than 0.8 (Henry & Stone 1994; Scott 1994); goodness-of-fit index (GFI), and comparative fit index (CFI) which should all exceed 0.9; and root mean square error of approximation (RMSEA) which should be less than 0.10 (Hair et al 1998). As shown in the Table 4 and 5, the results revealed measurement fit of readiness as X^2/df=3.122; AGFI=0.860; GFI=0.906; CFI=0.935 and RMSEA=0.083, while the measurement fit of perceived barriers are X^2/df=2.250; AGFI=0.868; GFI=0.897; CFI=0.932 and RMSEA=0.063.

Readiness towards ICT

The four factors of readiness towards ICT programmes were investigated, including readiness categories that are classified as farmer, personal, infrastructure and management readiness.

Table 6: *One-way ANOVA of readiness*

Variables	Demographic	N	Farmer readiness			Personal readiness			Infrastructure readiness			Management readiness		
			Mean	F value[a]	Post Hoc[b] Test	Mean	F value[a]	Post Hoc[b] Test	Mean	F value[a]	Post Hoc[b] Test	Mean	F value[a]	Post Hoc[b] Test
Regency	1. Magelang	77	2.95	19.75**	1>2,4*	3.96	26.15**	1>2,4*	3.70	30.12**	1>2*	4.01	13.775**	1>2*
	2. Kulonprogo	76	2.18		3>2*	3.56		2>4*	3.06		4>1,2,3*	3.36		3>4*
	3. Bantul	80	2.73		3>4*	3.67		3>4*	3.57			3.90		
	4. Gunungkidul	79	1.95			3.01			4.26		3>2*	3.48		
Gender	1. Male	247	2.47	0.42	none	3.82	0.48	none	3.82	0.48	none	3.82	0.477	none
	2. Female	65	2.38			3.76			3.76			3.76		
Age	1. 20 – 29.99	26	2.06	1.48	Ns	3.61	4.77*	2>3,4*	3.02	6.14**	2,3,4>1*	3.62	0.810	Ns
	2. 30 – 39.99	39	2.53			3.96			3.65			3.78		
	3. 40 – 49.99	160	2.47			3.49			3.79			3.64		
	4. > 50	87	2.49			3.44			3.58			3.78		
Education	1. S. high school	41	2.46	0.47	Ns	3.44	3.80*	4>2*	3.86	3.72*	Ns	4.00	2.599	Ns
	2. Vocational	73	2.45			3.38			3.83			3.61		
	3. Bachelor	188	2.43			3.60			3.52			3.65		
	4. Master	10	2.82			4.15			4.03			3.83		
Job category	1.General	156	2.53	1.63	Ns	3.66	2.92**	Ns	3.58	3.19**	Ns	3.76	1.773	Ns
	2. Plantation	23	2.82			3.83			4.23			3.68		
	3. Forestry	41	2.14			3.29			3.58			3.87		
	4. Foods crops	36	2.24			3.27			3.97			3.51		
	5. Livestock	26	2.44			3.40			3.50			3.58		
	6. Fishery	17	2.53			3.50			3.33			3.27		
	7. Contract employee	13	2.38			3.59			3.56			3.67		
Overall		312	2.45			3.55			3.66			3.69		

[a]*P < .05 and **P < .01
[b]Post hoc test Scheffe's Multiple Comparisons differences at p < .05
ns : non significant

Farmer readiness

Table 6 shows that only regency (F=19.75, p<.01) demonstrates a significant difference with farmer readiness. The result of the post hoc test on regency reveals that Magelang is significantly different than Kulonprogo and Gunungkidul (p<.05). Besides, Bantul is significantly different than Kulonprogo and Gunungkidul (p<.05). These findings indicate that regional differences in implementation of ICT programme will lead to differences in the readiness of farmers as perceive by AEO. Overall, farmers' readiness towards ICT has a mean score of M=2.45 (SD=1.006). This mean score indicates that farmers' readiness towards ICT tended to be negatively perceived by AEO.

Personal readiness

Table 6 shows that demographic variables such as regency, age, education and job category detect significant differences with personal readiness. The results show significant differences with regency (F=26.15, p<.01), age (F=4.79, p<.05), education (F=3.79, p<.05) and job category (F=2.92, p<.01). The results of the post hoc analysis reveal significant differences among demographic variables on regency, age and education. For example, education shows that having a master's degree is significantly different (p<.05) from having a vocational degree. Also age differences exhibit that age range 30-39.9 is better than age range 40-49.9 and >50 years old (p<.05) in the perception of ICT programme implementation. Overall, personal readiness towards

ICT has a mean score of M=3.55 (SD = 0.769). This mean score indicates that personal readiness towards ICT tends to be positively perceived by AEO.

Infrastructure readiness

Table 6 shows that demographic variables regency (F=30.12, p<.01), age (F=6.14, p<.01), education (F=3.72, p<.05) and job category (F=3.19, p<.01) demonstrate a significant difference with infrastructure readiness. Results of the post hoc test shows a significant difference (p<.05) with regency and age but no differences were found for education and job category. The post hoc test of age exhibit that the age range 20-29.9 has a different perception (p<.05) with other age ranges. Their perception of infrastructure readiness is lower compared with others age ranges. Overall, infrastructure readiness towards ICT has a mean score of M=3.66 (SD = 0.89). This mean score indicates that infrastructure readiness towards ICT tends to be positively perceived by AEO.

Management readiness

As Table 6 illustrates, a significant difference was found between regency (F=13.78, p<.01) with management readiness. The results of post hoc analysis found significant differences (p<.05) between regency, such as between Magelang and Kulonprogo, also between Bantul and Gunungkidul. Overall, management readiness towards ICT has a mean score of M=3.69 (SD = 0.792). This mean score indicates that management readiness towards ICT tends to be positively perceived by AEO.

Besides that of farmer readiness, results of the four factors of readiness indicate a positive perception towards ICT programme implementation. By using Aydin and Tasci's (2005) assessment model, this study has evaluated whether the employees in an organisation are ready to implement ICT programmes. From the analysis, the levels of readiness are determined as depicted in Figure 1.

Based on Table 6, the mean score of overall farmer readiness M=2.45 (SD=1.006) indicates that the agriculture extension officers (AEO) perceive the farmers as being not ready for ICT implementation which suggests that further work needs to be done before the implementation of ICT programmes. On the other hand, infrastructure, personal and management readiness have mean scores from 3.4 to 4.2 and according to the assessment model. This indicates that the agriculture extension officers perceive themselves as being ready to implement an ICT programme.

Those findings answer the first research question concerning the readiness level towards an ICT programme as perceived by AEO. In addition, those results also address the third research question regarding the influence of demographic variables on ICT programme implementation.

Barriers towards ICT

The four factors of barriers towards ICT programmes were investigated, including barriers categories classified as organisational culture, individual, technological and policy barriers.

Table 7: *One-way ANOVA of barriers*

Variables	Demographic	N	Organisational culture barriers			Individual barriers			Technological barriers			Policy barriers		
			Mean	F value[a]	Post Hoc[b] Test	Mean	F value[a]	Post Hoc[b] Test	Mean	F value[a]	Post Hoc[b] Test	Mean	F value[a]	Post Hoc[b] Test
Regency	1. Magelang	77	3.70	17.64**	4>1,2,3*	3.04	29.36**	4>1, 2,3*	4.11	2.43	ns	3.31	2.28	ns
	2. Kulonprogo	76	3.62			3.09			3.89			3.08		
	3. Bantul	80	3.61			2.98			3.91			3.06		
	4. Gunungkidul	79	4.34			3.84			3.88			3.27		
Gender	1. Male	247	3.78	5.11*	none	3.21	1.21	none	3.95	0.16	none	3.21	0.74	none
	2. Female	65	4.02			3.32			3.92			3.11		
Age	1. 20 – 29.99	26	4.09	1.86	ns	3.32	3.55	ns	4.04	2.61	ns	3.16	0.93	ns
	2. 30 – 39.99	39	3.73			2.99			4.17			3.00		
	3. 40 – 49.99	160	3.85			3.34			3.89			3.20		
	4. > 50	87	3.71			3.11			3.92			3.22		
Education	1. S. high school	41	3.74	0.65	ns	3.07	1.44	ns	4.06	3.03*	ns	3.20	0.21	ns
		73	3.74			3.34			3.83			3.13		
	2. Vocational	188	3.87			3.22			3.94			3.20		
	3. Bachelor	10	3.72			3.43			4.37			3.10		
	4. Master													
Job category	1.General	156	3.67	2.43	ns	3.05	3.86**	ns	3.97	0.33	ns	3.19	0.94	ns
	2. Plantation	23	3.69			3.53			3.94			3.47		
	3. Forestry	41	4.05			3.36			3.83			3.09		
	4. Foods crops	36	4.01			3.51			3.98			3.21		
	5. Livestock	26	4.05			3.42			3.92			3.09		
	6. Fishery	17	3.86			3.30			3.96			3.21		
	7. Contract employee	13	3.96			3.41			3.98			2.94		
Overall		312	3.82			3.24			3.95			3.18		

[a]*P < .05 and **P < .01
[b]Post hoc test Scheffe's Multiple Comparisons differences at p < .05
ns : non significant

Organisational culture barriers

As Table 7 shows the, demographic variable of regency (F=17.64, p<.01) and that of gender (F=5.11, p<.05) demonstrate a significant difference with the organisational culture barriers. The result of the post hoc test revealed a significant difference (p<.05) between Gunungkidul and the other regencies. In the Gunungkidul regency, the perception of the organisational culture barriers is higher compared with other regencies. These findings indicate that regional differences in implementation of an ICT programme will lead to differences in the organisational culture barriers as perceived by AEO. Overall, the organisational culture barriers towards ICT has a mean score of M=3.82 (SD=0.793). This mean score indicates that the organisational culture barriers tend to be relatively high compared with other barriers as perceived by AEO.

Individual barriers

Table 7 shows that demographic variables of regency and job category reveal significant differences with the individual barriers. The results show significant differences with regency (F=29.36, p<.01) and job category (F=3.86, p<.01). The result of the post hoc test revealed significant differences (p<.05) between Gunungkidul and the others regencies. This finding demonstrates that in the Gunungkidul regency, the perception of individual barriers is higher when compared with other regencies. Overall, individual barriers towards ICT has a mean score of M=3.24 (SD = 0.744). This mean score indicates that individual barriers towards ICT tend to be relatively low compared to other barriers perceived by AEO.

Technological barriers

Table 7 shows that only the education of demographic variable (F=3.03, p<.05) demonstrates a significant difference with the technological barriers. In addition, the result of the post hoc test shows no significant difference among demographic variables. These findings indicate that differences between demographic variables did not influence the perception of the technological barriers. Overall, the technological barriers towards ICT has a mean score of M=3.95 (SD = 0.610). This mean score indicates that the technological barriers towards ICT tend to be relatively high compared to other barriers as perceived by AEO.

Policy barriers

As Table 7 illustrates, no significant difference was found among demographical variables when compared to the policy barriers. These findings indicate that differences among demographic variables did not influence the perception of the policy barriers. Overall, the policy barriers towards ICT has a mean score of M=3.18 (SD = 0.748). This mean score indicates that the policy barriers towards ICT tend to be relatively low compared to other barriers as perceived by AEO.

Based on Table 7, the sequence of overall mean score of barriers perceived by AEO are technological barriers M=3.95 (SD = 0.610), organisational culture barriers M=3.82 (SD=0.793), individual barriers M=3.24 (SD = 0.744) and lastly policy barriers M=3.18 (SD = 0.748). These findings indicate that an organisation must pay more attention to the reduction of technological and organisational culture barriers first when implementing an ICT programme.

Those findings reply directly to the second research question in relation to the barriers level towards ICT programmes perceived by AEO. In addition, those results also respond to the third research question concerning the influence of demographic variables on ICT programme implementation.

DISCUSSION AND IMPLICATION

ICT has tremendous potential to revolutionise the way information, knowledge and new technology is managed, developed and delivered to farmers through ICT programme implementation. Farmers need assistance from intermediaries to adopt knowledge and information. In that regard, AEO are suggested to be the effective intermediaries for delivering information and knowledge directly to farmers. Therefore, assessment of readiness and barriers by AE is very crucial in order that ICT be implemented successfully to farmers.

The findings that answer the first research question on the readiness perceived by AEO show that three out of the four factors of readiness indicate a positive perception towards ICT programme implementation. Based on the assessment model of e-LRS from Aydin and Tasci (2005), farmer readiness has the lowest value of readiness. Thus it appears that the farmers are perceived as not ready which suggests that much more work needs to be done before they are ready for ICT programme implementation. The other readiness factors indicate that infrastructure, personal and management are perceived as ready for the implementation of ICT programmes even though some improvement was felt necessary. These findings inform the government that they must pay attention to farmer readiness before they can embark on step to implement ICT in these regions.

In response to the second research question, this study demonstrated that two factors, organisational culture and technological barriers were perceived as being relatively higher than individual and policy barriers. This suggests that the success or failure of e-Learning programmes

is influenced by the interconnectedness among persons, behaviors and the environment (Mungania 2003). Organisational culture and technological barriers are related to environmental factors which influence e-Learning success. It may be difficult to completely eliminate these barriers but they definitely can and should be reduced. Mungania (2003) offers some recommendations to reduce such barriers. It is proposed that organisations must support the use of ICT by offering a supportive culture, incentives, models, resources, and fostering self-efficacy. As for barriers of technology it is proposed that organisations must improve the availability of ICT infrastructure and Internet connectivity, reduce the cost of broadband connection, navigation problems and limitations of technical support.

The third research question examined if demographic characteristics of AEO have a bearing on readiness and barriers perception. The one-way ANOVA results, particularly post hoc analysis, show that we should pay attention firstly to regency. This variable has a significant influence to all of the readiness variables, but in terms of barriers, the regency only has a significant influence to organisational culture and individual barriers. The presence of such differences may be caused by several factors. One of them is likely government policy. After the economic crisis in 1998, the Indonesian government implemented a decentralisation system which gave autonomy to the regencies (Seymori & Turner 2002). This system influences the policy of each region. Each region utilises different strategies, policies and programmes in particular to the adoption of ICT for agricultural extension. This situation affects perception of AEO in regards to readiness towards ICT programme implementation. Prior studies (e.g., Teo & Lim 2000; Young 2000; Yuen & Ma 2002; Muilenburg & Berge 2005; Joiner et al 2005; Ong & Lai 2006) have demonstrated significant difference between gender in the adoption behavior of ICT or e-Learning. Inconsistent with those studies, this study did not show gender to be a good indicator in the readiness as well as perceived barriers. Gender only has significant influence to the organisational culture barriers. This may have been caused by the unbalance sample of male and females (21% female and 79% male). The third demographic variable, the age variable, has a significant influence to infrastructure and personal readiness but has no significant influence on the barriers. Past studies have examined the effect of age differences on technology adoption (Burton-Jones & Hubona 2003; Venkatesh et al 2003; Rezai et al 2008). In line with these studies, this study also found that age as a variable may affect respondent perception towards ICT programmes. This study demonstrates that the age range < 40 years old is more positive in the perception of personal and infrastructure readiness. The other variables, such as education and job category have an influence on personal and infrastructure readiness as well as individual and technological barriers even though the post hoc test only demonstrated a difference of personal readiness on education variable. The result of post hoc test demonstrates that the higher the level of education the more positive personal readiness will be. To sum up, the information in regards to demographic variables must be considered when implementation of ICT programmes takes place.

LIMITATION AND FURTHER RESEARCH

There are several limitations in this study which should be noted. First, only one region of Indonesia was used in the study for data collection. While the study allows us to gain a greater understanding of the readiness and perceived barriers of agricultural officers towards ICT programmes, it is difficult to generalise the results to a different sample. Perhaps, different areas have different characteristics regarding farmer, infrastructure and management. Therefore, further research should be conducted in other areas in Indonesia and in other developing countries to obtain a more conclusive and generalisable result. Second, the readiness was assessed at the beginning stage for the implementation of ICT programmes; hence, further research can be conducted to assess readiness and barriers of ICT programmes after its implementation in the future to give greater stability to research findings in this area. Third, this study uses a primary

research approach, so additional research designs are needed to evaluate the validity of the instruments and findings. For example, longitudinal evidence may enhance the understanding of readiness and perceived barriers towards ICT programmes.

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Development and formative evaluation of the "Educational Media In-service Teacher Training Curriculum Standards"

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ABSTRACT

The first Japanese "curriculum standards" for educational media/ICT in-service teacher training was announced by the Ministry of Education, Science and Culture in April 1973. Since then, the "curriculum standards" has been revised twice. The last revision was made in March 2006, based on the results of a preliminary study that was conducted by the Japan Audio-Visual Education Association from fiscal year 2002 to 2003. This article describes the background, process of the revision, and the features of the new "curriculum standards". Moreover, the results of the formative evaluation of the "curriculum standards" are explained. The formative evaluation involved 33 teachers' consultants and social education consultants who took part in the "Media Specialists Training Course" which was held by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in October 2009. As a consequence, most of the subjects reported positive opinions about the new "curriculum standards". Therefore, it is suggested that the new "curriculum standards" is necessary and useful to enhance teachers' knowledge and skills, to promote effective use of educational media, to raise media specialists, and to help curriculum planners develop training programmes/courses.

Keywords: Curriculum development; in-service teacher training; ICT teacher training; formative evaluation; training approaches; educational media

BACKGROUND

Japan is now implementing a "New IT Reform Strategy" which was developed in January 2006 with the goal of promoting structural reforms and fulfilling its duties as a frontrunner that can lead global ICT innovation in the future (IT Strategic Headquarters for the Cabinet Office 2006). To meet the goal of the "New IT Reform Strategy", the Japanese Government aims (1) to provide one computer to 3.6 students in schools, (2) to provide a computer to all the school teachers for school duties/affairs, (3) to raise the percentage of the schools connected to LANs to 100%, and (4) to make all the teachers ICT literate. However, the results of the "Countrywide Survey on the Situations of Informatisation of Japanese Schools" show that (1) students: computer ratio is 7.2:1 in schools, (2) computers are provided to only 61.6% of the school teachers, (3) only 64.0% of the schools are connected to LANs, and (4) not all of the teachers are ICT literate (MEXT 2009). Specifically, 72.6% of the teachers replied that they can use ICT for class preparation, class evaluation and educational research, 56.4% said they can utilise ICT in classroom lessons, 58.5% said they can foster students' ICT literacy, 66.8% said they can cope with moral issues in ICT, and 67.0% said they can utilise ICT for school duties/affairs.

Enhancing media/ICT knowledge and skills for all and fostering media/ICT professionals/leaders is a crucial factor of the quality of media/ICT-based education. Therefore, efforts have been made to develop an effective and well structured media/ICT education teacher training curriculum standards, to promote in-service and pre-service teacher training at the local and national level, and to motivate teachers to take the training programmes/courses. One of the efforts made by the

MEXT to enhance teachers' media/ICT knowledge and skills is the development of the "Educational Media In-service Teacher Training Curriculum Standards" (hereinafter abbreviated as "curriculum standards"). The "curriculum standards" has been introducing knowledge and skills required for teachers and educational officers, and has been a reference material for regional curriculum planners in developing regional training programmes/courses.

The first "curriculum standards" was named "Audiovisual Education In-service Teacher Training Curriculum Standards" and was issued in April 1973 (Social Education Bureau, Ministry of Education, Science and Culture 1973). The main objectives of the "curriculum standards" were to enhance in-service teachers' knowledge and skills of utilising educational media, and to promote audiovisual education. The training courses were categorised by media with the knowledge and skills required for each medium and further divided into three levels: primary, intermediate and advanced. The primary level courses introduced basic knowledge and skills minimally required of all teachers and officers working in schools and social education facilities. The intermediate level courses were designed to cultivate human resources who can train teachers and officers at the primary level, and the advanced level courses were designed to develop media education leaders who were expected to train teachers and officers at the intermediate level. The primary level courses were conducted by cities' and towns' boards of education, the intermediate level courses were conducted by prefectural boards of education, and the advanced level courses were conducted by the Ministry of Education, Science and Culture.

In March 1992, following a variety of technological developments of educational media, the "curriculum standards" was revised and was introduced as the "Audiovisual/Media Education In-service Teacher Training Curriculum Standards" (Lifelong Learning Bureau, MEXT 1992). The "curriculum standards" incorporated new technologies such as computers, telecommunication systems and databases, and the structure of the "curriculum standards" was greatly changed. The new "curriculum standards" consisted of two curriculums: "Training Curriculum One" and "Training Curriculum Two" that had different goals. "Training Curriculum One" was designed to introduce all of the knowledge and skills required for educational media utilised in schools and social education facilities, and by doing so, develop educational practitioners. "Training Curriculum Two" aimed to foster media education leaders who were in charge of planning and managing training programmes/courses at the city or prefectural level. Moreover, regional disparities in media education were considered in the development of the new "curriculum standards", and a so-called "menu system" was implemented (Nakano et al 2006). The "curriculum standards" simply introduced a list of 93 training courses and let the regional curriculum planners select which course to provide in their region, according to the region's needs and situations. The process of referring to the "curriculum standards" and developing regional teacher training programmes/courses is similar to the process of choosing what to eat from a menu in a restaurant, and therefore, the system was named "menu system". Thus, the "menu system" enables regional curriculum planners to develop unique regional training programmes/courses based on the "curriculum standards".

However, since more than ten years have passed since the last "curriculum standards" was published, and since the situation of educational media has radically changed, Japan Audio-Visual Education Association (JAVEA) conducted a research in commission from the MEXT for the revision of the "curriculum standards" in fiscal year 2002 (JAVEA 2003).

PRELIMINARY STUDY FOR THE REVISION OF THE "CURRICULUM STANDARDS"

Preliminary study was carried out to identify the present situation and needs of in-service teacher training related to media/ICT education (JAVEA 2003). Preliminary study was composed of four phases: 1) preliminary interview, 2) preliminary questionnaire survey, 3) development of the new "curriculum standards (draft)", and 4) heuristic evaluation of the new "curriculum standards (draft)".

Results of the Preliminary Interview

A preliminary interview was conducted from October to November 2002. The purpose of the interview was to examine the present situation and needs of media/ICT education teacher training in order to draw up a questionnaire for an elaborate survey. Examinees were eight officers of regional boards of education who were responsible for designing and managing teacher training courses in each region. The main results of the interview were as follows (Yoshida et al 2006):

- There are high needs in some courses introduced in the "curriculum standards" (e.g. ICT in education), while there are relatively low needs in other courses (e.g. utilising overhead projectors in education).
- All of the examinees replied that a new "curriculum standards" is necessary.
- The "curriculum standards" is expected to be revised in a shorter span.
- The "menu system" which meets regional needs is considered an ideal system.
- It is hoped that training case studies or model training programmes/courses will be introduced in the new "curriculum standards".
- Few institutes issue certificates for teachers who take part in the training courses.

Results of the preliminary interview indicate that a new "curriculum standards" is required by the educational institutes which deliver teacher training courses, and the new "curriculum standards" is expected to adopt the "menu system" which enables regional curriculum planners to design training programmes/courses that meet regional needs and situations. However, results revealed that the contents of the "curriculum standards" are required to be revised, and exemplars of the teacher training courses are expected to be introduced.

Based on the results of the preliminary interview, a questionnaire was developed with the aims of collecting a wide range of views on the development of a new "curriculum standards".

Results of the Preliminary Questionnaire Survey

A preliminary questionnaire survey was conducted from December 2002 to January 2003. The purpose of the survey was to identify 1) current conditions of media/ICT education teacher training, 2) current and future needs of media/ICT education teacher training, and 3) needs and requests for the revision of the "curriculum standards" (Yoshida 2003; Yoshida et al 2006).

The questionnaire was mailed to 273 educational institutes: all of the prefectural and ordinance-designated cities' educational centres, all of the prefectural and ordinance-designated cities' lifelong learning centres, all of the prefectural and ordinance-designated cities' audiovisual centres, and 120 municipal audiovisual libraries. A total of 161 valid replies were obtained for the questionnaire. The collection rate was 59.0%. Major results of the survey are shown in Table 1.

Results of the questions on the current conditions of media/ICT education teacher training show that teacher training courses on media/ICT education are currently delivered by most of the institutes. It is also obvious from the results of the survey that almost all of the educational institutes believe that in-service teacher training on media/ICT education is necessary and important in order to enhance teachers' knowledge and skills, to utilise the institutes' equipments and facilities, and to foster educational leaders and teacher trainers.

***Table 1**: Major results of the preliminary questionnaire survey*

Questions			n	%
Media/ICT education training is necessary:		Yes	154	98.7
		No	2	1.3
The institute/organisation delivers media/ICT education training courses:		Yes	136	85.0
		No	24	15.0
Purpose of the media/ICT education teacher training courses:				
1	to enhance teachers' knowledge and skills		122	76.3
2	to utilise the institutes' equipments and facilities		93	59.1
3	to foster educational leaders and teacher trainers		91	56.9
Enrolment of the media/ICT education training courses delivered by the institute:				
1	all of the courses reach the maximum enrolment		54	33.8
2	some of the courses are under-enrolled		51	31.9
3	most of the courses are under-enrolled		19	11.9
Training contents with high current needs:				
1	digital video production and non-linear editing		70	49.3
2	digital presentation		58	40.9
3	basic computer skills		46	32.4
Training contents with low needs:				
1	operating 16 mm movie projectors		71	53.4
2	operating overhead projectors		65	48.9
3	operating slide projectors		52	39.1
Training contents with high future needs:				
1	digital video production and non-linear editing		62	47.7
2	basic computer skills		35	27.0
3	video delivery via the Internet		34	26.2
A new "curriculum standards" is necessary:		Yes	141	95.3
		No	7	4.7
The "menu system" is usable:		Yes	147	94.8
		No	8	5.2
The categorisation of the new "curriculum standards" should be done:				
1	by the trainees' occupation		100	62.5
2	by the knowledge and skills to be acquired		92	57.5
3	by medium		59	36.9
Model training courses should be introduced in the new "curriculum standards":		Yes	144	95.4
		No	7	4.6
The new "curriculum standards" should be delivered:				
1	online (on the Web)		119	74.3
2	printed material		99	61.9
3	electronic media (CDs/DVDs)		52	32.5

The questions on the current and future needs of media/ICT education teacher training identified that training contents with high needs are related with ICT and digital media, while training contents with low needs are related with analogue media. Results suggest that the training contents in the new "curriculum standards" should be drastically altered.

Results of the questions on the needs and requests for the revision of the "curriculum standards" show that most of the institutes approved that a new "curriculum standards" is necessary and significant. It was also revealed that the institutes supported the "menu system" and they seek for the introduction of model training courses.

In Japan, most of the public officers move off to another section in two or three years, so it must be difficult for regional curriculum planners to acquire knowledge and skills on curriculum development in such a short period. Therefore, it is required to develop and deliver a "curriculum standards" which serves as a reference material for regional curriculum planners in the development of regional training programmes/courses, and it is important to introduce model training courses which are expected to work as exemplars of teacher training courses.

Development of the New "Curriculum Standards (Draft)"

Following the results of the preliminary interview and survey, the new "curriculum standards (draft)" was developed in March 2004 (JAVEA 2004). At first, media/ICT education training curriculums and university syllabuses in the country and overseas were collected in order to develop and determine the training curriculum contents. Secondly, a working committee was formed, and the committee members listed up as many media/ICT education training contents as they could that were supposed to be required as basic and/or specialised knowledge and skills for teachers and educational officers who work in schools and social education facilities. At this point, 934 curriculum contents were proposed. However, it was much-anticipated that it would be inconvenient and confusing for the regional curriculum planners if the "curriculum standards" was introduced as a list of nearly one thousand contents, and the planners were to pick up contents that meet their community's needs and develop a unique training programme/course. Therefore, committee members convened six times to screen the contents of the curriculum. As a result, a new "curriculum standards (draft)" consisted of 22 training courses with 66 training topics and 261 sub-topics was developed.

It was noted in the results of the preliminary questionnaire survey that the new "curriculum standards" is expected to be categorised by the trainees' occupation. However, many training courses delivered by educational institutes are available for people from various jobs, and therefore, it was presumed that if the new "curriculum standards" is categorised by the trainees' occupation, it would be difficult for the regional curriculum planners to develop training programmes/courses that meet the needs of each job.

Results of the questionnaire survey also noted that the new "curriculum standards" should be categorised by the knowledge and skills to be required by the expected trainees. In fact, the working committee tried to develop a "curriculum standards" based on the knowledge and skills to be required, but it was extremely difficult to categorise the training contents without referring to the type of media to be used. For example, presentations might be delivered by computer software or by visual presenters or maybe by digital blackboards, and knowledge and skills ought to be acquired differ greatly from medium to medium. For this reason, the working committee determined to categorise the training contents by medium.

Moreover, the importance of developing and introducing model training courses was pointed in the results of preliminary study, but as the training contents introduced in the new "curriculum

standards (draft)" were tentative, it was determined not to develop model training courses at this stage. However, the working committee decided to conduct a heuristic evaluation of the new "curriculum standards (draft)", and to develop model training courses on the basis of the results of the heuristic evaluation.

Heuristic Evaluation of the New "Curriculum Standards (Draft)"

A heuristic evaluation was carried out from October to November 2005 in order to verify the validity of the new "curriculum standards (draft)" (JAVEA 2006). The new "curriculum standards (draft)" was sent to 29 media education researchers and regional training curriculum planners together with a questionnaire. Subjects were requested to design a "virtual" teacher training programme using the "curriculum standards (draft)", and then, answer to the questionnaire. In the questionnaire survey, 1) needs of the "curriculum standards", 2) comments on the "menu system", 3) needs for role sharing between national and local governments, 4) needs for the introduction of model training programmes/courses, 5) validity of the contents of the "curriculum standards (draft)" were investigated. The results of the heuristic evaluation were (Yoshida et al 2006):

- All subjects replied that a "curriculum standards" that is organised by an official government is necessary.
- All subjects supported the "menu system" that meets the needs and situations of the regions.
- No subject commented that compulsory training courses should be introduced in the "curriculum standards".
- More than 70% of the respondents replied that model training programmes/courses should be introduced in the "curriculum standards".
- One third of the subjects said that role sharing between national and local governments is necessary.
- All subjects said that the "curriculum standards" should be revised and/or updated perpetually.
- Nearly 70% of the subjects expected the new "curriculum standards" to be delivered via the Internet, while 55% suggested the "curriculum standards" to be delivered in printed material.
- Some training contents related to the utilisation of ICT in education were suggested to be added to the "curriculum standards".
- Some contents related to the operation of audiovisual aids and audiovisual materials were suggested to be taken off of the "curriculum standards".

Given the findings of the heuristic evaluation, the working committee decided to add 69 training contents to the new "curriculum standards". The newly added contents were related to the utilisation of videoconference, utilisation of handheld terminals, utilisation of groupware, and utilisation of CATV. On the other hand, 13 training contents were eliminated from the new "curriculum standards" or integrated with another training content. The contents that were eliminated were related to the operation and connection of television sets. The contents that were integrated were related to the utilisation of audiovisual aids and audiovisual materials. Some of the subjects who participated in the heuristic evaluation commented that training contents on audiovisual aids and materials such as utilising 16 mm movie projectors should be taken off of the "curriculum standards". However, since the new "curriculum standards" adopted the "menu system" which enables curriculum planners to select appropriate contents from a list of

conceivable contents, and it was known that many educational institutes have been offering training courses on the operation of 16 mm movie projectors, the working committee decided to leave the contents on the new "curriculum standards" and let the regional curriculum planners determine whether to include the training contents in their training programmes/courses or not.

According to the results of the heuristic evaluation, the working committee decided to develop model training courses and introduce them in the new "curriculum standards". The results of the preliminary questionnaire survey showed that teacher training courses are expected to be classified by the subjects' or the trainees' occupation, and/or the course objectives or knowledge and skills to be acquired. As a result, subject-based model training courses and objective-based training courses were decided to be developed.

The working committee discussed the division of the roles between the national and local governments. For two reasons, they decided not to define the roles of the national and local governments. Firstly, it was known that the situations of media/ICT education teacher training vary widely from region to region, and hence, it was difficult to determine what the local governments should do and what they should not do. Secondly, defining the roles and the courses to be offered leads to the fixation or compulsion of the training courses. Therefore, the role sharing between the national and local governments is not definitely determined in the new "curriculum standards". Instead, the roles of the cities' and towns' boards of education, the prefectural boards of education, and the MEXT are proposed in the "model training courses" which are described later.

Furthermore, the working committee discussed the delivery mode of the new "curriculum standards". In consequence, the committee decided to deliver the new "curriculum standards" not only in printed material but also online.

DEVELOPMENT OF THE NEW "CURRICULUM STANDARDS"

Based on the findings of the preliminary study, the "Educational Media In-service Teacher Training Curriculum Standards" was developed in March 2006, and was announced by the MEXT on November 24th, 2006 (Lifelong Learning Policy Bureau, MEXT 2006). The new "curriculum standards" involves four categories: training courses, training topics, training sub-topics, and training contents. If a training course introduced in the "curriculum standards" can be compared to a learning subject, a training topic can be compared to a study unit, a training sub-topic is a lesson, and a training content is a learning activity. The relationship of the training courses, topics, sub-topics, and contents can be described as follows:

- Training Course: the Internet
  - Training Topic: Utilising the Internet in Education
  - Operating the Internet
  - Operating Communication Tools
    - Training Sub-topic: Using Web-based E-mail
    - Using Electronic Bulletin Board Systems
    - Blogging
      - Training Content: Functions and Roles of Blogs
      - Setting up Blogs

- Managing Blogs

The new "curriculum standards" consists of 22 training courses with 74 training topics, 317 sub-topics and 1,065 training contents. The reason why more than 300 sub-topics and 1,000 training contents were established was to enable constant revision of the "curriculum standards" so as to deal with the rapid development of ICT and educational media, and to expand the range of options for regional training curriculum planners.

Major Revisions of the "Curriculum Standards"

Major revisions of the "curriculum standards" were (Yoshida 2007):

- The "curriculum standards" changed its name from "Audiovisual/Media Education In-service Teacher Training Curriculum Standards" to "Educational Media In-service Teacher Training Curriculum Standards".
- There are no compulsory training courses/contents in the new "curriculum standards". All of the contents introduced in the new "curriculum standards" are selective.
- The "menu system" is adopted in the new "curriculum standards". The "menu system" enables curriculum planners to freely choose training contents from a list of 1,065 training contents and make up a training programme/course that meets regional needs.
- The structure of the "curriculum standards" is radically changed. The former "curriculum standards" was divided into two categories, while the new "curriculum standards" is divided into four categories: training courses, training topics, training sub-topics, and training contents.
- The training contents of the "curriculum standards" are drastically changed to accompany with the advance of educational media.
- In order to cope with the trends and prospects of media/ICT education, training sub-topics termed "The Current Situation and Issues of Utilising XXX in Education" are provided under each training topic.
- The new "curriculum standards" was decided to be delivered online and in printed material.

Main Features of the New "Curriculum Standards"

The new "curriculum standards" has four main features that are descried in the following sections.

Adoption of the "Menu System"

In the process of developing the new "curriculum standards", the extent of compulsory courses and/or core courses came to an issue. According to the preliminary study, it became obvious that conditions of in-service teacher training and audiovisual aids possessed by educational facilities vary widely by region. Therefore, the "menu system" which is a form of a module system was adopted in the new "curriculum standards". This system leads the regional curriculum planners to design training programmes/courses that matches the conditions and needs of each region.

Presentation of Three Formats of "Curriculum Standards"

Since the new "curriculum standards" consists of more than one thousand training contents, three formats of "curriculum standards" were presented (Nakano et al 2007). The first curriculum is

known as the "Educational Media In-service Teacher *Training Curriculum Standards*" and involves two categories: training courses and training topics. The first "curriculum standards" is mainly for regional curriculum planners who are experienced. By use of the first "curriculum standards", regional curriculum planners can get a general idea of developing a regional training programme/course. The contents of the first "curriculum standards" are shown in Tables 2, 3 and4.

***Table 2**: The "Educational Media In-service Teacher Training Curriculum Standards" (1): training courses and topics on basic theories and skills of media education (originally from JAVEA 2006, pp. 30-31, translated by the author)*

Training Courses	Training Topics
1. General Theories of Educational Media	1. Trends and Issues of Educational Media
	2. Utilising Educational Media
	3. Managing and Operating Educational Media
	4. Media Literacy
2. Detailed Theories of Educational Media	5. Utilising Media in Education
3. Educational Broadcasting	6. Utilising Educational Broadcasting
	7. Trends in Educational Broadcasting
	8. Video and TV Programme Production
4. School PA Systems	9. Utilising School PA Systems
	10. Installing and Operating School PA Systems
5. Audiovisual Aids	11. Utilising 16 mm Movie Projectors
	12. Utilising Slide Projectors
	13. Utilising Overhead Projectors
	14. Utilising Visual Presenters and Overhead Cameras
	15. Utilising DVD Recorders and/or HDD Recorders
	16. Utilising Large-screen LCD TVs and/or PDP TVs
	17. Producing Slides and Projection Materials
	18. Utilising Slides and Projection Materials
6. Audiovisual Materials	19. Producing and Utilising Still Images
	20. Producing Video Materials
	21. Operating Digital Cameras
	22. Utilising Printers
7. Recording Materials	23. Producing Sound Recording Materials
	24. Producing Video Recording Materials
	25. Producing and Utilising DVDs and CDs
	26. Utilising Sound Recording Materials
	27. Utilising Video Recording Materials
	28. Utilising VOD Systems

The second "curriculum standards" was named the "List of Training Courses, Topics, and Sub-topics", and involves three categories: training courses, training topics, and training sub-topics. The third "curriculum standards" is called the "Reference List for Educational Media In-Service Teacher Training" and involves all four categories. The second and third "curriculum standards" are primarily for regional curriculum planners with less experience. By using the second and third

"curriculum standards", regional curriculum planners can get a whole picture of the knowledge and skills required for teachers and officers working in schools and social education facilities. Experienced curriculum planners can use the second and third "curriculum standards" to determine the contents of the regional training programmes/courses, or they can create and determine the contents by themselves. In this way, it is expected that the three "curriculum standards" will be used flexibly depending on the stage of curriculum development, regional curriculum planners' experience and knowledge, and the conditions of the regional area.

***Table 3**: The "Educational Media In-service Teacher Training Curriculum Standards" (2): training courses and topics related with the utilisation of ICT in education (originally from JAVEA 2006, pp. 30-31, translated by the author)*

Training Courses	Training Topics
8. General Theories of Computers	29. Overview of Computer Aided Education
	30. Computer Hardware
	31. Computer Software
	32. Basic Computer Skills
9. Word-processing Software	33. Utilising Word-processing Software in Education
	34. Operating Word-processing Software
10. Spreadsheet Software	35. Utilising Spreadsheet Software in Education
	36. Operating Spreadsheet Software
11. Digital Presentation	37. Utilising Presentation Software in Education
	38. Operating Presentation Software
12.Database Software	39. Utilising Database Software in Education
	40. Operating Database Software
13. Hypermedia/Multimedia	41. Utilising Hypermedia/Multimedia in Education
	42. Developing Hypermedia/Multimedia
14. Computer Networks	43. Utilising Computer Networks in Education
	44. Operating Computer Networks
	45. Managing Computer Networks
15. The Internet	46. Utilising the Internet in Education
	47. Operating the Internet
	48. Operating Communication Tools
16. E-mail	49. Utilising E-mail in Education
	50. Operating E-mail Programmes
17. Websites	51. Utilising Websites in Education
	52. Operating Websites
18. Educational Software	53. Utilising Educational Software
	54. Utilising Groupware in Education
19. Moral Issues, Copyright Issues, Network Security	55. Moral Issues and Netiquette
	56. Copyright Issues
	57. Protection of Personal Information
	58. Network Security
	59. Rating and Filtering Information
	60. Protection from Hazardous and Harmful Websites

***Table 4**: The "Educational Media In-service Teacher Training Curriculum Standards" (3): training courses and topics recommended for regional media/ICT leaders (originally from JAVEA 2006, pp. 30-31, translated by the author)*

Training Courses	Training Topics
20. Distance Education	61. Utilising Videoconference
	62. Utilising E-Learning (WBL)
	63. Utilising the el-Net
	64. Utilising Electronic Whiteboards
	65. Utilising GPSs, Navigation Systems
	66. Utilising Handheld Terminals
21. Regional Media Planning and Media Centres	67. Meanings and Management of Audiovisual Centres/Libraries
	68. Managing and Operating Media in Schools
	69. Utilising CATV
22. Training Courses for Teacher Trainers	70. The Structure of the "Educational Media In-service Teacher Training Curriculum Standards"
	71. Creating Training Manuals
	72. Problems in Organising Training Courses
	73. Establishing Regional Cooperation Systems
	74. Evaluating Training Courses

Introduction of the "Matrices for the Model Training Courses"

In order to provide reference information to the regional curriculum planners and to improve the usefulness of the "curriculum standards", 14 "matrices for the model training courses" were developed (JAVEA 2006). The topics of the matrices were determined by the regional curriculum planners' current needs that were identified in the preliminary study. The 14 topics of the matrices introduced in the "curriculum standards" were:

- *Introduction to Educational Media*
- *Special Topics in Educational Media*
- *Curriculum Development*
- *Moral Issues and Copyright Issues in ICT*
- *Network Security*
- *Basic Computer Skills*
- *Computer-Aided Teaching and Learning*
- *Using the Internet and E-mail*
- *Digital Presentation*
- *Website Production and Management*
- *Digital Video Production and Non-linear Editing*
- *Networking and Computer-supported Collaborative Learning*
- *Utilising Digital TV in Education*
- *Hypermedia Production*

Table 5 is an example of a matrix introduced in the “curriculum standards”. The matrix shows what training content is necessary or desirable for whom. The rows of the matrix correspond to the learning contents described at the level of “training topics”. The columns correspond to the expected trainees. Each cell in the matrix describes whether or not a specific training topic is necessary or desirable for the expected trainees. However, the matrices are merely reference materials for the development of regional training programmes/courses, so the actual contents must be determined at the regional curriculum planners’ discretion.

Table 5*: Example of a “matrices for the model training courses”: Utilising Digital TV in education (originally from JAVEA 2006, p.50, translated by the author)*

Training Topics	School Teachers	School Principles	Teachers’ Consultants	Educational Officers	Citizens
Utilising Educational Broadcasting	□□	□	□□	□	
Trends in Educational Broadcasting	□□	□	□□	□	
Video and TV Programme Production	□	□			
Utilising DVD Recorders and/or HDD Recorders	□□	□	□		
Utilising Large-screen LCD TVs and/or PDP TVs	□□	□	□		
Copyright Issues	□	□			
Utilising the Internet in Education	□	□			
Operating the Internet	□	□			

□□ - Strongly Recommended, □ - Recommended

Introduction of the “Model Training Courses”

As a reference material for curriculum development, 37 “subject-based model training courses” and 19 “objective-based model training courses” were introduced in the new “curriculum standards”. These “model training courses” aim to be a guideline for the regional curriculum planners in designing and developing media/ICT teacher training programmes/courses. In other words, the “model training courses” are sort of “teacher training course exemplars” or “recommended training course courses”. Table 6 is an example of a “subject-based model training course”, and Table 7 is an example of an “objective-based model training course” introduced in the “curriculum standards”.

***Table 6**: Example of a "subject-based model training course" (originally from JAVEA 2006, p.64, translated by the author)*

Course: Designing Teacher Training Programmes/Courses for Social Education (Prefectural Level)
Subjects: teacher training curriculum planners, social education consultants, community centre leaders
Course Objective: Curriculum planners of social education facilities and audiovisual education facilities will be able to design educational media teacher training programmes/courses.
Duration: 7 hours (1 day)
Course Contents:

Training Courses	Training Topics/Sub-topics	Duration
General Theories of Educational Media	Trends and Issues of Educational Media Trends and Issues in Media Education	1 hour
	Utilising Educational Media Utilising Educational Media in Classroom Theories of Instructional Material Design	
Training Courses for Teacher Trainers	The Structure of the "Educational Media In-service Teacher Training Curriculum Standards" Current Situations and Issues of Teacher Training in Educational Media Meaning and Contents of Teacher Training in Educational Media	3 hours
	Creating Training Manuals Creating Instruction Manuals for Teacher Training Courses	
	Problems in Organising Training Courses Designing and Managing Educational Media Teacher Training Courses Methods of Educational Media Teacher Training	
	Establishing Regional Cooperation Systems Current Situation and Issues of Regional Education Support Systems Establishing Media Education Cooperation Systems in Collaboration with Regional Study Groups and Volunteer Groups	
Regional Media Planning and Media Centres	Meanings and Management of Audiovisual Centres/Libraries Roles, Functions, Situation and Issues of Audiovisual Centres/Libraries Formulation of Regional Media Plans	1.5 hours
Moral Issues, Copyright Issues, Network Security	Copyright Issues Meanings and Contents of the Copyright Law Copyright Protection, Access Control	1.5 hours
	Protection of Personal Information *Preventing Personal Information Leakage*	
	Protection from Hazardous and Harmful Websites Trends and Issues in Hazardous and Harmful Websites Detecting and Blocking Hazardous and Harmful Websites	

***Table 7**: Example of an "objective-based model training course" (originally from JAVEA 2006, p.90, translated by the author)*

Course: Internet Safety
Course Objective: Acquire knowledge and skills to promote safety on the Internet
Aim of the Course: With the growth of Internet usage, new issues such as e-mail related problems, personal information leakage, and security issues have emerged. In this training course, participants will acquire knowledge and skills to promote and maintain safety on the Internet, and ways to deal with Internet-related issues.
Duration: 12 hours (2 days)
Course Contents:

Training Course	Training Topics/Subtopics	Duration
Moral Issues, Copyright Issues, Network Security	Moral Issues and Netiquette Meaning and Contents of Moral Issues Netiquette (Websites, BBSs, and E-mails) Rules and Moral Principles in the Network Society Communication Manners (Manners and Rules for Chatting and Using E-	4 hours
	Protection of Personal Information *Preventing Personal Information Leakage*	2 hours
	Network Security Types and Features of Computer Viruses, Worms, and Trojan Horses Protection from Computer Viruses, Worms, and Trojan Horses Types and Features of Spywares, Adwares, and Keyloggers Protection from Spyware, Adware, and Keylogger *Network Security Vulnerability* Assessment Types, Features and Functions of Firewalls Utilisation of Firewalls Blocking Unwanted Junk/Spam Mail	4 hours
	Protection from Hazardous and/or Harmful Websites Trends and Issues in Hazardous and/or Harmful Websites Detecting and Blocking Hazardous and/or Harmful Websites	2 hours

FORMATIVE EVALUATION OF THE NEW "CURRICULUM STANDARDS"

With the aim of illustrating the usability and the content validity of the new "curriculum standards", formative evaluation was conducted on October 1st, 2009. Subjects were 33 teachers' consultants and social education consultants who took part in the "Media Specialists Training Course" which was held by the MEXT. The subjects first got lectured on theories and methods of curriculum design for media/ICT education teacher training, and were lectured about the structure and how to use the new "curriculum standards". Then, trainees chose one or more from the three topics that were presented to them, and designed educational media/ICT teacher training courses using the new "curriculum standards". After that, subjects presented the training courses which they designed and then, answered a questionnaire. In the questionnaire, 1) usability of the new

"curriculum standards", 2) content validity of the new "curriculum standards", 3) usability of the "model training courses", and 4) needs for a manual/guideline of the "curriculum standards" were investigated. The procedure of the study was as follows:

- Lecture on curriculum design for media/ICT education teacher training (50 minutes)
- Lecture on the structure and use of the new "curriculum standards" (40 minutes)
- Designing educational media/ICT education teacher training courses using the new "curriculum standards" (60 minutes)
    - Topic 1: *Moral Issues in Education*
    - Topic 2: *Digital Video Production and Non-linear Editing*
    - Topic 3: *Basic Computer Skills*
- Presentation of the teacher training courses designed by the participants (20 minutes)
- Questionnaire on the formative evaluation of the new "curriculum standards" (15 minutes)

Results of the Formative Evaluation

Seventeen out of thirty-three subjects designed two media/ICT education teacher training courses, while all the other subjects designed one course. That is to say that all of the subjects were able to design a teacher training course utilising the new "curriculum standards". It is particularly worth noting that there were six subjects who commented that they had designed a training programme/course for the first time. Further results of the formative evaluation of the new "curriculum standards" are described below.

Usability of the New "Curriculum Standards"

All of the subjects commented that the new "curriculum standards" is usable in some way. The comments fell into three groups. The first group relates to the structure of the "curriculum standards". Subjects replied that the structure of the "curriculum standards" is easy to understand as it is provided in three formats. The second group is about the contents of the "curriculum standards". Subjects commented that the "curriculum standards" is a good reference material for developing regional training programmes/courses, since it consisted of 1,065 training contents and covers all of the knowledge and skills required for teachers and educational officers. The third group focused on the very existence of the "curriculum standards".

The following is a summary of the subjects' comments on the usability of the new "curriculum standards".

- The "curriculum standards" is usable for developing training programmes/courses: 27.3%
- The "curriculum standards" is well-organised and easy to understand: 27.3%
- The "curriculum standards" is detailed and well-considered: 24.2%
- The "curriculum standards" is a good reference material: 21.2%

Usability of the "Menu System"

The subjects were asked if the "menu system" applied in the "curriculum standards" is useful or not, and 78.8% of the subjects replied that the "menu system" is useful. Most of the subjects realised that the "menu system" is a usable, understandable, and reasonable way for developing training programmes/courses. As noted above, six subjects designed a training course first time ever. It must be difficult for and inexperienced regional curriculum planner to select and determine appropriate training contents, but in fact, all of the six subjects could design a teacher training course using the new "curriculum standards". Consequently, it can be assumed that the "menu system" adopted in the "curriculum standards" is usable and understandable even for inexperienced curriculum planners. The breakdown of the responses was:

- The "menu system" is a usable and reasonable system for developing training programmes/courses: 33.3%
- The "menu system" meets the trainees' needs and situations: 18.2%
- The "menu system" is usable if the "curriculum standards" is used together with the "model training courses": 15.2%
- The "menu system" is usable if a training course for designing training programmes/courses using the new "curriculum standards" such as the "Media Specialists Training Course" is provided by the national government: 12.1%

Content Validity of the New "Curriculum Standards"

The content validity of the "curriculum standards" was examined, and 75.0% of the respondents commented that part of the new "curriculum standards" should be revised. No subjects replied that the contents of the "curriculum standards" are invalid or insufficient. On the other hand, 18.8% of the subjects commented that all of the contents of the "curriculum standards" are valid and sufficient, and do not have to be altered.

The training contents that were reported to be altered were:

- Moral issues in education (to be extended): 25.0%
- Using ICT for school affairs (to be extended): 12.5%
- Using mobile phones in education (to be extended): 12.5%
- Using slide projectors in education (to be removed): 6.3%
- Using 16 mm movie projectors (to be removed): 6.3%
- Using digital television in education (to be extended): 6.3%
- Using educational media in classrooms (to be extended): 6.3%

Rationale for the apparent high need for revision of the training contents related with moral issues is because the need of fostering information moral was announced in the new course of study for the first time (MEXT 2008a; 2008b).

Usability of the "Model Training Courses"

The subjects were asked if the "model training courses" are usable, and 92.6% of the subjects replied that the "model training courses" are usable in a sense. Meanwhile, 7.4% desired the "model training courses" to be digitalised and linked with the new "curriculum standards". The breakdown of the responses was:

- The "model training courses" are understandable and usable: 51.9%
- The "model training courses" are useful reference for designing regional teacher training programmes/courses: 40.7%
- The "model training courses" are expected to be digitalised: 7.4%

Needs for a Manual/guideline of the "Curriculum Standards"

Needs for a manual/guideline of the "curriculum standards" was examined, and 55.6% of the subjects said that a manual or a guideline of the new "curriculum standards" is necessary. On the other hand, 22.2% replied that the new "curriculum standards" is fully understandable so a manual is not necessary. Moreover, 18.5% replied that a training course or a lecture on the utilisation of the "curriculum standards" is necessary.

DISCUSSIONS AND FUTURE DIRECTIONS

All of the subjects who participated in the "Media Specialists Training Course" and the formative evaluation phase were lectured about the new "curriculum standards", and developed training courses using the new "curriculum standards". That is, all of the subjects tested the usability of the new "curriculum standards". As a result, most of the subjects reported positive opinions about the new "curriculum standards". Consequently, it is suggested that the new "curriculum standards" is necessary to enhance teachers' knowledge and skills, to promote effective use of educational media in schools and educational facilities, to raise regional media specialists, and to help regional curriculum planners develop training programmes/courses. However, even if the new "curriculum standards" is elaborate and meets the needs of teacher trainees, it makes little sense if it is not used by the regional curriculum planners. Therefore, it seems crucial that the MEXT must make effort to keep regional curriculum planners informed about the new "curriculum standards", to develop a manual/guideline that facilitates the use of the "curriculum standards", and to keep providing training courses where regional curriculum planners can learn how to design and develop training programmes/courses using the new "curriculum standards".

The "menu system" which is adopted in the new "curriculum standards" is recognised as a system that improves efficiency of developing regional training programmes/courses, meets the teachers' and communities' needs, enables regional curriculum planners to act at their own discretion and improves their motivation. It was revealed that the "menu system" is useful not only for the teacher trainees but also for the regional curriculum planners. The flexibility of the "curriculum standards" enables regional curriculum planners to study and design training contents that are necessary for the expected trainees and the community. It must be difficult for inflexible

curriculums to focus on teacher trainees' knowledge, skills and needs, and to keep pace with the rapid technological changes. As a result, contents of inflexible curriculums will become obsolete in a very short term. It can be said that the "menu system" adopted in the new "curriculum standards" is a method that meets the demands of the age.

The results of the formative evaluation revealed that some contents of the new "curriculum standards" are expected to be revised. It is unlikely that the contents of the "curriculum standards" have to be altered at the level of "training courses" or "training topics" in a short period. However, "training sub-topics" and "training contents" should be revised in a short span of time to cope with the rapid development of educational media. In fact, one training course, 10 training topics and 69 training sub-topics of the "curriculum standards (draft)" were added or revised when the new "curriculum standards" was announced. There is an urgent need to establish a system that enables perpetual revision and/or update of the "curriculum standards".

Along with the minor change of the "curriculum standards", new "model training courses" that suit the present conditions of educational media must be developed. This work might be undertaken by a working group or a study group established by the MEXT, but regional education facilities might also develop new "model training courses" and share them with other regions and facilities. It is expected that many "model training courses" are proposed by various educational facilities and shared via the Internet, and thus contribute to the development of the local communities.

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The utilisation of the Internet by Palestinian English language teachers focusing on uses, practices and barriers and overall contribution to professional development

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ABSTRACT

The paper describes a study designed to investigate the utilisation of the Internet by English Language teachers in Gaza focusing on uses, practices and barriers. A questionnaire was developed based on literature (Kabilan 2003; Kabilan & Mohamed Amin 2002) and was administered to 274 English language teachers in Gaza schools. Data reveal that 130 teachers are using the Internet for teaching English in classrooms as well as for various activities that enhance their professional development, such as searching for TESL-related information and to share ideas with other teachers. Nevertheless, it was found that English language teachers in Gaza have not fully utilised the Internet because of barriers related to time factor, accessibility and facilities. It is suggested that for the proliferation of Internet practices, there needs to be an increase in funding for technology, an introduction of computer/technology education, provision of pedagogical training for teachers and, a provision of administrational support.

INTRODUCTION

It is widely accepted that the Internet is a tool that has immense potentials in encouraging and facilitating learning and communication (see Kabilan 2005; Williams et al 2000) As a new way of acquiring and facilitating the processing of information, the Internet can encourage learners not only to view themselves as being in charge of their own learning, but also to perceive teachers as facilitators in the learning process . Hence, in terms of education:

> *it is becoming increasingly feasible to think in everyday terms about the practical applications of learning which rely upon Internet and mobile communications* (Demirbilek 2009, p.12).

The reason for such a positive outlook of classroom dynamics is because with the Internet, there are a myriad of opportunities and resources for the learners to get exposed to authentic use of communicative English. For teachers, these opportunities and resources also entail greater and far more effective ways of promoting and facilitating English language learning in a more authentic manner such as the use of e-mails for collaborative writing projects (see Kabilan & Mohamed Amin 2006) and the use of online discussions to analyse and evaluate ideas and opinions (see Bowman et al 2000; Anderson & Kanuka 1997).

Though it is quite obvious that we have already entered a new information age which links technology and the teaching of English, the promise of the Internet for educational use has not been fully explored yet in some countries and the average schools in those countries still only use the Internet to a limited extent. This limited use is mainly because of the lack of facilities in schools, high cost of accessing to the Internet and teachers' lack of knowledge and skills in using the Internet for educational purposes. This article reports a pioneering study in the context of

Gaza, Palestine that investigated the utilisation of the Internet by English Language teachers in Gaza focusing on uses, practices and barriers, and to what extent the Internet contributes to the teachers' overall professional development. By carrying out this study, educational administrators and planners would be able to identify the instructional potentials for using the Internet to facilitate the process of teaching and learning English as a foreign language, and the possibilities of using the Internet as a source of authentic instructional materials and professional development for the English language teachers.

LITERATURE REVIEW

When integrated appropriately, computer-mediated communication (CMC) and Internet technologies can support experiential learning. The experiential learning can be in the form of providing effective feedback to learners, enabling pair and group work, enhancing student achievement, providing access to authentic materials, facilitating greater interaction and individualising instruction. In addition, the CMC and related technologies allow independence from a single source of information and motivate learners (Lee 2000; Warschauer & Healey 1998). In addition, integration of such technology in the classroom can have a positive impact on development of skills and attitudes towards school (Mathew & Dehery-Poirier 2000).

According to Viadero (1997, p.3), since the mid 1990s, educators have begun using the Internet resources for a variety of instructional purposes and favouring electronic classroom environments in which students are able to, and are expected to (1) take charge of their own learning, (2) learn to think critically and analytically, (3) work collaboratively and (4) create products to demonstrate what they have learned. In doing so, according to Coley (1997), educators are confronted by a number of methodological and practical issues: (a) they need to remember that technology is only one component of an instructional activity, (b) assessments of the impact of technology are really assessments of instruction enabled by technology, and (c) the outcomes are highly dependent on the quality of implementation of the instructional design.

This emphasis on technology, CMC and the Internet in classrooms means the way teachers approach teaching and learning should move from a teacher-centred classroom to a more student-centred one. In this study, the Palestinian teachers are experiencing similar change of roles as they begin integrating Internet into their teaching and learning. Levy (1993) claims that the use of Internet resources in EFL/ESL can free teachers from isolated materials production role, which have always been time and effort consuming. Teachers can make use of materials produced by recognised educational organisations or by responsible and experienced teachers and offer these materials to their students. In this way, the teachers' role is expanding to encompass more facilitating and providing choices than being restricted by the shortage of teaching materials or their limited knowledge of computer programming or the capabilities of authoring software.

Alomari, (2009) and Maor (2003) argue that teachers should take on the roles of a researcher or a facilitator to engage students to become involved in active, collaborative and constructive learning experiences. However, without a teacher to organise the resources and then contextualise the learning possibilities within the curricula, the power of the Internet will dissipate and the potential of teaching will be lost. Therefore, teachers need to engage in more powerful roles that include not only using technology appropriately, but also finding ways to build in meaning purposeful connections and relationships to the larger world and community outside the school building (McCombs 2000).

Hence, teachers' practices of the Internet have to mirror their new roles so that learning experiences can be enhanced and enriched through engaging learners in authentic and meaningful activities that the Internet can facilitate and support. Earlier studies have explored such possibilities with quite exciting outcomes. LeLoup (1997), for instance, notes that e-mail provided teachers the access to discussion groups and newsgroups, which in turn allowed teachers to design activities and projects that enhanced their curriculum and provided students with opportunities to communicate directly with foreign language speakers. These discussions allowed the teachers to gain confidence and to learn and rely on and support each other (Taylor & Stuhlmann 1998). Also, through discussions in an online networking environment, English language teachers contributed to mutual encouragement and recognition amongst teachers, which took form in giving positive feedback on ideas, materials and classroom practices (Tsui et al 1996) that benefit learners. Also, the Internet offers English teachers the opportunity for ongoing collaboration and professional development through various online activities such as online sharing, online collaboration and online researching (see Kabilan & Mohamed Amin 2004; Kabilan & Mohamed Amin 2006; Kabilan 2005) that contributed to better classroom practices in terms of teaching and learning of English.

INTERNET IN PALESTINE

Gaza, the context of this study, is a coastal region of the Middle East, 140 sq mi (370 sq km), on the Mediterranean Sea, adjoining Egypt and Israel. Densely populated and impoverished, it is mainly inhabited by Palestinian refugees. According to Palestinian Central Bureau of Statistics (Palestinian Central Bureau of Statistics 2009) the estimated population of Gaza Strip in 2009 was 1.5 million. The Ministry of Education, since the administrational era of the Palestinian National Authority assumes responsibilities towards the education of the Palestinian people, sets the educational policies for general education, prepares plans to secure compulsory education for grades 1-10 and promotes free education for both 1st and 2nd secondary grades.

The cost of going online in Palestine, as in other Middle East countries, is relatively expensive (Warf & Vincent, 2007). For instance, the dial-up access costs between USD $10 and USD $20 per month in a society where the average Palestinian wage is USD $120 per month (International Solidarity Movement 2008). The bandwidth in Palestine, including Gaza, ranges from 128KB to 768KB. The Internet for people of Palestine is a world in itself that has nothing to do with borders. As such, the Internet is highly valued by the people of Palestine mainly because of its features that are ubiquitous, far reaching and connects people and communities together. This is further enhanced by the fact that Palestinians are increasingly becoming more computer literate.

In recent times, Palestinians have recorded high usage of the Internet. For example, in 2006, , 243,000 i.e. 7.5% of the Palestinian population are Internet users. As of June 2010, the number of Palestinians who accessed to the Internet increased significantly to 356,000 i.e. 14.2% of the Palestinian population (Internet World Stats, 2010). This rapid increase is mainly because of the increase in services and facilities that the telecommunication and Internet companies in Palestine are providing (Khoury-Machool 2007). This tremendous increase of Internet access indicate that the Internet in Palestine has challenged all odds and is comparable to the ICT practices of other Arab countries in terms of Internet connectivity and excelling in the desire for the implementation for ICT in all aspects of life.

The Internet in Palestine has a distinctive and unique role to play, particularly in politics and freedom movement. Though communication and freedom of movement are limited due to security reasons, the use of Internet technology, has encouraged communication, interaction and

networking of the Palestinian youths. Khoury-Machool (2007) believes that the Internet has been a "*true boundary breaker under siege conditions in the occupied territories*" (p.31). Realising that it is physically impossible to remove checkpoints or lift curfews, the youths of Palestine have now turned to telecommunications (including the Internet) to network with fellow Palestinians, or access to people, activities and locations that are far and isolated in their efforts to initiate resistance movement (Khoury-Machool 2007).

The Internet has brought significant changes to the education landscape too. Palestinian teachers are quite capable of using the Internet to assist them in their daily teaching activities such as preparing materials, presentations and homework (Pacetti 2008). This is as a result of the strong thrust initiated by the Palestinian Ministry of Education to incorporate information technology in education. This incorporation brings new dilemmas and challenges within a larger strand of change that teachers are constantly expected to learn and cope up with. The integration of computer and ICT into everyday teaching and learning is of high priority as most schools of Gaza are equipped with computer laboratories to cater for computer literacy programmes, which are managed by computer teachers. By connecting these labs to Internet, it was expected to further enhance the quality of education in all fields especially for the teaching and learning of English. In addition, it is the aspiration of the Palestinian Ministry of Education & Higher Education (MOEHE) to utilise and integrate information communication technology (ICT) and its technology in elevating teachers' professional development through the Palestinian Education Initiative (PEI). In terms of ICT, the "*overall objective of the PEI is the enhancement of the future of education in Palestine through pedagogical techniques empowered by technology that catalyzes socio-economic development*" (Palestine Education Initiative, 2005).

The use of the Internet in English language instruction in Palestine is still at its infancy stage. Understandably, no empirical attempt has been made to investigate English language teachers' Internet uses, practices and barriers in Palestine. Hence, this study attempts to shed some light on English language teachers' uses, practices and barriers of using the Internet as an instructional tool in schools in Gaza. In addition, this study will also examine to what extent the Internet contributes to the teachers overall professional development. Although there is an adequate knowledge base and empirical research about the impact of technology particularly the Internet on student outcomes in other contexts, e.g. (Kannan & Macknish 2000; Stepp-Greany 2002), there is a pressing need for such a study in Gaza, Palestine. The findings of this study will help researchers and administrators to comprehend the needs of English teachers in terms of Internet use. In addition, such research will pave the way for more extensive and in-depth empirical research of this nature in a country where the Internet is seriously transforming the socio-political lives of its people (Khoury-Machool 2007).

The research questions for this study are:

- To what extents do the Palestinian English language teachers' use the Internet?
- What are Palestinian English language teachers' practices of using the Internet for English language teaching?
- What are the barriers that hinder Palestinian English language teachers' use and practices of the Internet in terms of English language teaching?
- To what extent does the Internet contribute to the overall professional development of the Palestinian English language teachers?

METHOD

There are 383 government primary and secondary schools in Gaza, Palestine, with 9096 full-time teachers of various disciplines and subjects (Palestinian Central Bureau of Statistics, 2008). There are about 1200 full-time English language teachers (Ministry of Education & Higher Education, 2009) in Gaza, Palestine. A research assistant, who was familiar with the government schools, and knew the school principals and English teachers in the city of Gaza, was contacted via telephone, and was briefed about the research and the questionnaire. According to Krejcie and Morgan (1970), a population of 1200 requires a sample size of 291 respondents. With this figure in mind, the research assistant was able to identify 300 full-time English language teachers, who were teaching in government primary and secondary schools in Gaza, Palestine, and more importantly, who were willing to participate in the study. The information of these Palestinian English language teachers was obtained through the 'snowballing' technique, i.e. getting names and contact information of full-time English language teachers through the research assistant's contacts and personal networking.

A survey was the most effective research method in answering the research questions of this study, as well as reaching teachers to obtain data. Questionnaires were sent to teachers, who were teaching in non-accessible areas (due to curfews or security reasons), via e-mail or by post. For other teachers, questionnaires were given to the teachers personally. The 300 teachers answered the questionnaires and returned them to the research assistant, who was based in Gaza. The research assistant then compiled the questionnaires and sent them to the authors by post. A total of 275 completed questionnaires were returned with a response rate of 91.7%. The participants comprised 142 males and 133 females.

INSTRUMENTS AND DATA ANALYSIS

The instrument used is a questionnaire that consisted of four major dimensions: (a) demographic information, (b) Internet uses, (c) practices of Internet and (d) barriers of Internet use (adapted from Kabilan 2003; Kabilan & Mohamed Amin 2002). The specific constructs or dimensions that were adapted were identified based on their relevance to the research questions for this study. Each item in the dimensions was then closely examined for its relevance and suitability in the context of the Palestinian English language teachers and the teaching of English in Palestine. As a result, some of the items were rephrased or reworded to ensure the Palestinian teachers would be able to make sense and understand the items in the questionnaire. Three experts in the field of ICT reviewed and revised the questionnaire for its content validity. The questionnaire was piloted with 30 teachers from 5 schools in Gaza and showed a reliability index of r =.81 (Cronbach alpha), indicating that the questionnaire had a high level of internal consistency. Based on the pilot study, the number of items in the practices of the Internet dimension was increased to at least ten items per sub-dimensions.

The Internet uses dimension encompassed (1) Internet access and (2) amount of time spent using the Internet (hours per week). The Internet practices dimension had three sub-dimensions: (1) degree of importance of Internet activities using e-mails, chat rooms, messenger tools and online forums (12 items), (2) degree of importance of Internet activities using World Wide Web (www) or web pages (10 items) and, (3) degree of importance of the overall use of Internet for teachers' professional development (10 items). All the three sub-dimensions had a 5-point Likert response that ranges from "strongly agree" to "strongly disagree". To determine the teachers' uses and practices of the Internet, gathered data were analysed using frequency, mean, standard

deviation and percentages. The barriers of Internet use dimension has seven items that enquired the problems or difficulties that they faced in using the Internet for their practices.

FINDINGS AND DISCUSSIONS

Of the 275 returned questionnaire, only 130 (47.2%) teachers indicate that they have access to the Internet and have used the Internet for some kind of teaching and learning activities in classrooms or have used the Internet for professional development purposes. Remaining teachers (n=144) report that they have not used the Internet at all for the purpose of teaching English, even though some of them might have access to the Internet. The teachers' reasons for not using the Internet are indicated in Table 1.

***Table 1**: Palestinian teachers' reasons for not using the Internet*

	Reasons for not using the Internet	Yes f (%)	No f (%)
1	Don't know how to use	102 (71)	42 (29)
2	No time to learn about the Internet	81 (56)	63 (44)
3	No time to use	64 (44)	80 (56)
4	No interest at all	42 (29)	102(61)

Most of the teachers are not using the Internet mainly because they do not know how to use the Internet and they have no time to learn about the Internet. Only a 29% of the teachers indicate that they have no interest at all in terms of using the Internet for teaching English. Studies have shown that there are teachers who do not prefer online activities, and sometimes it is very difficult to encourage teachers' engagement in online activities (Kabilan 2003; Moonen & Voogt 2000; Owen 2000). These are because teachers have little or no knowledge and experience of technology or telecommunications in general (Levin & Thurston 1996), just like what was stated by the Palestinian teachers in this study.

For the following sections, the data analysed and discussed would be concerned with the Palestinian teachers who have access to the Internet and have used the Internet for the teaching of English.

Palestinian English Language Teachers' Use of Internet

Table 2 shows the number of hours that Palestinian English language teachers who accessed and used the Internet in a week (by hours). Majority of the teachers spend about 1-5 hours per week, and 12.3% spend more than 20 hours per week.

***Table 2**: Overall usage of Internet in a week (by hours)*

Number of hours	f (%)
1-5	56 (43.1)
6-10	31 (23.8)
11-15	18 (13.8)
16-20	9 (6.9)
more than 20 hours	16 (12.3)
N	130

Tables 1 and 2 imply that the issues of accessibility and lack of facilities and lack of time are the key factors that hinder teachers' effective utilisation of the Internet in Gaza. The same issues and problems have been identified earlier by Demirbilek (2009) in the Turkish context and by Kabilan and Mohamed Amin (2004); Kabilan (2003), and Kabilan and Mohamed Amin (2002) in the Malaysian context. In the open-ended question of the problems faced in using the Internet, even though the 130 Palestinian teachers accessed to the Internet, they still lamented that they have difficulties accessing the Internet, lack the time, low level of connectivity, and high cost of computers and Internet facilities. These issues, to some extent, have hindered the teachers' use and practices of the Internet. Though the Internet overcomes the lack of time factor for some conventional form of professional development, it seems that the Palestinian teachers still do not have the time to use or learn more about the Internet. This is not surprising because teachers are busier than ever – teaching, writing reports, co-curricular activities, disciplining students, meetings, checking and marking students' work, invigilation of examinations, and the list goes on (Kabilan & Mohamed Amin 2004).

Teachers' Practices and Barriers of the Internet and WWW

Table 3 describes the degree of importance of the teachers' practices of the Internet using; e-mails, chat rooms, messenger tools and online forums. Palestinian English language teachers in this study stress that their practices of the Internet are especially to develop their communication skills, increase their communication levels with other teachers and to seek information related to the teaching of English.

Other practices, as indicated in Table 3, are equally important to the Palestinian English language teachers, based on the mean scores for the items. They are most interested in trying to make their teaching the best practice that would enable meaningful and effectual learning experiences for the learners as they: (1) increasing communication with teachers, (2) collaborating with others, (2) seeking TESL-related information, (3) giving professional support to teachers and, (4) sharing and exchanging information. The most encouraging fact is that the teachers in this study indicated a strong willingness to take their own time to access the Internet for information that could help them to improve their own teaching practices even though the lack of time has been a huge stumbling block for these teachers. Kabilan and Mohamed Amin (2006) argue that teaching practices can be improved through the constant use of the Internet applications, in which the teachers are engaged in seeking information and researching, sharing and exchanging of ideas and knowledge and collaborating. White (2007) expresses similar views regarding the influence of new technologies in the conception and practice of language learning and teaching – it appears that not only the Palestinian teachers are prepared to learn about, understand and adjust

to new learning environments, i.e. the Internet, but are also willing to learn new aspects of teaching English with the Internet.

***Table 3**: Teachers practices of the Internet (mean scores and standard deviation)*

Teachers Practices	Mean Scores	Std. Dev.
to develop communication skills	4.41	.643
to increase communication between teachers	4.23	.677
to seek TESL-related information	4.21	.566
to combine new opinions with own	4.17	.649
to enjoy when collaborating online with others	4.15	.821
to give professional support to teachers	4.12	.722
to develop a solid foundation for learning	4.08	.666
to develop thinking skills	4.02	.698
to share feedback by posting messages to others	3.99	.773
to exchange TESL related information, knowledge and stories with teachers	3.98	.704
to receive professional support from teachers	3.94	.691
to discuss TESL issues with teachers	3.91	.731

In Table 3, two items with the lowest mean scores are receiving professional support from teachers and discussing TESL issues with teachers. Previous studies elsewhere also indicate that English teachers are less engaged in activities related to professional support and discussions of TESL issues with fellow teachers compared to other online activities such as developing communication skills and seeking TESL-related information (see Kabilan & Mohamed Amin 2006).

The Palestinian English language teachers' practices of WWW are mainly to search TESL-related information, to learn about a variety of TESL topics, to be involved in a world of information, to find materials and to read articles from online journals (Table 4). Equally important for these teachers' are finding exercises, test papers and questions and lesson plans. Table 4 indicate that the Palestinian English language teachers are willing to try to improve their teaching by engaging in activities such as searching for TESL-related information, reading academic articles and,

searching for materials, exercises, questions and lesson plans. It appears that they are interested to use Internet applications for the teaching and learning of English.

***Table 4**: Palestinian English language teachers practices of WWW*

Teachers' Practices	Mean Scores	Std. Deviation
to search TESL-related information	4.31	.692
to learn about variety of TESL topics	4.29	.741
to be involved in a world of information	4.25	.778
to find materials	4.23	.803
to read academic articles from online journals	4.21	.804
to present creative works	4.11	.838
to experience creative works	4.10	.806
to find exercises	3.89	.891
to find questions for exams/tests	3.87	.968
to find lesson plans	3.80	1.030

Kabilan (2005) identifies teacher motivation as one of the key factors to:

> *teachers' survival and sustainability in their profession, preventing premature or total burnouts* (p.52)

and further provided evidence of the uses and practices of the Internet and its applications by teachers that engaged learners in "*new types of learning experiences*" (p.53). Similarly, in this study, it is quite possible that the Palestinian teachers in this study, with the help from the Internet, were able to improve their teaching and thus, engage their learners in new learning experiences. These would certainly have encouraged the teachers to further broaden their engagement and involvement in online activities as they have denoted in Table 4 and Table 5. Goertler (2009) describes this as an "*important role in setting up and moderating the language learning opportunities*" (p.82) for learners. This entails that what teachers know and can do are the most important influences on what students learn and be competent in. Researches in teacher's involvement/use of technology and the enhancement of students' learning have attested to such claims (see Lupi & McIntyre 2003; Wright et al 2002).

Nevertheless, the Palestinian English language teachers in this study have indicated several barriers that they feel have seriously hindered their Internet use and practices. They are: (1) lack of facilities (3.96), (2) high cost of Internet access (3.96), (3) lack of time (3.72) and, (4) slow speed connection (3.72) (See Table 5). Only a small number of Palestinian teachers admit that they lack the knowledge on using the Internet expertly.

***Table 5**: Mean scores and standard deviation of barriers faced by Palestinian English language teachers in using the Internet*

Items	Mean	Std. Deviation
lack of facilities	3.96	.615
high cost of Internet access	3.96	.772
lack of time	3.72	.673
connection-speed too slow	3.72	.770
need to pay to get most academic materials	2.81	.916
too many hits for a particular topic	2.32	.788
lack of knowledge on using the Internet expertly	2.18	1.098

Overall Contribution of the Internet for Teachers' Professional Development

The Palestinian teachers in this study regard the Internet as important in their effort to enhance their professional development. They use the Internet to share ideas/views with other teachers, to grow professionally, to improve teaching skills, and to be aware of the latest developments in ELT (Table 6).

***Table 6**: The importance of Internet's contribution to the overall professional development of the Palestinian English language teachers (mean scores & standard deviation)*

Items	Mean	Std. Deviation
to share ideas/views with other teachers	3.72	.981
to grow professionally	3.70	1.001
to improve teaching skills	3.68	.973

Items	Mean	Std. Deviation
to be aware of the latest development in ELT	3.62	.959
to expand experiences for career/promotion purposes	3.53	.933
to learn new skills related to ELT	3.52	.958
to prepare self for innovation	3.52	.900
to facilitate thinking abilities	3.49	.966
to gain motivation	3.48	.925
to remain interested in teaching	3.34	.936

When asked if the Internet has had a positive impact on the teachers' practices of teaching and learning, 127 teachers (97.7%) stress that the Internet is useful and that the Internet is likely to lead to significant changes in the way they teach in the near future. Quite similarly, 76% of the Malaysian English language teachers in the Kabilan and Mohamed Amin's (2002) study state that the Internet has been useful to them, and have contributed meaningfully to their professional development. The Palestinian teachers' positive view of the Internet's contribution to their professional development indicate that the Internet is a tool for these teachers to get connected to the outside world, to retrieve information, to keep in touch with the latest news, ideas and approaches to the teaching and learning of English. Hence, the Internet has a huge potential to engage these Palestinian teachers to form collaboration with other teachers outside Palestine, especially for the construction of knowledge and ideas.

This study provides a clear indication that the Palestinian English teachers are not lagging behind in terms of information, knowledge and professional development as the Internet has kept them informed of the current educational development, especially in the field of teaching English. The current trends of research and practice in enhancing teachers' professional development using the Interent tools (or online professional development) are gearing towards "*a more self-managed and self-directed process of enhancing professional development*" (Kabilan 2005, p.55). With such use of the Internet, teachers actually have the opportunities to learn and gain valuable teacher competencies such as computing skills, creative and critical thinking and communication skills (Kabilan 2005). From the data, it is evident that the Palestinian teachers in this study are aware of the potentials of the Internet to help them gain the competencies mentioned by Kabilan (2005).

The Palestinian teachers' views and practices of the Internet are indications of teachers:

> *beginning to experiment, individually and informally, with the idea of self-managed and self-directed professional development* (Kabilan 2003, p.378).

This self-managed and self-directed experience using the Internet gives a real sense of ownership and relevance to the online professional development activities that the teachers are

involved in such as engaging in intellectual discourses, participating in collaborations, and sharing and exchanging experiences, views, ideas and opinions.

With its abilities to transcend time (synchronous and asynchronous) and geographical boundaries (ubiquitous), the Internet and its tools have the ability to enhance and boost a teacher's professional development meaningfully, i.e. based on his/her needs, interests and expectations. In a context like Palestine, where there is very little freedom of movement, the Internet offers the platform and the opportunity for teachers to connect with other teachers from other regions without travelling. The Internet also widens teachers' access to the abundance and myriad of resources, knowledge, ideas and teaching materials that the teachers can identify and utilise for teaching purposes. All these contribute to their overall professional development.

CONCLUSION

This study examines Palestinian English language teachers' Internet uses, practices and barriers. It also identifies that the teachers hold high opinions of the values of the Internet to their teaching practices, as well as to their overall professional development. They are also optimistic that they will widely use the Internet and it is likely to lead to significant changes in the way they teach in the near future. Nevertheless, the low utilisation and access to the Internet – only 47.2% of the teachers in this study have access to the Internet or have used the Internet – suggests that a lot more needs to be done before the Palestinian teachers can truly benefit and gain from the Internet and its applications. The barriers, as stated by the teachers, should be further examined and ways of minimising the impact of those barriers on the teachers' practices of the Internet should be thought of, particularly by the educational authorities at the state level, as well as the school administrators.

The teachers who have access to the Internet in this study were more positive in terms of their use of the Internet and demonstrated useful and meaningful practices of the Internet in terms of English language teaching and their overall professional development. This, in many ways, implies that the Internet has the capability to present itself as a key component of education and has the potential to become an important source of information for the English language teachers in Gaza. Therefore, the relevant educational authorities should take the initiative to encourage the use of the Internet for teaching English in Gaza. This can be achieved by being more active and supportive in terms of:

1) increasing funding for technology (especially computers and Internet facilities and access);
2) introducing computer/technology education into existing curricular as well as teacher education and professional development programmes;
3) providing pedagogical training to enhance teachers' ability to acquire, appraise, and use information from the Internet to create efficient, creative and critical methods of teaching and learning processes and;
4) providing administrational support in the form of providing networks, technical support, resources and facilities, and time allocation for teachers.

All the above will greatly help Palestinian teachers in enhancing and enriching their use and practices of the Internet for teaching as well as their overall professional development. These suggestions echo the suggestions made earlier by Conole (2008):

> *….there now needs to be a much closer synergy between evaluation of the learner voice and their evolving use of technology, with the development of methodologies for supporting new forms of design, support for teachers in creating effective learning, and*

> *the development of appropriate policy and strategy to create technology-enhanced learning environments within our institutions* (p.138).

The encouraging uses and practices of the Internet by the teachers in this study do not necessarily mean that the teachers are effectively using this facility to support their teaching and learning processes, or to enrich their professional development. Labbo and Place (2010, p.9) argue that effective integration of technology into teaching and learning requires a *"highly responsive pedagogy of multiliteracies*" that will place the learner at the "

> *center of meaning-making processes' and are supported 'within the context of authentic learning*" (p.9).

Labbo and Place (2010) further add that technology integration should occur in learning process that are made deeper and must include four key components: 1) active engagement, 2) participation in groups, 3) frequent interaction and feedback, and 4) connection to real-world experts. Hence, more studies need to be carried out in the Palestinian context to examine to what extent the uses and practices of the Internet have contributed to actual learning in terms of the four components identified by Labbo and Place (2010), and benefited both the learners and the teachers. This should, primarily, be from the perspective of learners. Also needed is a study to gauge to what extent the Internet has influenced and contributed significantly and meaningfully to the professional development of Palestinian English language teachers.

The above suggestions and recommendations have to be taken seriously. As the younger generation of teachers enters the schooling system in Palestine and replaces the 'older' generation, we can postulate and predict that they will have an even stronger views and practices of the Internet for teaching and learning purposes. This new generation of teachers is the 'digital natives' who will have changed radically compared to the 'digital immigrants' (i.e. the previous generation of teachers), and the existing educational system is no longer relevant and suitable to the younger 'net' generation (Prensky 2001). Halse and Mallinson (2009)'s term of 'Generation Y' fits the description of the 'Digital Natives', and they believe that the 'Generation Y' (or 'Yers' as they refer to):

> *….thinks and learns differently from the preceding generations, due in particular to the rapidly changing, highly technological environment in which they were raised. Today's world is very little like it was for the Yers' parents, and is characterised by greatly increased connectivity, both to other people and to the Internet, via digital devices. Yers use a number of Internet applications, both recreationally and for other purposes, that are ideally suited to the characteristic ways they live, learn, and work*.

Surely, these 'digital natives' or 'Yers' teachers will want to provide meaningful learning experiences that are relevant to their generation of learners; and those learning experiences are provided through the Internet. Future Palestinian English language teachers will certainly look forward to using and practicing the Internet for a far more effective and safe, and a far more meaningful teaching and learning experiences.

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Blogging in teacher professional development: Its role in building computer-assisted language teaching skills

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ABSTRACT

Teaching in today's classroom is technology-driven. For language teachers, computer-assisted language learning (CALL) is exciting yet challenging as they are required to possess appropriate skills and knowledge to teach in such an environment. Both technical skills and pedagogical knowledge are crucial for teaching and learning in a technologically-enhanced classroom (Hubbard & Levy 2006). Consequently, teachers must be provided opportunities to learn and develop these skills. Online interactive platforms like blogs and Facebook can expose teachers to this. Through interaction with peers, teachers are not only made aware of the skills but also learn how to integrate the skills in their instruction. This paper attempts to demonstrate that teacher involvement in a community of practice can assist them in this endeavour. It is based on a study involving Malaysian Smart School English language teachers who shared their knowledge and experiences with other members in their community of practice through blogging. The findings suggest that teacher collaboration via blogs can expose teachers to skills that are critical for computer-assisted teaching and help them to enhance existing competences.

Keywords: computer-assisted language learning (CALL); blogging; community of practice; teacher collaboration; technology-based language teaching skills

INTRODUCTION

Teachers play a central role in ensuring the successful implementation of educational policies in schools. In fact, they play multiple roles. They work in multi-faceted and complex environments where they are constantly negotiating classroom decisions on content and pedagogical issues and balancing many other duties. Even more challenging is the demand for them to be well-equipped with the latest technological and pedagogical skills that would inform their teaching practice. They must meet the numerous expectations of students, administrators and community. It is expected of them to be well-versed in computer-mediated instruction, especially the use of Web technologies in their practice. Online learning featuring email, discussion boards, blogs and wikis are becoming increasingly common in today's technologically-enabled schools. Teachers are required to possess appropriate skills and pedagogical knowledge to teach in such an environment. This article aims to shed light on how Smart School English language teachers are exposed to and can build on technical skills and pedagogical knowledge required to teach in technology- enriched schools through blog interactions in an English community of practice.

SMART SCHOOL REFORM

Information technology has been viewed by many developing nations including Malaysia, as a tool capable to modernise and transform them into developed nations (Warschauer 2001). To encourage the development of information and communications technology (ICT) in Malaysian education, the smart school initiative was launched. It is anticipated that smart schools can capitalise on leading current ICT technology (Frost & Sullivan 2006) and transform Malaysian schools into technology enablers (Ministry of Education 1997a). There are five main goals for the establishment of smart schools: (1) to provide all-round development of the individual, (2) to provide opportunities to enhance individual strengths and abilities, (3) to produce a thinking and technology-literate workforce, (4) to democratise education, and (5) to increase participation of stakeholders such as teachers, principals, Ministry of Education (MoE) officers, support staff and parents (Ministry of Education 1997b: p.22).

Fundamentally, according to Baylor and Ritchie (2002), technology will not affect transformations in the classroom if teachers do not have the skills, knowledge and attitudes necessary to infuse it into the curriculum. Thus the success of smart schools depends on key players such as teachers and administrators. According to the Ministry of Education's roll-out plan, by 2010, 100,000 teachers nationwide must be trained professionally in the knowledge, skills and perceptions necessary to fulfill their roles. However, despite the training provided to equip teachers with the relevant skills, it has been found that the smart school initiative is still facing numerous challenges that hinder its progress. Several local studies have revealed that teachers in these schools are not prepared for the implementation of this reform mainly due to the lack of ICT integration in their teaching. Nawawi et al (2005) investigating utilisation of ICT in teaching among the mathematics teachers in smart schools found that knowledge about, and skills in, using computers are closely related to teachers' participation in the decision-making process to integrate computers in their teaching. They emphasised that:

> *without the proper knowledge and skills to use the technology, mathematics teachers may be reluctant to do so or perhaps discontinue using it* (ibid, p.94).

This condition should be of concern as insufficient training or lack of ICT skills is the most common reason for non-adoption or discontinuance of an innovation according to Ellsworth (2000). Meanwhile Razak and Embi (2004) in their study on an IT competency framework for English language teachers, asserted the need for a regular review of teachers' competencies to ensure there are effective teachers in computer-based classrooms in the smart schools. Samuel and Bakar (2006) concur with them. They reiterated the need for a computer skills training on an ongoing basis to keep teachers up to date with the advancements in educational technology. Thus, not only is it imperative to ensure that the teachers possess technological knowledge and skills, it is more important to put in place a continual skills development programme to ensure that these skills are further upgraded and enhanced.

Taking cognisance of these concerns, a continuing professional development programme known as the eCPDeIT project was developed to provide smart school teachers with the means to continually increase their technological knowledge and skills and integrate them in their instructional practices, through a supportive and collaborative learning environment created by a community of practice (CoP). This paper goes on to describe how an online continuing professional development programme can assist English language teachers in learning about and building on skills essential for computer-assisted instruction.

THE eCPDeIT VISION 2020 PROJECT

The Online Continuing Professional Development of Teachers (eCPDeIT) project is a university-school partnership to build an online system for Continuing Professional Development (CPD) for twenty teachers from five Smart Schools. The team members were from the National University of Malaysia (UKM), University of Malaysia Sabah (UMS) and University of Nottingham, U.K.. The project aims to develop three communities of practice (CoPs) among English, Mathematics and Science teachers to help them in improving their practice and ICT skills necessary for a technologically-enriched teaching environment. A CoP is generally a group of practitioners who gather to share ideas and solve problems with the aim of improving their practice. As they collaborate with one another and discuss the issues at hand, they learn as well as develop relationships with other members (Wenger 1998). With the development of CoPs, it is anticipated that smart school teachers involved in this project can share experiences, knowledge and skills that would assist them in their practice. They can improve the use of ICT in their teaching practice as well as get the continuous support they need to cope with challenges of a technology-driven educational reform (Thang et al. 2010a; 2010b).

As the project aimed to develop communities of practice, teachers were divided into three cohorts: English, Mathematics and Science. Each community is assigned three research team members who also act as moderators to monitor the CoPs' progress. They facilitate teacher interactions, provide feedback when necessary and help to overcome problems faced by the teachers. Teacher collaboration was made possible through two online tools: blogs and the virtual interactive platform (ViP). A blogsite was created for the project and each community was assigned a specific blogsite within the eCPDeIT site. In other words, there were three blogsites within the eCPDeIT blogsite. The ViP, on the other hand, is an online platform that allows participants to discuss issues online based on videos regarding practice that are uploaded into it. This paper highlights only one of the CoPs, namely the English cohort, whose online engagement through blogging will be analysed to detect current competences and uptake of newly shared learning through the professional social interactions constructed online.

RELEVANT LITERATURE

It is obvious from the available body of work on teacher learning that the concept of teacher learning has changed with time. McLaughlin and Oberman (1996) rightly pointed out that a teacher who learns gains an understanding of new concepts of content and pedagogy as well as the new role of educator that he plays. Shulman (1986) proposed the concept of 'pedagogical content knowledge' (PCK). In this framework, teachers' subject knowledge is transformed by practice, so that the content area of their knowledge is developed into 'pedagogical knowledge' (BECTA 2009). This entails understanding and how ideas and content are adjusted for learning and become meaningful to learners. Today, teachers are inundated with varied demands due to globalisation and technological advancements. Knowledge of ICT is paramount. Mishra and Koehler (2006) included ICT in their framework of teacher knowledge. They created the term technological pedagogical content knowledge (TPCK). According to them, knowledge of subject content, pedagogy and the role of technology are inter-related. Thus, teacher learning is a holistic process by which teachers continually integrate the development of subject knowledge, application of technologies and understanding of effective pedagogy (BECTA 2009).

One key challenge teachers face currently is the use of technology. The current proliferation of technological tools offers the possibility of enhancing teaching and learning experience for both teachers and learners. Teaching with such tools is exciting yet challenging. Language teaching is

no exception. Computer-assisted language learning (CALL) provides teachers the opportunity to incorporate PowerPoint presentations, photos and slide shows, audio and video resources in their teaching, making their lessons attractive. Hyperlinks and social networking sites give language teachers much-needed support for creating effective computer-mediated teaching activities. Teachers can design tasks appropriate for a computer-based teaching environment. Furthermore, these resources, if exploited appropriately, can ease teaching as learners are provided with additional aids which can be integrated into their studies (Hampel 2009). The multi-potentiality of these tools can only be manifested if teachers possess the skills and integrate them in their teaching. The onus, therefore, is on teachers to create a meaningful context for their use within the language learning classroom (Murray & Hourigan 2008). They need to learn to improve their knowledge and professional growth. With learners having more opportunities to utilise web-based learning, it is mandatory (Carlson 2003).

Blogs present a platform for teachers to improve themselves through interaction with others. They are unique in that they serve as a platform for scaffolding, student-centered learning, the incorporation of multiple perspectives, and the development of communities (Yang 2009). According to Barlett-Bragg (cited in Muwanga-Zake et al, 2010), they provide an opportunity to engage in and scaffold knowledge construction. In fact, blogging has the potential to boost constructivist cognition and metacognition (higher order thinking skills). Members, through self-reflection, are able to explore their knowledge and exchange information, enhancing both individual knowledge construction and group knowledge sharing (Liaw et al 2008). Farmer (2007) pointed out that although as a group users connect with one another by expressing and sharing their views and feelings in the blog space, they exercise their personal assertion and empowerment in doing so. Furthermore, knowledge is gained from multiple perspectives because participants who may be of diverse nationalities, backgrounds and character can share opinions and express ideas by using a language they all understand. This enriches the collaborative learning process. Moreover, blogs promote community building as they are constructed by people who share mutual interests to collaboratively discuss common issues. In fact, a blog denotes a small learning community (Efimova & Fiedler 2003). A sense of community is established when participants reflect as a group and comment on each other's viewpoints to improve practice.

COMMUNITY OF PRACTICE FRAMEWORK

A community of practice (CoP) is a model that is based on the social constructivism perspective, which involves learning by sharing practice. Members interact with one another and share experiences that relate to an area of knowledge or activity that is of interest to them (Carroll 2008). They solve problems, share ideas, build strategies and develop relationships with other members (Snyder & Briggs 2003). The CoP concept is increasingly popular in the professional development of teachers. It has been found that it provides support for teachers and helps them in their professional growth. With the advent of Web technologies, online communities are booming. Barab et al (2004) described an online community as:

> *a persistent, sustained [socio-technical] network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history and experiences focused on a common practice and/or mutual enterprise* (p.23).

Many computer applications that promote interactive learning, especially asynchronous computer-mediated communication such as email and electronic bulletin boards, are tools used for online collaboration. Currently blogs have gained popularity as an interactive tool in online communities of practice. A number of studies have affirmed the ability of blogs to support both reflection and collaboration, processes that are vital in a community (Swan & Shea 2005; Hawkes 2000; Lord & Lomicka 2004; Ahern et al 2006).

FRAMEWORK OF STUDY

As mentioned earlier, this study is based on the eCPDeIT project which uses the CoP approach. Teachers share ideas and experiences not only to improve practice in general but also to enhance their ICT knowledge and skills. What are the skills that are crucial for technology-based language teaching? Hampel and Stickler (2005) identified seven skills, presented in the form of a pyramid that online language teachers need (Figure 1).

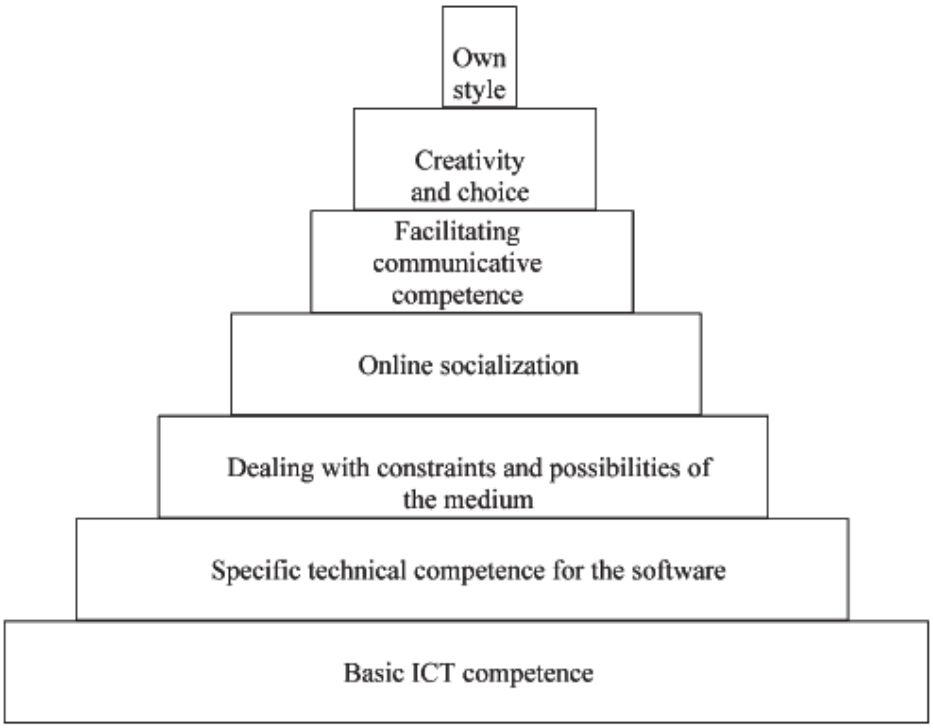

***Figure 1**: Skills pyramid (Hampel & Stickler 2005)*

Level 1, the lowest level, represents the most general skills while Level 7, the highest, offers individual styles. One needs to master the lower levels before proceeding to the next. The most basic skill involving being competent in common computer applications like word processing and the Internet is represented in Level 1. In Level 2, one must possess skills to use specific software. There are many forms of educational software that are available such as the Blackboard and Activeboard. Teachers must know how to apply any software before using it. In Level 3, online teachers must be able to deal with constraints and possibilities of the medium they use. They have to make the best of a programme by adapting their teaching materials and content to it. This includes the ability to deal with learners' negative emotions (for example, disappointment and frustration) as well as positive emotional states (for example, high expectations of the possibilities of the new media) when engaging with technology.

At Level 4, teachers are required to possess skills to create a sense of community in the online classroom. It involves online protocols or nettiquette that online users must adhere to. Facilitating communicative competence is the next level in the pyramid. Here, teachers must be able to encourage learners to communicate and socialise as a group. This can be achieved through task design and teacher-intervention. Level 5 represents skills associated with creativity and choice. Online teachers must be able to select materials that are appropriate for their learners from the numerous resources available online. They can be creative by adapting materials or tasks to their classroom context or design their own online activities. At Level 7, the highest level or the apex of the pyramid, the teacher would have created her own teaching style by using the resources creatively and building a close rapport with her students.

RESEARCH METHODOLOGY

The e-CPDelT project comprised twenty teachers from five smart schools located in the Klang Valley and the Federal Territory of Kuala Lumpur. The English language community of practice in the e-CPDelT project consisted of five female teachers. Their teaching experience ranged from 5 to 18 years, four of whom have more than 10 years of experience. Since these teachers do not know each other, two meetings were organised prior to the blogging activity, where they were introduced to other team members and briefed on their roles in the tasks prepared for them, especially the blogging activity. It is imperative to note that even though the size of an online CoP is generally large (more than a hundred), it is normal to have small-sized CoPs (5-8 members). A natural, voluntary and purely virtual community can be large-scaled. Nonetheless, one which is designed, pre-planned with pre-determined aims can be small (Lewis & Allen 2005). Such a community, such as the one developed in the eCPDelT project, features members who volunteered or were selected. They were invited to scheduled face-to-face meetings to form relationships and get to know each other well. After this initiation into the group, the participants are expected to continue to share and construct a collaborative community online via the blogs.

Blogging was one of the avenues for teacher collaboration in the eCPDelT project. In this activity, participants were required to post blog entries on two tasks regarding their teaching practice; that is, reflecting on a lesson they deemed good and another which they considered poor. After posting their entries, they were required to comment on postings by other participants in the discussion forum. There was no limit as to the frequency and number of postings although they were encouraged to post as often and as many as they could. Three research team members were the moderators for the CoP. They provided technical assistance and shared their views with the teachers in the blog. It created a rapport between the research team and the teachers. It was mutually agreed by both the teachers and moderators that the blog entries would be posted within a month after the task was given. Initially, the response from the teachers was poor. However, with the timely intervention of the moderators, teacher participation in the blog activity improved. The moderators provided support, particularly technical and emotional support. Some teachers could not access the blogsite while a few had problems posting their entries. As far as emotional support is concerned, the teachers were rather apprehensive at the beginning to post their views. The moderators had to encourage and coax them to be active participants in the activity. After the initial hiccup, the teachers began to post their entries and comment on other postings. The blogging activity was conducted over a five-month duration.

A textual analysis of the blog postings was conducted to reveal the teachers' current CALL skills levels as described in the skills pyramid by Hampel and Stickler (2005). The interactions were also analysed to explore the extent to which the teachers' sharing of experiences through the blogging activity exposed teachers to the technical and pedagogical skills necessary for teaching

in a technologically-driven teaching environment, as demonstrated in the skills pyramid (Hampel & Stickler 2005).

LIMITATIONS

Over the period of five months, only six blog entries and twenty four comments by the five participants were recorded. The small number of entries is not unusual. In a study to examine the pedagogical use of ICT by university staff, Muwanga-Zake et al (2010) found that out of ten Australian universities they sampled, only three blogged. They implied that although there is evidence from research work on the success and potential of blogging in the education field, it does not mean that educationists, in their case the university staff, would take to it. Thang et al (2009; 2010a; 2010b) identified and discussed some of the problems that led to the low participation rate in the eCPDeIT project. They include problems related to ICT such as (1) unfamiliarity with the ICT resources provided, (2) institutional and administrative barriers such as lack of cooperation from head teachers (3) institutional and organisational barriers such as lack of access to online facilities and lack of time to be committed due to heavy workload, and (4) negative perception towards ICT use and fear of being embarrassed by their colleagues and students. Sociocultural and psychological problems were also identified. There was a possibility that this was because CoP was a novel concept and hence teachers had difficulty accepting and adapting to it. Other reasons include unfamiliarity to each other and fear of losing face and embarrassing others with their comments.

Due to the small number of blog postings, this paper only provides a 'flavour' of the potentiality of blogs in enhancing CALL skills. Based on the findings, a conclusive deduction cannot be made. However, there were certainly indications that through blog discussions, teachers could learn and build on their CALL skills.

FINDINGS

Although the small number of blog entries is an issue, a general conclusion can still be drawn. The findings revealed the teachers were exposed not only to new skills, but they also enhanced their existing skills through the blogging activity. Furthermore, they could get peer support by sharing and collaborating with other members.

Exposure to Skills

Findings from the text analysis demonstrate that the teachers are exposed to all seven skills required for CALL instruction.

Level 1: Basic ICT Competence

CALL instructors should possess basic IT skills which include emailing and browsing the Internet for information. In the study, some teachers stated in the blog that they use basic IT skills in planning an activity.

> N: *…browse the internet to look for the image of a type of house that they would like to live in…copy and paste the image into a word document…send in their entries as attachment via e-mail to the teacher.*

C: *…we (teacher and students) looked at information on a famous person in the Internet…*

Level 2: Specific Technical Competence for the Software

Skills at this level are associated with knowledge of specific software. The English teachers posted in the blog that they planned for lessons that require students to use a software application that they would have demonstrated on how to use. At the same time they also indicated that they possessed the knowledge and skill on how to use specific software such as the Publisher and Photoshop. For example:

SH: *In this lesson, students were required to produce an itinerary of a place that they would like to visit… use the Publisher programme to produce an itinerary*.

S: *The final few photos were superimposed. I did some editing with adobe photoshop to make them look slightly older, darker, with long hair etc.*

Level 3: Dealing with Constraints and Possibilities of the Medium

At this level teachers demonstrate the ability to deal with constraints and possibilities with the medium. One teacher shared her experience of dealing with the possibilities of educational tools that brought about positive emotions among her students:

S: *The topic was about people and it was a lesson (to enhance writing) on describing people appearances .Using power point, I started off with showing them their very own snapshots that I had taken earlier during my classes. I got them to describe their own appearances. They responded well to the pictures shown as it were their very own. They had a good time laughing and at the same time describing at those candid shots I took. The describing went on and on for quite some time as they were describing from head to toe. Without realising, they have successfully described using adjectives…The final few photos were superimposed. I did some editing with adobe photoshop to make them look slightly older, darker, with long hair etc. They were simply in 'stitches'!*

Another teacher shared the constraints of introducing a new programme to her students:

SH: *In one lesson, students were required to produce an itinerary of a place that they would like to visit… To make it more interesting, students were required to use the Publisher programme to produce an itinerary. As students were not familiar with Publisher programme, during the lesson, students asked many questions regarding the programme. Besides, there were many technical difficulties that I had to solve*.

Level 4: Online Socialisation

This level is on online socialisation. At this level, the ability to create an online environment where interaction can be fostered is demonstrated. This level is closely linked to the next in that communicative competence must be nurtured for online socialisation to take place, as demonstrated by teacher C below.

Level 5: Facilitating Communicative Competence

This is an important skill to develop and practice in the teaching and learning contexts. Possessing knowledge and skills of online socialisation tools such as blogs, chatting, Facebook among others is necessary for a smart school teacher. One teacher created an activity that promoted interaction among her students by showing them how to create blogs for their mini project.

> C: *I got the students to create blogs based on their research on their favourite person for their project. I encouraged them to try something new and different with their own blogs such as adding in video clip, being creative with the fonts and colours and so forth.*

Teacher C had emphasised on netiquette of blogging to her students prior to carrying out the activity.

Level 6: Creativity and Choice

At this level CALL instructors must demonstrate that they possess creative skills when choosing to integrate IT in their teaching. This includes the ability to identify appropriate and relevant tools and applications for learning activities as well as to match these with the different types of students' learning preferences and needs. The teacher cited below for example, designed her IT infused lessons to accommodate for the linguistically and IT challenged students as well as for the more capable students. She had selected blogging as the medium to be used for the journal writing project. Mindful of her weaker students she planned to motivate and introduce them to the task designed by phases. The blogs that the students eventually produced, as listed, demonstrated her successful strategy.

> C: *So with weaker students the challenge is to motivate them and to find areas of interest for them to "find themselves". With my students I am starting some unofficial work this year. First is to do journaling via blogging,…then another activity…this is still in the beginning stage, I am doing a blog for internet homework.*
> *… Here are the urls of my students' tributes. Just sharing. I haven't graded them yet. But I am impressed with some of the blogs.*
> http://tunkuabdulrahman-jnsz.blogspot.com/
> http://3bakti09.blogspot.com/
> http://ghandihateswar.blogspot.com/
> http://oprahwinfrey54.blogspot.com/
> http://yooitsobamanator.blogspot.com/

Level 7: Own Style

At the most expert level, the CALL instructor should demonstrate the ability to create her own style in using and integrating IT for her teaching and learning purposes and goals.

Among the CoP members, teachers C and S showed that they possessed this skill. Teacher C, for instance, had asked students to use blogs and hyperlinks to search and access knowledge on multiple subjects and had related the contents discovered online with the text to be read. This approach to the lesson clearly demonstrated her creative way of using web technology to provide students with multiple perspectives and input as content for discussion, comparison and comprehension. By using the tools and applications, she had developed her own style in using IT in her teaching the language.

Teacher S also came up with interesting lessons that were creative, such as the one on describing appearances (the example shown in Level 3). She also suggested a creative lesson to one of the community members who admitted her lack of competence in incorporating IT in the activity she had planned:

> ST: …*giving instructions, to be exact, writing instructions for a recipe. Students were also required to use sequence connectors in the instructions…I haven't tried this using the IT yet, don't know how to*.

Teacher S provided an idea which could help elevate her IT competence:

> S: *…to teach sequence, I have always wanted to teach how to put on make up - for sequence connectors (a complete make over class)...you could use a model (grab one the kids) :) make her look beautiful...show them the very first step to make up - let all your artistic talent out!!! Emphasize on sequence connectors when you model the steps..show them the 'before' and 'after' look...if you insist on bringing the IT elements..you could video cam the lesson...take candid shots..use the images on power point and get them to write the 'process and procedure' to apply good make up / to look gorgeous.*

This section reveals that teachers, through blogging, are exposed to the various skills that are required for them to teach in a technology-based classroom. They also learn how to integrate them in their teaching.

Enhancement of Existing Skills

The blog interactions of the participants as reported above, reveal that the virtual space provided opportunities for them to learn about competences expected of them as teachers in an ICT-enabled teaching environment. Besides exposing teachers to the skills, the blogging activity also provided them a means to build on these skills. The example of the interaction between teachers SH and S above depicts this. Their interaction enhances teacher SH's existing competences as well as her self confidence in the new ways of integrating technology in educational contexts.

In another discussion, teacher N described a lesson that only required basic IT skills (using a word document and emailing). Teacher S gave her ideas that would not only make the lesson more interesting but also enhance Teacher N's competence level. Her (Teacher S) suggestions provided teacher N with alternative ways of using the Internet and its tools to approach the topic:

> N: *…look for the image of a type of house that they would like to live in. They were told to copy and paste the image into a word document…send in their entries as attachment via e-mail to the teacher.*
>
> S: *…showing the students pictures of various types of human shelters ranging from the old, ancient, poor one to modern, developed and owned by those filthy rich people, celebrity homes etc...then you can get them to design their own home. This way, you are actually gearing them to learn the poem.*

A similar example is demonstrated below. On the issue of curbing the use of the native language (L1) in a second language (L2) lessons, one of the moderators voiced her opinion.

> H: *…give them more 'contrived' or 'orchestrated' opportunities to use English…like chatting online with non-Malaysians or to get them to 'police' each other--make it a competition perhaps. Remember Doogie Howzer?*
>
> C: *I remember Doogie Howzer!!!! Now that you mention it, yeah a good idea indeed.*

S: *…that sounds pretty interesting...I might try it...get them to 'police' each other...okay I'll think of something to go with it, thanks!*

It is apparent from these examples that the interactive space provided by blogs presents opportunities for teachers to learn about and build on skills required for online teaching.

Sharing and Collaboration through Blogging

Apart from sharing constructive ideas and successful IT infused lessons, the blog interactions also provided the participants with a common platform to voice out their emotional frustrations and the tensions they experience when using IT. The rapport created online as a community has given them the confidence to confide these tumultuous emotions experienced which they feel can impede their continuous learning and enhancement of CALL skills as presented in the Skills Pyramid.

In one example, a teacher assumed that her students knew how to use emails. Her lesson was affected when she found out that not all of them knew how to. This revelation may hinder the teacher's motivation to incorporate more advanced tools in her lessons, especially in encouraging her students to use such tools in a CALL activity:

N: *…I had actually overestimated the students' ability in using e-mails…some students did not have an e-mail account and neither knew how to create one. Some had an account but didn't know how to send attachments via e-mails.…those who knew were only willing to help others after they had finished their work…So, I had to stop the students halfway and teach it.*

Time constraint is another factor that a teacher highlighted. It can become a main influencing reason for not adopting IT into her lessons. In most cases teachers are hard pressed for time to prepare interesting and creative lessons. Hence, time and not competence in IT skills could become the hindrance in smart school teaching and learning contexts as cited by the teachers below:

S: *We want to do so much stuff…we even want to bring 'the world' closer to the kids...its just that we are so bound with so many things to do in school…could not put ample time for planning our lessons.*

One teacher, although keen to use a new programme, found that it was time consuming:

SH: *…like to teach a group of good students I have to spend some time editing photo shots, still new to me. I learned that I had to be knowledgeable and confident in using Publisher in order to use the programme to teach.*

The discussion of common issues among the participants revealed their shared concerns; that is, the challenges in technology-enabled schools. The blogging activity as a medium for the CoP had created a sense of belonging among the participants as they could relate to each other. A sense of belonging to the community is crucial for the participants to feel free to voice out their opinions. Only with a strong community feeling will there be more active participation from members. Ongoing interaction and collaboration in learning through the blogs would make the CoP members feel connected to one another. These findings also imply that support for each other will encourage teachers to be more confident in the decision-making process to integrate IT applications in teaching and learning contexts.

CONCLUSION

Two conclusions can be drawn from this study. On the matter of the current CALL related competencies of the smart school teachers, the investigation revealed that the blogging activity exposed teachers to the skills proposed by Hampel and Stickler (2005) and helped them in enhancing their existing competences. Through online collaboration, these skills were shared with others. Furthermore, it revealed other pressing issues such as unfamiliarity of tools, technology-related problems and time constrains that can hamper skill enhancement. These challenges must be overcome to ensure skill enhancement necessary for CALL instruction is promoted. Secondly, the findings of the study demonstrated that blogging, as an interactive tool was found to be effective when used as a medium of eliciting interaction and information in the CoP platform (eCPDelt). The blogs also demonstrated how new ways of doing IT in teaching was shared and learned by the CoP participants. The interactions that developed provided the English language teachers the opportunity to share, enquire, enhance and learn skills necessary for CALL instruction as an impetus towards their own motivation to continue to use IT in their own teaching contexts. It can be concluded that despite the challenges faced during the blogging activity, participants did learn and enhance CALL skills. Therefore, improving and consolidating on such online activities would mean helping teachers to equip themselves with the relevant ICT skills useful in their daily practice. Further research is necessary not only to substantiate these claims, but also to give more insights on the potentiality of online discussions in enhancing pedagogical, content and technological knowledge.

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Learner autonomy via Asynchronous Online Interactions: A Malaysian perspective

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ABSTRACT

The integration of information and communication technologies (ICT) in course offerings in institutions of higher learning (IHLs) is the catalyst towards empowering learners to become autonomous lifelong learners. In an effort to produce quality and independent learners, Learning Management Systems (LMS) are seen as a means to assist educators in developing quality online internet based courses and websites as well as to fulfil students' needs in acquiring information anywhere and anytime. This paper explores the Malaysian perspective in addressing issues and challenges faced by adult learners in IHLs to keep abreast with this latest trend. This research paper is based on a pilot study that investigated learner autonomy via a distance learning programme in a local university in Malaysia. Initial findings indicated that first-year students lacked the confidence needed to learn autonomously. Even though they showed some confidence in planning, results indicated they needed help in organising, monitoring and evaluating their learning. If students are required to participate in asynchronous online learning, necessary steps have to be taken to ensure they are empowered with the necessary skills and tools to help them manage their own learning for their journey to become lifelong autonomous learners.

Keywords: *Learner autonomy; computer-mediated communication; asynchronous online interactions; adult learners; learning management system.*

INTRODUCTION

The demand for new delivery systems and learning media has become more urgent as institutions of higher learning (IHLs) struggle to compete for students locally and worldwide. In anticipating a future when more students will require more independent learning, new technologies and opportunities are being developed and explored by IHLs to capture student interest that will allow greater flexibility, autonomy and learner-centredness yet does not diminish students' learning experience. This calls for a change in the way education can and will be delivered. As Gordon highlighted "*the world in which children grow, learn and interact will have significantly different modes of exchange than those of the previous generation*" (2000, p.3). Rising to this call, the dawn of the new millennium in the information age has brought a plethora of new technologies in IHLs. Today, accessing information via the Internet is a common feature in most homes, offices, schools and IHLs. Hence, the use of networked communication technology via Internet and Web in education can no longer be considered optional but a necessity. In response to these educational needs, the latest technological tool to invade IHLs is computer-mediated communication or CMC (Bonk 2004; Harasim 2000; Selwyn 2000; Jonassen 2000). CMC will play a vital role in empowering individuals towards achieving democratisation of

knowledge in education. These technologies will pave the way for new opportunities in online learning environments in the future. The importance of this convergence cannot be denied as it will help more people embrace lifelong learning as a way of acquiring, improving and updating their knowledge or skills throughout life via education, training, work and general life experiences (Rohani 2005). Through the integration of CMC tools in IHLs, it is hoped that ultimately it will pave the way towards creating autonomous lifelong learners capable of controlling their future and destiny in pursuance of continuing professional development over the course of their life span.

LITERATURE REVIEW

Alagic et al. (2004) point out that the ultimate goal of adult education is to help them achieve learner autonomy. Yet researchers have over the past two decades debated on a holistic definition of learner autonomy. For instance, Little (2002) notes that it is often confused with other synonyms like self-instruction (Candy 1991), 'andragogy' (Knowles 1983), 'independence' (Sheerin 1991) and 'language awareness' (Lier 1996). Furthermore, others like Benson (2001) debate as to whether learner autonomy should be viewed as a capacity or behavior characterised by learner responsibility or learner control. Little (2002) stresses that autonomous learners accept responsibility for their learning and regularly engage with the cognitive, metacognitive, affective and social dimensions of the learning process. Adding to this discourse, Sinclair and Thang (2009), reiterate that learner autonomy refers to learners who are self-driven, take responsibility for their learning and actively seek new knowledge. They highlighted that there are two kinds of autonomous learners - proactive and reactive autonomous learners. The former refers to learners who actively take control of their own learning whilst the latter suggest learners who are pushed towards various forms of independent learning (Littlewood 1999 cited in Sinclair and Thang 2009).

In lieu with these latest developments in learner autonomy, ideas of learner autonomy which refers to learners' abilities in taking responsibility for the management of their own learning has taken centre stage as the responsibility of learning has shifted from the teacher to the learner. This paradigm shift in learning which is less devoted to rote memorization of facts but more to learner-centredness is dedicated towards promoting independent and self-directed learners. In this context Jones, A.N. (2006) stressed there is a shift from lecturing and telling ("sage on the stage") to facilitating and guiding ("guide on the side"). The overarching principle in this new paradigm shift is to help learners 'learn how to learn'. Learning how to learn means to build up learners' "*capabilities to learn independently (e.g. creative and critical thinking, mastering of information technology, communication), to become self-reflective on how to learn and to be able to use different ways of learning…*" (Curriculum Development Council 2000 p. 3). All these skills have been identified as components of autonomy. One tool that has been closely linked with aiding the development of learner autonomy is CMC. Today, CMC is seen as the hallmark of teaching and learning in IHLs because it has not only transformed the teaching and learning methodologies used in higher education but through its catalytic power has broken down traditional boundaries of teaching and learning and plays a privileged role in developing autonomous learners (Dimaoru G. et al. 2006; Benson 2001; Jonassen 2000).

What then is CMC? According to Simpson, J. (2002), CMC is an umbrella term that subsumes computer based instruction, informatics and human-to-human communication. In short, it refers to human communication via computers. In extending the definition further, CMC entails communication between more than two people and involves technological tools such as radio counselling, teleconferencing, bulletin board systems, Internet, e-mails, online discussions / e-forums, audio-conferencing, interactive messaging (IRC/chat), video conferencing and multi-user domains (Simpson 2002; Berge 2001; Jonassen 2000). In the realm of CMC, there are basically

two modes of web-based communication i.e. asynchronous (delayed, any-time, any-pace, any-place) and synchronous (same time, real time) communication. Compared to synchronous communication, researchers argue that asynchronous communication gives learners more time to reflect on their own ideas, which supports critical thinking and learner autonomy (Swan 2001; Harasim 2000; Jonassen 2000). Today, both these preferred modes of learning, have helped to enhance and support the development of autonomous lifelong learners (Yumuk 2002)

This clearly shows, that in today's wired environment, the need for developing autonomous learners has become more imperative. In fact, many local and foreign IHLs agree that in their quest to develop autonomous learners, the use of computer-mediated communications has expedited this aim. This is because CMC systems have certain inherent features that aid learners towards becoming autonomous learners. Numerous studies have succeeded in pointing out that the purpose of education in formal and non-formal learning environments must seek to develop attitudes that foster the development of autonomous learners. This means that learners must be equipped with a repertoire of skills, competencies, knowledge and attitudes that promote learner autonomy and learner empowerment (Kelly 2007; Ranjit & Mohamed Amin 2007; Ranjit & Gurnam 2006; Hara et al. 1998). For instance, Ranjit and Mohamed Amin (2010) in their study which investigated the roles of Malaysian adult learners in Asynchronous Computer-Mediated Communication found that learners experienced different roles such as initiators-wrappers, task orienters, social discourse networkers, e-collaborators and e-mentors in their quest to seek knowledge and improve their learning skills. In another study, they discovered that in order for Malaysian learners to improve their attitudes, they had to equip themselves with a variety of skills. This was based on the perceptions that asynchronous interactions were not "a synch". Some of these views included facing time constraints, memorising too many facts, assessment woes, questioning what to post, logistics issues, language barriers and inadequate tutor training (Ranjit & Gurnam 2009).

THE MALAYSIAN CONTEXT

Against this backdrop, as Malaysia stands at the threshold of a new era of technological learning, without doubt she has to embrace herself with all these new technological changes if she wants to remain competitive in the global market. So far, the development of networked communications in Malaysia is encouraging. The Malaysian government has targeted to increase the country's broadband penetration rate from two percent of the population to five percent in 2006 and 15 percent in 2010. This is very much in line with Malaysia's wish to become a fully developed country and achieve its Vision 2020 objectives where it hopes that the broadband penetration should be at 50 percent of the population by 2020 (Sani 2004).

Given the dynamics of the global economy, the need for lifelong learners and knowledge workers has never been stronger. Hence, are Malaysian learners equipped with the necessary skills on how to learn to compete in today's competitive global economy? Are IHLs empowering learners with the right skills and competencies for self-directed learning that will enable them to adapt and change with the times? "*By teaching students to reflect on how they learn and by developing their skills to pursue their learning goals, students will be empowered to change from passive recipients of information to active controllers of their learning*" (Klopfenstein 2003). This would most certainly lead learners to take personal responsibility for learning thus empowering them with skills that support lifelong learning. Eventually, this would enable them to be on the cutting edge of technology and allow them to compete in a marketplace that has now become global.

Concurrent with all these ICT developments, IHLs in Malaysia are keeping pace with these latest trends as online learning is currently believed to be a potentially significant area of development

in Malaysia. Through all these developments, it is also hoped that students will benefit from course materials made available online. Locally, many institutions of tertiary education and IHLs have taken the first step and are making headway in this new trend. Clearly, staying abreast of the latest developments, partnerships, or opportunities in online learning is not an easy endeavour. In fact, Ziguras (2001, p.6) reported:

> *many educationists see educational technologies as a means to encourage greater self-direction and creativity on the part of students….the appeal of educational technologies is that they will require learners to be more pro-active and autonomous and these personality traits are increasingly important in the 'knowledge economy.*

Therefore, this study is timely as it will contribute to knowledge on the current state of development of online learning in IHLs in Malaysia. The findings will hopefully be a precedent for many more such studies in other colleges and IHLs both locally and globally.

PURPOSE OF THE STUDY

The purpose of this pilot study was to investigate learner autonomy through asynchronous online interactions via e-mail interactions between learners and their tutor in achieving their learning tasks. Specifically, the study aimed to investigate learner autonomy viz. planning, organising, monitoring and evaluating in achieving their learning tasks. Besides that, learners' views and suggestions relating to using a LMS were also sought.

RESEARCH METHODOLOGY

This descriptive research employed a three-pronged data collection procedure. The procedures employed in this pilot study included administering a survey questionnaire, conducting semi-structured interview protocols and analysing e-mail interactions. Purposive sampling method was the preferred technique as it enabled the researchers to study one intact class of students involved in asynchronous online interactions with their tutor for the B. Ed (TESL) course. The instrument entailed obtaining demographic data and analysing aspects of learner autonomy viz. planning, organising, monitoring and evaluating their learning tasks as well as their views regarding using a LMS as the CMC platform for online learning.

The survey questionnaire was administered once i.e. at the end of the course and conducted in the English language. It was administered to 30 part-time first-year students pursuing the Bachelor in Education (B.Ed.TESL) course at the Faculty of Education in a local private university located in the state of Selangor, Malaysia. This private university employed a blended learning approach in all its course offerings. In short, all courses offered entailed face-to-face (F2F), self-managed learning and e-forums. Students had three academic sessions in a year i.e. January, May and September. The length of each semester varied between 12 and 14 weeks. January and September constituted long semesters (14 weeks) whereas May constituted a short semester (12 weeks). Irrespective of the length of semester, the courses offered were the same in terms of contact hours and course content. The threaded AOI centred mainly on three major areas of discussions i.e. *General, Tutorials* and *Assignment*. In short, all these discussions were related to general topics of discussions, concerning an assignment which course respondents were supposed to download from the Internet and ten topics related to the areas of speaking and listening in an ESL context provided in the course module. The *Listening and Speaking (LS)* module was provided to each student at the beginning of the semester. This module was used for

class tutorial discussions. The tutorial topics were to be discussed over a period of three F2F tutorial sessions between course respondents and their tutor.

Being TESL students their English Language proficiency was considered sufficient to enable them to respond to the questionnaire. The questionnaire comprised a total of 60 items which were divided into three parts. Part 1 of the questionnaire investigated respondents' demographic profile (e.g. age, gender, academic qualifications) and their computer literacy as well as internet access facilities and their preferred modes of communication. Part 2 of the questionnaire required respondents to respond to items using a four-point Likert-scale (*1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly disagree*). This section investigated respondents' abilities in managing their own learning i.e. planning, monitoring, evaluating and computer skills. Finally, Part 3 of the questionnaire attempted to obtain information regarding learners overall views and suggestions regarding AOI (4 items). For the purpose of this study an average mean of 3.0 (agree) indicated a positive perception. The SPSS version 11.5 WIN was used to analyse the information collected statistically. This method of analysis limits to general statistical analysis. Frequencies and descriptive procedures were performed in examining the accuracy of the raw data as the initial step. Descriptive statistics employing measures of central tendency: the mean and measure of dispersion or standard deviation were used to obtain an accurate measurement.

With regards to qualitative data, ten randomly selected respondents formed a "sample within the case" (Merriam 2002). These respondents were interviewed using semi-structured interview protocols. Interviews were deemed appropriate as it provided in-depth understanding, information, perspectives and clarifications regarding respondents' learner autonomy abilities via asynchronous online interactions. The semi-structured interview protocols consisted of three sections. Part A of the interview protocol comprised warm-up questions. That investigated their views, perceptions and feelings regarding the LMS and their participation through AOI. Part B of the interview protocol consisted of specific and core questions relating to their abilities in communicating via the asynchronous online environment and to what extent it had helped them in their learning process namely towards becoming autonomous learners. Hence, the interview questions attempted to get respondents to divulge information regarding their awareness of learning via an online mode vis-à-vis their learner autonomy abilities. In this section the researchers attempted to obtain possible suggestions that would improve the online teaching and learning process via AOI. Ultimately the main purpose of these interview sessions were to permit other aspects of AOI experience to surface as learners interacted via e-mails with each other and towards developing their abilities as autonomous learners.

In addition, e-mail interactions between the tutor (n=1) and her students were also analysed to further trace students' learner autonomy abilities. Acording to Shepherd (2007), e-mail analyses allowed respondents time to compose their messages, enabled all discussions to be recorded to be retrieved later and enabled respondents to communicate without time and place constraints. The threaded AOI centred mainly on three major areas of discussions i.e. *General, Tutorials* and *Assignment.* By monitoring learners' daily threaded interactions via online discussions, the researcher was able to trace how learners communicated, thought, reflected and reacted to accomplish their learning tasks. Putting their thoughts and words to compose text based messages helped learners to further develop and enhance their learner autonomy abilities as well as to improve their computer skills. All qualitative data was analysed using the NVivo Version 7 software. The data from the interview schedule was then triangulated with students' responses from the survey and e-mail interactions between the tutor and her students.

FINDINGS

Demographic Data

A total of 30 respondents participated and returned their questionnaires. An analysis of the population sample of this study indicated that out of the 30 respondents, 60% (18) of the respondents were females as contrasted to males who accounted for about 40% (12) of the total population sample. As for ethnicity, the results showed that 53% (16) of the respondents were Malays, 20% (6) Chinese and 27% (8) were Indians. The average age for adult learners was 32 years.

In this study, students had to use computers to interact through asynchronous modes of communications. Therefore, the study looked into various aspects of computer ownership, skills and usage. Results indicated not every student had access to a computer and the Internet. Only 83% of them owned a computer and were able to access Internet, 17% did not have a computer and thus faced problems accessing the Internet. However, a majority of them i.e. 53% accessed Internet from their homes, 13% accessed it from the university and another 34% accessed Internet either from their work place (office or schools) or cyber cafes. In terms of Internet usage per week, results indicated a low level of Internet usage. On the whole only 13% of them accessed Internet 11-15 hours/week, 40% accessed between 6-10 hours/week and 7% accessed it between 0-5 hours/week. Correspondingly, results indicated that 80% spent less than 3 hours/week on e-mail communications and 20% spent between 4-7 hours/week. This was further corroborated during the interview sessions; respondents indicated that their low levels of communications via e-mail and Internet usage had a lot to do with not having a computer and having limited Internet accessibility. For respondents that depended on accessing Internet at the university and their office the number of hours was limited as they had to divide their time between work, family and participating in asynchronous online interactions. In comparison, for students who were able to gain access from the comfort of their homes this did not pose a problem. Although, some had computers not all had Internet connection facilities in their residential areas.

Results also disclosed respondents' perceptions that they used the computer for completing assignments (45%), downloading software (42%), research (40%), chatting/instant messaging (38%) and Internet (35%). However, online discussions/e-forum/newsgroup (32%), e-mail (32%) and application software (28%) recorded low percentages. Interestingly, the respondents perceived postal mail (50%), chat/IRC (47%) and written memo (45%) to be the most preferred mode of communication. SMS (32%), e-mail (28%) and face-to-face (27%) recorded low percentages. On the other hand, respondents also disclosed that their preferred mode of learning was online conferences (47%), CD-ROM/DVD (43%) and online materials (38%). However, printed (27%) and face-to-face (25%) recorded low percentages. This was also indicated by respondents during the interview sessions. Respondents used the computer mainly to complete their assignments and for research purposes. Even though online conferences and online materials was indicated as the preferred mode of communication, respondents' did not spend much time to communicate with their tutor through online discussions/e-forums and e-mails.

Learner Autonomy Abilities

The survey instrument also looked into respondents' learner autonomy abilities in terms of planning, organising, monitoring and evaluating their learning tasks. Table 1 shows the overall mean and standard deviations of learner autonomy abilities in planning and organising for respondents pursuing the B. Ed (TESL) course.

The results indicated an above average mean among respondents in their abilities to plan i.e. using planners/diaries/time tables to set their learning goals (mean=3.00, SD=.54) and their ability to locate suitable materials for their learning (mean=3.00, SD=.54). However, a below average mean was recorded for other aspects relating to planning such as forming their own learning objectives (mean=2.67, SD=.76), ability to decide on the time to achieve their learning goals (mean=2.87, SD=.68). In the aspect of organising their learning tasks, a below average mean was recorded for the following aspects i.e. having difficulty in deciding on techniques to accomplish learning tasks (mean=2.67, SD=.76) and needing help from friends on how to learn (mean=2.87, SD=.68).

Table 1*: Learner Autonomy Abilities in Planning and Organising (N = 30)*

Items	Mean	Standard Deviation
Planning	2.88	.68
Organising	2.77	.87

Scale used: 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree

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Table 2*: Learner Autonomy Abilities in Monitoring and Evaluating (n = 30)*

Items	Mean	Standard Deviation
Monitoring	2.24	.75
Evaluating	2.56	.85

Scale used: 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree

Table 2 shows the overall mean and standard deviation of learner autonomy abilities in monitoring and evaluating. In their ability to monitor their learning tasks, respondents recorded a below average mean score in the following aspects; how to check their own learning progress (mean=2.80, SD=.51), having difficulty in correcting themselves in the learning tasks (mean=2.67, SD=.76), how to verify their performance in the learning tasks (mean=2.67, SD=.76), expecting the tutor to be at hand to guide them in their learning tasks (mean=2.53, SD=.84), needing friends and tutor to help them overcome problems in their learning tasks (mean=2.80, SD=.51) and finally not being able to make their own decisions in achieving their learning tasks (mean=2.21, SD=.72). Finally, in their ability to evaluate, respondents' further recorded a below average mean score. Respondents indicated that they were afraid to evaluate their own performance of a learning task (mean=2.40, SD=.73). They also indicated that they needed regular feedback from their tutor about their performance (mean=2.80, SD=.54). Furthermore, they indicated that challenging learning tasks discouraged them from performing well (mean=2.40, SD=.73) and

admitted that they barely had time to check and improve the errors in their assignments (mean =2.53, SD=.84).

The overall results indicated that the first year tertiary students' planning abilities stood at a mean of 2.9 (SD=.68) whereas their ability to organise their own learning stood at a mean of 2.8 (SD=.87). However, they felt that they were not able to monitor (mean=2.2, SD=.75) and evaluate (mean=2.6, SD=.85) their own learning. When asked to rate whether they were independent learners the mean score recorded was below average (mean=2.46, SD=.86) thus suggesting that they were not confident of their own ability at managing their own learning (mean=2.21, SD=.72).

Computer skills

Since this study entailed students having to interact asynchronously via e-mails with their tutor, the researchers sought to explore students' computer skills (Table 3). First, some contradictory results were obtained. Even though students had registered for an online learning course they still held fast to the fact that face-to-face learning was more effective than online learning (mean=3.13, SD=.52). Nevertheless, they were able to use the Web to locate suitable learning materials (mean=3.21, SD=.58), able to use the Internet to retrieve relevant text based information for their coursework (mean=3.13, SD=.52) and using a computer for online learning had improved their computing skills (mean=3.00, SD=.53). However, other aspects that related to computer skills that recorded a below average score were aspects such as needing help to access latest course materials (mean=2.33, SD=1.11), not being able to use the computer easily (mean=2.93, SD=.88), the ability to access multimedia materials for their learning tasks (mean=2.80), overcoming technical problems (mean=2.87, SD=.74), using a computer to interact with friends and tutor anytime and anywhere (mean=2.53, SD=.74) and using the computer helps them learn more effectively (mean=2.85, SD=.55). On the whole, respondents rated their computer skills as low (mean=2.33, SD=1.11) towards becoming independent learners. These findings were further corroborated with data obtained from interview sessions. The respondents indicated that they lacked computer skills in using application software i.e. Power Point and Excel, Internet search, multimedia skills and using the online digital library. These were again surprising as they had registered with a university that runs online courses via distance learning.

***Table 3**: Students' Computer Skills*

Items	Mean	SD
Face-to-face learning is more effective than online learning	3.13	.74
I am able to use the Web to search for suitable learning materials	3.21	.58
I am able to use the Internet to retrieve relevant text based information for my coursework	3.13	.52
Using a computer for online learning had improved my computing skills	3.00	.54
I need help in using the computer to access latest course materials	2.33	1.11
I know how to use a computer easily	2.93	.88
I know how to access multimedia materials for my learning tasks	2.80	.51
Technical problems hinder my online learning	2.87	.74
I use a computer to interact with friends and tutor anytime and anywhere	2.53	.74
Using the computer helps me learn more effectively	2.85	.55

Scale used: 1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree

Issues and Challenges

Respondents' responses when triangulated via the survey instrument, semi-structured interview protocols and through the analysis of e-mail interactions highlighted some interesting issues and challenges.

Generally, respondents indicated that they had no problem in sending e-mails (mean=3.50, SD=.48), knew how to participate in online discussions (mean=3.27, SD=.54) and perceived that both these modes of communications enhanced their communication skills (mean=3.14, SD=.52). However, one issue that caused considerable dissatisfaction was timely feedback from their tutor. This finding paralleled Williams & Moster's study (2005). A majority of the respondents (78%) expected their tutor to be more prompt to their queries posted via e-mail. Respondents also felt tutors should be more interactive when conducting discussions (mean=3.14, SD=.78). In fact, 63% of the respondents indicated that their tutor seldom responded promptly to their questions via e-mails. This study divulged that their tutor took longer than a week to respond to students' e-mail. Hence, Respondent 9 said he felt "*very anxious and frustrated"* and opined that the tutor should respond immediately when the student posted an e-mail message. Respondent 8 expressed that she was "*irritated because we have assignment datelines…and not replying promptly will make students demotivated.*" Respondent 6, said that he was "*frustrated as work comes to a standstill when the tutor do not respond and we cannot proceed for fear that we may be on the wrong track*." Generally, respondents indicated that they were happy when their tutor responded to their online queries promptly.

The second issue of concern among respondents was the lack of time to participate in asynchronous online interactions (mean=2.60, SD=.85). Since all the respondents were part-time students, some of them had to learn how to manage their time between work, family and pursuing an online degree. Therefore, instead of taking ownership to manage their own learning, 70% (mean=2.80, SD=.51) of the respondents felt that their tutor and friends were responsible for the success of their online learning. In fact, participating in online interactions was not to fulfill the "want" but more to fulfill the "need" because according to Respondent 7 most of the students are "forced to go online because of the 5% marks."

Furthermore, an analysis of e-mail and online interactions indicated that a majority of the postings did not show reflective thinking or in-depth discussions of real issues but rather surface and literal level issues and questions. Respondents' discussions merely touched on content issues, wanting clarifications, elaborations, confirmation of learning tasks such as assignment datelines and exam details from the tutor. Respondent 10 felt that "*the level of participation should improve in terms of quality of messages*" whilst Respondent 12 mentioned that "some students simply join to say hi or hello to each other'. This finding suggests that there is a need for tutor(s) to aid and guide students in sending quality messages related to their coursework.

Another issue that arose was that 47% of the respondents indicated their lack of proficiency in the English language hindered them from participating in asynchronous online interactions. This was further confirmed through interviews. "*My English is poor, I feel shy and embarrassed to communicate with my tutor*" said Respondent 5. Respondent 1 was afraid that the tutor "*may find fault and minus marks if I make errors when writing the message"* whereas Respondent 3 admitted that "*I just like to read the messages because I can improve my English…I don't know how to reply to the messages or to give feedback?*"

Respondents also voiced their dissatisfaction on a number of issues related to ICT aspects. Their grievances ranged from technical to hardware and content related matters in certain aspects of

the asynchronous online interactions platform. Respondent 12 indicated that he had trouble to gain access to the digital library and online references. Finally, Respondent 7 lamented on the fact that there was "*no 'hands-on' training to provide learners on how to effectively participate in asynchronous online interactions*". This suggests that on the part of the administrators there is a need to ensure that all first-year students who intend to embark on an online learning course are provided with the necessary computer and literacy skills as well as knowledge on trouble shooting so as to enable them to become better managers of their learning.

CONCLUSION

This preliminary pilot study investigated the perspectives of Malaysian adult learners as they pursued an online degree programme. The pilot study aimed to investigate to what extent email interactions i.e. one mode of AOI helped learners develop learner autonomy. Results in this one-month long pilot study indicated that first-year university students not only lacked confidence to manage their own learning but also needed to upgrade their computing abilities. Without having these learning tools students may not be able to reap the true benefits offered by today's 'wired enterprises' in universities all around the globe. On top of that, this study also indicated that tutor(s) were not keeping to their side of the bargain. They failed to give prompt reply to students' e-mails. One need to understand that for learners to benefit from quality asynchronous online interactions an effective follow-up system backed by dedicated educators must always go hand-in-hand. If not students are going to be frustrated and distant learning will fail.

These findings indicated that perhaps IHLs need to relook into the needs of students launching into open and distance learning (ODL) courses. First and foremost, steps must be taken to help empower learners with the ability to manage their own learning. Henceforth, learners must be helped so that they are equipped with the right learning tools such as having the ability, knowledge and skills to plan, organise, monitor and evaluate their own learning before embarking on an online learning experience. More importantly, they must have the desired computing skills to enable them to participate effectively in asynchronous learning environments. Educators and administrators must also ensure that support is provided to learners for online internet based courses and websites. Students should have easy access to good running systems that will fulfill students' needs in acquiring information at their fingertips anywhere and anytime without the frustrations of system failures or poor connections.

What we can conclude from this preliminary pilot study is that asynchronous online interactions have the potential to aid online learners develop autonomy. Nevertheless a longitudinal study would lend further credence to such a claim. One however, needs to take into consideration that learner autonomy can only be effectively enhanced if training of skills, knowledge and attitude are included at the initial phase of all online distant learning programmes. At this juncture it is pertinent to bear in mind what Allwright (1988) highlighted. He stressed that no matter 'how infertile the soil may be in the whole-class environment' we can always find seeds of autonomy. We need to understand the fact that very few learners are spontaneously self-directed or autonomous. Therefore, it is the responsibility of educators to systematically guide and provide learners the skills and knowledge through learner training programmes on how they can learn to take responsibility for their own learning. Once learners have been equipped with the right learning tools they can learn to take responsibility for their own learning and perhaps they will be empowered to participate more effectively in today's online learning experiences (Ranjit & Mohd. Amin 2007).

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Research on a student-centred teaching model in an ICT-based English audio-video speaking class

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ABSTRACT

The development and application of Information and Communication Technologies (ICT) in the field of Foreign Language Teaching (FLT) have had a considerable impact on the teaching methodologies in China. With an increasing emphasis on strengthening students' learning initiative and adopting a "student-centred" teaching concept in FLT, language teachers and researchers in China have resolved to explore effective and appropriate teaching models both in theory and practice. A range of reforms of college English teaching in China has demonstrated the shift of the teaching focus from enhancing students' reading ability to their listening and speaking abilities. More focus has been put on improving students' communicative language ability (CLA). This paper aims to examine the feasibility of the student-centred teaching model utilised in an English audio-video speaking class (EAVSC) in computer-assisted language learning (CALL) environments at the authors' university by carrying out two quantitative longitudinal case studies. Analysis of correlated data shows that this specific teaching model in general is both plausible and effective in improving students' communicative language abilities, especially in their speaking abilities.

Keywords: ICT; student-centred teaching model; listening and speaking abilities; CLA; EAVSC; CALL

INTRODUCTION

The extensive use of Information Communication Technologies (ICT) in China has greatly changed the college English teaching methodologies. In CALL environments, the focus of college English teaching has shifted from focusing on students' linguistic ability towards focusing on students' communicative language ability and pragmatic competence. The teaching model is changing from a traditional "teacher-centred" one to a "student-centred" multi-dimensional one, which aims to develop students' communicative language ability.

In English class taught in the past, the teacher tended to spend most of the classroom time lecturing while students would often passively receive linguistic knowledge either from the teacher or from the textbook, but their speaking ability could not be adequately trained and developed. An ICT-based **audio-video speaking class (**EAVSC) in CALL environments, however, integrates viewing, listening and speaking into the students' practice. The aim is to develop students' listening and speaking abilities, as well as their comprehensive language ability. In such ICT-based language learning environments, the teaching model must change accordingly.

BACKGROUND OF THE STUDY

For many years, teaching methodology adopted in English speaking class consisted of audio-lingual repetition in China. With the acceleration of globalisation and widespread of mass media in the English language, the urgent need for international communication and the demand for people's communicative language ability is incredibly increasing. As a result, the College English Curriculum Requirements issued by China's Department of Higher Education (2007) clearly stated that college English teaching should emphasise developing students' practical skills, especially listening and speaking abilities. For the first time, that:

> *colleges and universities should remold the existing unitary teacher-centred pattern of language teaching by introducing computer- and classroom-based teaching models* (Department of Higher Education 2007, p.25)

with the objective of developing:

> *students' ability to use English in a well-rounded way, especially in listening and speaking* (Department of Higher Education 2007, p.25).

However, teaching English speaking class, especially in CALL environments, is quite a complex undertaking.

With the research going in depth, many researchers and teachers realised that children and second language learners acquire their language abilities through interacting with others. This awareness pushed the emergence of Communicative Language Teaching (CLT), which advocates that foreign language classes should provide various opportunities for students to communicate in the target language, since students learn through interaction (Bailey 2004). Methodologically, Task-Based Language Teaching (TBLT) is an effective way to develop students' communicative ability in the target language. By putting students directly into all kinds of authentic tasks (covering tasks happened in daily life, learning and working), the teacher not only successfully realises his teaching objectives, but also improves students' communicative ability in the target language (Nunan 2004b).

Therefore, in an EAVSC, the teacher should adapt himself / herself to the new teaching environments, take full advantages of ICT and search for an appropriate teaching model, to enhance students' communicative language ability maximally. The teacher is also expected to design and organise group-work activities, so as to provide opportunities for students to communicate in the target language without the teacher's interference (Bailey 2004). Furthermore, when speaking is the focus of classroom activities, the teaching should also involve other aspects, like raising students' awareness of some socio-linguistic or pragmatic point (Hughes 2005, p.6). Hence, providing enough cultural knowledge and background information is another important aspect that cannot be neglected in the speaking class.

Under such macro context of teaching English in China, what the authors in this study have been engaging in belongs to one of the pioneering attempts at exploring effective teaching models of spoken English by utilising modern ICT facilities in CALL environments. It is expected that this case study of teaching English at the authors' university can be applicable for other universities or colleges both in China and other countries in their EFL or ESL course.

LITERATURE REVIEW

The Teaching Model under Constructivism

According to Constructivism, learning is a process of meaning construction under a certain situation (i.e. socio-cultural background), through resourcing, cooperating and interacting with people. Therefore, a learning environment contains four major features – situation, cooperation, conversation, and meaning construction (Brent 1995; Chris 1995). Constructivists advocated a learning model with learners as the centre and the teacher as the guide. Therefore, in an EAVSC, the students acquire the target language through communicating with the teacher and their classmates in various tasks and activities.

Bachman's CLA Model

According to Bachman's Communicative Language Ability (CLA) model, an individual's facility with a language depends on language competence, strategic competence and psycho-physiological mechanisms. In Bachman's eyes, language competence comprises essentially a set of specific knowledge components that are utilised in communication via language (Bachman 1990, pp.84-85). It includes organisational competence, which consists of grammatical and textual competence, and pragmatic competence, which consists of illocutionary and sociolinguistic competence. Strategic competence is seen as the capacity that relates language competence, or knowledge of language, to the language user's knowledge structures and the features of the context in which communication takes place. Psycho-physiological mechanisms involved in language use characterise the channel (auditory, visual) and mode (receptive, productive) in which competence is implemented (Bachman 1990, pp.107-108). The interactions of these components of CLA with the language use context and with language user's knowledge structures are illustrated in the following two figures.

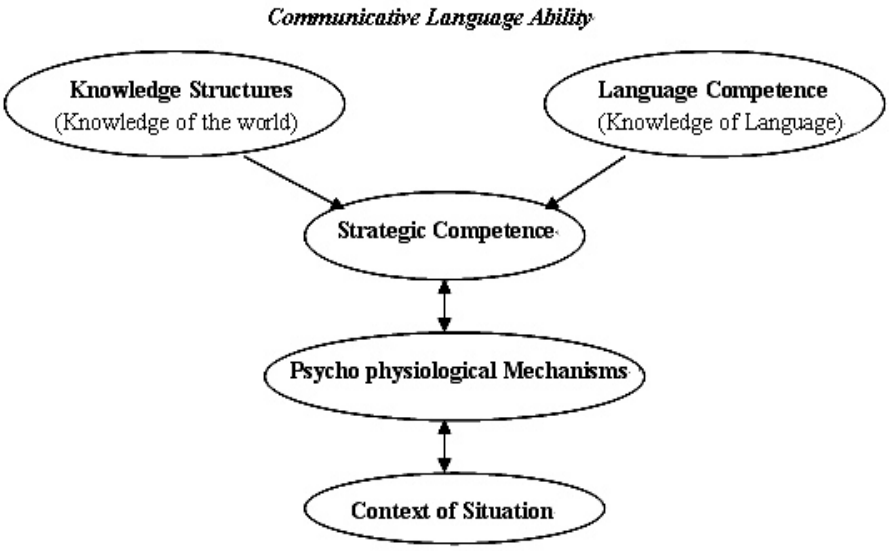

Figure 1: *Components of communicative language ability in communicative language use* (Bachman 1990, p.85)

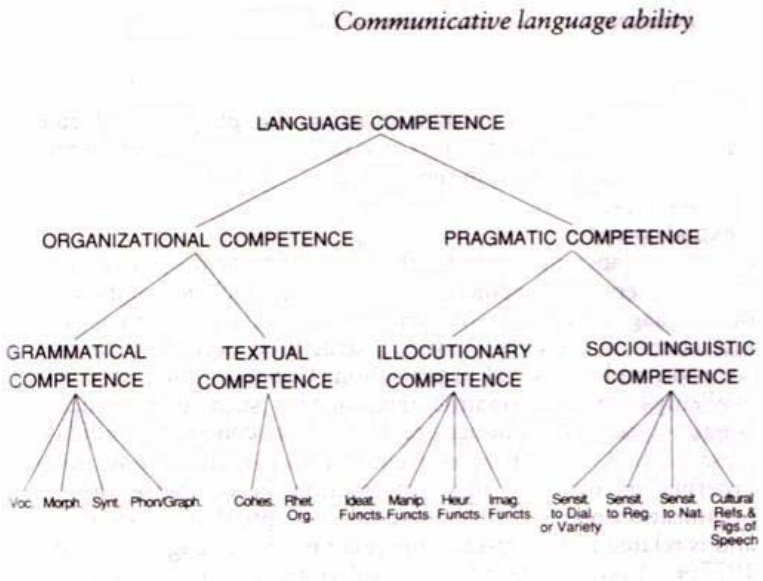

***Figure 2**: Components of language competence* (Bachman 1990, p.87)

"Learner-Centred" Education

In the 1970s, the emergence of Communicative Language Teaching (CLT) improved the philosophy of "learner-centred" education. According to Nunan (2004a, p.8), "a learner-centred" classroom is one in which students were actively involved in their own learning processes. This involvement has two dimensions: first, students take charge of their own learning processes, including making decisions, plans and so forth; the other is to maximise the classroom time for students' interactive activities.

THE ENGLISH AUDIO-VIDEO SPEAKING COURSE (EAVSC)

It is necessary to briefly introduce the course in question, including its characteristics, the main teaching methodology adopted, activities designed in the EAVSC and previous research concerning the course.

Characteristics of ICT in the EAVSC

In the EAVSC, there are some unique characteristics compared with the traditional classrooms. The classes were conducted in a digital language lab, which had the Internet access and was interconnected by an ICT facility, a digital learning system (WE-LL6000), which made synchronous oral communications, random grouping and speech recording possible. The teacher was able to supervise and monitor students' performance from a touch screen LCD control panel, participate in their speaking activities. The distinct advantage of this system is that when assigning tasks, the whole class can be divided into groups or pairs either randomly or by set rules. Students could talk either to their partners or to any group members unnecessarily with

face-to-face contact, eliminating the possible shyness or embarrassment that often occur in real life context. Since the students' speaking activities can be recorded and collected via the system, the collected audio data then can be used for evaluating students' achievement as well as for further studies. The pre-test and post test of this study were also carried out in the same teaching environment.

Teaching Methodology Adopted in the EAVSC

In the "student-centred" EAVSC, the teaching methodology is based on Bachman's theory of communicative language ability (CLA) and hence adopts the communicative language teaching model. The guiding principle throughout the whole teaching process is to bring students' role as subjects into full play, actively involving themselves in various activities in class. The characteristic of this teaching model lies in that the teacher intended to infiltrate a particular way of learning English into the students' mind instead of merely introducing language knowledge. When the students conduct speaking activities, they also utilise effective communicative strategies to promote the interaction. This concept was theoretically derived from Bachman's CLA framework and practically came into shape during the first author' s own three years' life experiences in America, a time when all the videos in the textbook were shot by herself.

Activities Designed in the EAVSC

The main features of CLA can be summarised into ten aspects according to Canale and Swain (1980, pp.1-47): 1) emphasis on meaning; 2) stress on the role of context; 3) language activities designed with acceptable purposes; 4) meaningful utterances; 5) authenticity of tasks; 6) unpredictable outcome; 7) focus on interaction; 8) integration of four basic language skills; 9) direct testing 10) judgment made on achievement of communicative purpose.

According to Bachman's CLA theory, the task designing must adhere to the principle of being authentic. In general, the activities carried out in EAVSC are authentic or nearly authentic. All the speaking activities, pair-work dialogues, group discussions, debates, video-based role-plays or voiceovers, personal statements, were both task-based and text-related activities.

Pair-work dialogues were usually carried out between desk mates, and students were asked to talk about topics in their daily life. For example, after learning the university life on American campus, they were expected to talk about their own college lives. Pair-work activities were designed in line with the seventh feature of Bachman's CLA theory, "focus on interaction". From the very beginning of each semester, the teacher emphasised the importance of interaction and cooperation between partners by comparing the process of conducting pair-work dialogues to the process of playing badminton or playing table tennis. Only in this way can they finished the "tasks" through cooperation with each other in its true sense, can they actively make this class interactive and learn the importance of cooperation in the long run.

The group discussions were about six minutes, conducted among three to four persons each time. The rationale for arranging such activities was that the teacher intended to train students' strategic competence. Students' psycho-physiological mechanisms were also adequately involved in this link. Before attending each class, the students were asked to choose certain cultural topics or social issues they were interested in, search for enough background information from either the library or the internet, and make good preparation for it in class. When the group discussions began, students in each group were required to take turns chairing their own topics. In this way, each student was guaranteed an equal opportunity to speak English in discussions: it placed a time limit on the active students and motivated the students that were reluctant in speaking. Therefore, an equivalent frequency of in-class speaking in the target language among students

has been realised. Moreover, students learned to employ useful communicative strategies to promote the interaction and utilise organisational skills to be a good chairperson through such exercises.

On the basis of group discussion, sometimes the teacher arranges grounds of debates over some well-chosen controversial issues. Debate is an effective means for training students' logical abilities as well as their abilities to see things from two angles. For instance, in the debate over 'Do you think one day e-book will eventually replace traditional books?' or 'Shall western festivals be encouraged in China?', students are expected to first discuss it adequately within a certain group, and then take opposite standpoints in different rounds of the debate followed. Useful words and expressions can be referred from the textbook. Through debating exercises, it is expected that students can exchange opinions and deepen their cognition of certain topics so that their knowledge of the world can be enriched.

After conducting several grounds of discussions or debates, a "one-minute" personal statement activity was followed. In this section, the students thought the topic through, took down some notes for the first fifteen seconds, and then gave their statements during the next forty-five seconds. Usually, students began with a clean opinion or attitude toward the given topic and then provided two or three reasons to support their statements. The one-minute personal statement activity attempted to develop students' logical thinking ability, generalisation ability, and organisational competence.

Sometimes video-based role-plays or voiceovers are also included on appropriate occasions. Once after enjoying a video clip of the world-famous movie – *Roman Holiday,* the teacher invites volunteers to imitate one dialogue between the princess and the reporter. All the students were attracted by their classmates' excellent performance, and everyone gained a lot of joy during this course.

Previous Research Concerning the EAVSC

Lu et al. (2008) investigated the teacher's roles in the student-centred EAVSC. Correlated data showed that the teacher's role in such an environment tends to be multidimensional, which would include activity designer and organiser, coordinator, source of background information as well as assessor. These roles of the teacher also proved to be effective in improving students' listening and speaking abilities and their language proficiency development.

In another collaborated paper "Interactive Patterns in an EAVSC in CALL Environments", Lu et al. (2009) discussed the application of specific interactive patterns in the student-centred EAVSC in CALL environments. From those data obtained they concluded that such communicative interactive patterns were very effective as S-Ss (oral presentations), S-S (pair work dialogues) and Ss/Ss (discussions within groups of 3-5 students).

Despite the positive results gained from these two quantitative studies, further investigation is still needed to probe the teaching and learning of EAVSC in CALL environments. This paper is a follow-up study of the previous two papers and an exploration of this specific EAVSC from the perspective of a student-centred teaching model.

RESEARCH DESIGN

Research Objectives

Through both qualitative and quantitative analyses of correlated data obtained from the authors' own classes, the research was designed to address the following questions:

- What kind of role does the ICT facility, in particular, the digital learning system (WE-LL6000) play in the EAVSC?
- Does this teaching model in the "student-centred" EAVSC in CALL environments achieve feasibility and effectiveness in enhancing students' speaking abilities and their communicative language abilities?

Subjects

All the data were collected from two quantitative longitudinal case studies for the purpose of investigating the feasibility and effectiveness of this "student-centred" teaching model in the student-centred EAVSC in CALL environments. The whole process lasted for two semesters (Semester 1: Sept. 2008 – Jan. 2009, Semester 2: Feb. 2009 – Jun. 2009). All the contents of the textbook and related in-class activities were covered in one semester. There were 130 students (registered in year 2006, juniors) in total, 66 in the first semester, and 64 in the second. All the subjects were non-English majors, specialising in the fields of Computer Science and Technology, Information and Communication Engineering, and Electronic Engineering. They all took the National College English Test Band Four (CET-4)[1] in P. R. China, and scored above 576 (out of 710) on the test. In each semester, the subjects were divided into two independent classes and both were instructed by the same teacher – the first author.

Teaching Context

The classes were conducted in an ICT-based language lab which was equipped with a digital learning system – WE-LL6000, capable of synchronous oral communications, random grouping, and speech recording. Therefore, audio communication was available both among students and between the teacher and the students. In organising in-class activities, the teacher could divide the whole class into groups or pairs either randomly or by set rules, or conduct whole-class discussions based on the requirements of different tasks. In addition, from the control panel, the teacher was able to supervise and monitor the students' performance and record their oral responses to assigned tasks for evaluation.

Instrumentation

Questionnaire

At the end of each semester, a questionnaire was delivered to the students to survey the teaching and learning effects of a student-centred teaching model in an EAVSC in computer-assisted language learning (CALL) environments and the using of the textbook *Learning English through Culture: Viewing, Listening, Speaking*. The questionnaire covered the following four aspects: the textbook, the interactive activities in the classroom, the teaching methodologies, and students' comments on the course. The questionnaire is attached in Appendix 1.

Tests

At the beginning of each semester, a pretest was conducted to assess the subjects' spoken English proficiency. The test consists of a one-minute personal statement, a five-minute pair-work

dialogues, and three-person group discussions with given topics. After the whole semester's training, a posttest on similar topics was given in the same condition as the pretest to evaluate both the subjects' learning progress and the effectiveness of the teacher's teaching in the ICT environment. All the students' oral productions in the two tests were recorded for the study in this paper and for analysis in further research. A sample of the posttest paper can be seen from Appendix 2.

Data Collection and Analysis

130 copies of the questionnaire were delivered to the students and 123 counted as valid. The recorded sound files from pretest and posttest were rated on the basis of *IELTS Speaking Band Descriptions* by two teachers to minimise any subjective bias. All the students' CET-4 scores were collected for analysing the correlation between the subjects' comprehensive language proficiency and their speaking competence.

All the data were processed by using SPSS 14.0:

Descriptive statistics (mean, variance, standard deviation, percentage) were used to analyse the students' responses to the questionnaire and the two test scores;

A Pearson Correlation Test was employed to illustrate the correlation between the students' CET-4 scores and their pre-test scores;

A Spearman Correlation Test was applied to evaluate the two teachers' degree of agreement on ratings.

A Paired Samples *t*- test was employed to discover the changes in the students' two test scores.

RESULTS AND FINDINGS

Correlation Analysis between the Two Teachers' Ratings on Pretest

Before making a series of analysis, a Spearman Correlation Test was done to evaluate the inter-rater reliability to exclude any subjective bias and ensure the validity and reliability of the other tests and analysis. It should be noted that one student did not attend the course during the first semester for some unknown reasons, so the total number of students with final scores were 129.

***Table 1**: Correlation analysis of the inter-rater reliability*

		Spearman Correlation Coefficient	Sig. (2-tailed)	N
Pre-test	Teacher A-Teacher B	.651(**)	.000	129
Post-test	Teacher A-Teacher B	.872(**)	.000	129

**: Correlation is significant at the 0.01 level (two-tailed).

As shown in Table 1, the Spearman Correlation Coefficients of the two teachers' ratings for both tests were very high (the significances are both .000). Therefore, it is safe to say that their ratings

were highly reliable and the test scores adequately represented the subjects' speaking proficiency.

Correlation Analysis between Subjects' Comprehensive Language Proficiency and Their Speaking Proficiency

The national College English Test Band Four (CET-4) in China aims to evaluate non-English majors' comprehensive language proficiency. Apart from CET-4, there is also CET-6, which is widely used to evaluate the above-average students' language proficiency. It is expected that the students who passed CET-4 should have a basic ability of listening, speaking, reading, writing and translation, and the students who passed CET-6 should have an intermediate mastery of these abilities (Department of Higher Education 2007, pp.18-22*)*. However, it is often the case that many Chinese students score high on CET-4 or CET-6 but with low listening and speaking abilities. Thus before conducting the study, we need to measure the subjects' real English speaking abilities (since all of them scored high on CET-4, between 576 and 650) by computing the correlation coefficient between their CET-scores and their pretest scores.

Table 2*: Correlation analysis of the subjects' CET-4 scores and their speaking competence*

	Pearson Correlation Coefficient	Sig. (2-tailed)	N
CET-4-Pretest	.188	.052	129

Upon Pearson Correlation Test, it was found that there was no significant correlation between the subjects' CET-4 scores and their pretest scores, which means that the subjects' speaking abilities did not match with their comprehensive language proficiency. Although they were categorised as intermediate learners based on their CET-4 results, they had not grasped a corresponding level of speaking ability to communicate in English. This non-equivalence was largely due to the outdated teaching philosophy and methodology, whose emphasis was on developing students' reading ability, rather than their practical skills, for instance, listening and speaking.

The Interactive Teaching Model in the EAVSC in CALL Environments

The teaching model contains several interrelated factors, including the teaching philosophy, the application of the textbook, the teaching approaches, and the ways of conducting the course and so forth. The EAVSC in the study is featured in the following three aspects:

Organisation of Various In-class Speaking Activities

The key to improving students' English speaking skills is to provide a favourable communicative environment to stimulate their desire for interacting in the target language, and to create multiple opportunities for students to practice (Lu et al 2008). In the traditional teaching approach, however, much emphasis were put on explaining linguistic facts, and few interactive activities were organised, resulting in inadequate training of students' speaking competence.

In the EAVSC, the traditional teaching pattern is replaced by the interactive teaching model: the teacher's introduction to the topic-related background information and cultural knowledge serve as the lead-in while the students' practices of listening and speaking abilities serve as the dominant part in the class. The goals are to develop students' communicative language ability in the target language, to raise their awareness of cultural differences, as well as to train their

competence in cross-cultural communication. Therefore, a range of in-class interactive activities are designed for students to communicate in the target language, such as pair-work dialogues, small group discussions, big group discussions or debates, video-based role-plays or voiceovers and personal statements.

Among all the activities, the most popular ones were pair work and group work. According to Bailey (2004, pp.47-66), one of the principles for teaching speaking is that teachers should provide opportunities for students to talk by using pair work or group work, which not only stimulates students' interest, cultivates their critical thinking abilities, but also promotes their integrative language ability. These two types of in-class activities were also proved to be students' favourite activities.

***Table 3**: Optimal interactive speaking activities favoured by students*

Question: In your opinion, what are the ideal and most effective speaking activities in an EAVSC?			
Items / Results	Jan. 2009 (%)	Jun. 2009 (%)	Total (%)
Pair-work dialogues and small group discussions (3-5 persons).	86.44	90.62	88.62
Big group discussions or debates (above five persons).	5.08	4.69	4.88
Question and answer between the teacher and the students one by one.	5.08	4.69	4.88
Video-based role-plays or voiceovers.	3.39	0.00	1.62

As shown in Table 3, nearly 90% of the students thought that the optimal speaking activities in such a class were pair-work dialogues and small group discussions. This was mainly due to the fact that they were the most frequently adopted activities in class. Usually pair-work dialogues were carried out between desk partners while small group discussions were implemented in randomly-set groups. In the former case, students were familiar with each other so they can communicate with each other on certain authentic topics in a friendly and relaxed atmosphere; in the latter case, however, students can freely express their own opinions as well as listen to different voices on the same issue. In small group discussions, students would feel neither nervous nor embarrassed since the WE-LL6000 system could guarantee smooth communication among students without face-to-face interaction. In these two activities, students were able to produce a large portion of language output in the target language, which met their needs for negotiating for information and ideas.

About 5% of the subjects showed their preferences to the big group discussions or debates. The possible reasons could be: 1) The conditions for carrying out such speaking tasks were more restricted with the topics themselves (for instance, not all topics suitable for discussing are equally apt for debating); 2) In a bigger-sized group, opportunities for everyone to speak were not equal even if each student was required to be active. And those who were reluctant in speaking might not be actively involved in big group discussions or debates and therefore were likely to benefit less in such speaking practice. This could also be the reason for the low percentage in the

students' choice in "Question and answer between the teacher and students one by one", and such tasks are also likely to be more teacher-centred.

Only 1.62% of the subjects ranked "Video-based role-plays or voiceovers" as their favourite speaking activity. Since it is a video context-based activity, it requires the students' immediate responses to the ongoing event showing on the screen (e.g. the imitation of "Roman Holiday" video clip activity mentioned previously). Therefore, it can be a great challenge for the students to complete such tasks, for it requires their comprehensive knowledge, overall language ability and various managerial skills. Unless conducted in ICT-based language learning environments, like EAVSC in CALL environment, such activities could not be carried out in traditional classrooms taught according to traditional teaching methodologies.

The management of the course and interactive activities should be based on the employment of ICT facilities. The digital learning system language lab used in this case allows for not only the interaction among students, but also between the teacher and students. These interactions greatly increased students' interests in the target language, and the high efficiency of the students' interactive performance as well. Meanwhile, by connecting every student in the classroom, the teacher actually built up a communication platform in the ICT-based language lab, which opened an easy communication channel for students so as to keep such class in a nearly authentic language speaking environment. The result is clearly proven from Table 4 that students were in favour of the use of CALL environment, acknowledging its important role in increasing their language production.

Table 4*: Effectiveness of the ICT-based language lab in increasing students' language production*

Question: Do you think this digital learning system language lab is helpful in increasing your language production?			
Results Items	Jan. 2009 (%)	Jun. 2009 (%)	Total (%)
Very helpful.	23.73	40.62	32.52
Helpful.	40.68	40.63	40.65
Reasonably helpful.	30.51	17.19	23.58
Not so helpful.	5.08	1.56	3.25

Changes in the Teacher's Roles and Students' Roles

Changes in the teaching model will surely bring about changes in the teacher's roles and students' roles. In an EAVSC, the teacher was no longer the leader in class, but a guide and facilitator in students' performance during the whole learning process. Therefore, the teacher's role tended to be multi-dimensional: the designer and organiser of the activities, the coordinator, the resource of cultural knowledge and the assessor of the effectiveness of learning and teaching (Lu et al 2008).

***Table 5**: Students' understanding of teacher responsibilities in the EAVSC*

Question: What do you think about a teacher's job in an EAVSC? (Multi-answers)			
Items \ Results	Jan. 2009	Jun. 2009	Total
Teach language knowledge and educate students.	13.56	18.75	16.26
Provide students with more cultural information but less language knowledge.	33.90	51.56	43.09
Focus more on organising various speaking activities rather than lecturing.	33.90	29.69	31.71
Focus more on developing the students' communicative language ability.	72.88	67.19	69.92

As shown in Table 5, the figure for the teachers' primary task of imparting knowledge to the students and educating them is only 16%. This indicates that in an ICT-based language lab, the teacher should not only act as the knowledge provider, for the new teaching philosophy and an ICT-driven curriculum demand new roles of the teacher.

Around 30% of the students reckoned that one of the teacher's main responsibilities was to organise interactive activities among students. The reason was that in a foreign language learning community, what students needed most were authentic or nearly authentic speaking environment and sufficient opportunities for communication. Egbert et al. (1999, pp.1-13) have discussed eight conditions for creating optimal language learning environments, opportunities for interaction and negotiation of meaning, interaction with authentic audiences in the target language, students' involvement in authentic tasks, exposure to and encouragement to produce varied and creative language, feedback, meta-cognitive guidance, and an ideal anxiety or stress level.

In the meantime, more than 40% of the students held that apart from organising in-class activities, another important job for the teacher was to introduce topic-related background information and cultural knowledge. The concept of a "student-centred" classroom does not mean that students take full responsibilities of the class. The teacher should make well arrangements, organise whole class activities, and guide the students in most learning procedures. Apart from language skills, Hughes (2005, p.8) reported that:

> *a large number of other things also need to be adjusted for successful communication, such as culture, social interaction, and the politeness norms which exist in the target language*.

As an advanced target language teacher, she/he is also expected to be knowledgeable both in language ability and cultural competence. As an intermediate linkage, the teacher connects the culture of the target language and the learners' mother tongue culture.

Bachman's (1990, p.84) Communicative Language Ability (CLA) framework shows that CLA involves three parts: language competence, strategic competence and a psychological mechanism. In the EAVSC, the primary teaching objective is to enhance students' communicative language ability via the target language. This is also in accordance with nearly 70% students' conceptualisation of the nature of this course and the teachers' contribution to achieve the common goal.

On the other side, in such an EAVSC, students were no longer passive information receivers, but active participants in negotiating with the teacher for background information and in communicating with peers. Therefore, the EAVSC was actually an ICT-based English learning environment, in which students can communicate in the target language.

Table 6*: Classroom time employed for students' practice*

Question: In the EAVSC, how much time do you think has been spent on your oral practice?			
Results Items	Jan. 2009 (%)	Jun. 2009 (%)	Total (%)
More than 75%.	22.03	23.44	22.76
Between 50% and 75%.	59.32	48.44	53.66
Between 25 and 50%.	15.25	26.56	21.14
Less than 25%.	3.39	1.56	2.44

As shown in Table 6, more than 75% of the subjects acknowledged that more than half of the classroom time was spent on their practice in listening and speaking skills, which means that it was students who took up most of the classroom time. In other words, students were adequately involved in the in-class interactive activities. In addition, without the teacher's interference in the conversations, the students took on diverse speaking roles that are normally filled by the teacher, such as posing questions or offering clarification (Bailey 2004). Therefore, students had become the leader of the communicative activities. These speaking activities, hence, were not only transactional but interactional as well.

During students' interaction process, the teacher had one important job: to monitor what the students were doing and how well they were doing. The teacher took different measures in different situations, such as participating in those activities so as to know the ongoing situation in that pair or group, or providing necessary help in order to promote the discussion. From this perspective, the teacher was not only the designer and organiser of activities, but also an effective classroom manager and coordinator – to arrange the classroom time appropriately, to organise in-class speaking activities effectively, and to maximise students' involvement in communicating in the target language.

Application of the Textbook

The textbook is an outline for learning, a major source of language input and a bank of resources and ideas (Acklam 1994). Meanwhile, it's a medium for teaching, a bridge between teaching and learning. Therefore, to a large extent, the quality of the textbook determines the results of teaching (Liu & Dai 2003). The textbook used in this class was *Learning English through Culture: Viewing, Listening, Speaking* (Lu & Steele 2006), which was written with the philosophy of increasing the learners' cultural input and raising their awareness of cultural differences, providing opportunities for students to practice listening and speaking skills by designing a broad range of speaking activities, and promoting learners' autonomous learning ability. In class, the book assisted the teacher as a major source of cultural and linguistic input. The videos from the

attached CD-ROM and the pictures in the book not only helped to avoid boring one-way instruction, but also to stimulate the students' interests in the cultural knowledge and background information. The other major role of the textbook was to help the teacher to design various speaking activities for students in their communicative work. After class, learners can do man-machine based interaction exercises both in listening and speaking activities provided by the CD-ROM of the textbook.

The questionnaire data showed that this textbook had greatly fostered the application and development of the interactive teaching model, which as a result, ensured the effect of learning and teaching. As shown in Table 7, nearly 98.37% of the students were satisfied with the textbook and the CD-ROM, especially with its rich and cultural knowledge and unique cross-cultural perception. As shown in Table 8, more than 95% of the students admitted that the textbook was helpful in improving their listening and speaking competence.

***Table 7**: Opinions on the textbook and CD-ROM*

Question: Are you satisfied with the contents of the textbook and the interactive functions of the CD-ROM?

Results Items	Jan. 2009 (%)	Jun. 2009 (%)	Total (%)
Very satisfied.	13.56	39.06	26.83
Satisfied.	59.32	50.00	54.47
Reasonably satisfied.	25.42	9.38	17.07
Just so-so.	1.69	1.56	1.63
Not so satisfied.	0.00	0.00	0.00

***Table 8**: Effectiveness of the textbook*

Question: Do you think the textbook (*Learning English through Culture: Viewing, Listening, Speaking*) is helpful in improving your listening and speaking competence?

Results Items	Jan. 2009 (%)	Jun. 2009 (%)	Total (%)
Very helpful.	8.47	14.06	11.38
Helpful.	21.12	50.00	39.02
Reasonably helpful.	55.93	34.38	44.72
Not so helpful.	3.39	1.56	2.44
Not helpful at all.	5.08	0.00	2.44

Effectiveness of the Teaching Model

Two methods were employed to assess the effectiveness of this teaching model in the class. One was to analyse the subjects' test scores; the other was to get students' feedback.

A Comparison of the Two Sets of Test Scores

Table 9*: Descriptive statistics of the two tests*

	Pre-test	Posttest	N
Mean	61.685	82.087	129
Standard Deviation	9.816	4.502	
Variance	96.360	20.270	

As shown in Table 9, the mean of the posttest was higher than that of the pretest, while the standard deviation and the variance were lower than those of the pretest. Upon paired-sample *t* test (See Table 10), it was found that the significance (2-tailed) of the difference was .000, which showed that after a semester's training, the subjects' oral English proficiency had been greatly improved.

Table 10*: Paired-sample t test of the two test scores*

	Paired Differences					*t*	df	Sig. (2-tailed)
	Mean	Sd.	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pretest-Posttest	20.402	9.432	.837	18.745	22.058	24.377	128	.000

Feedback from the Questionnaire

This improvement was also acknowledged in subjects' feedback from the questionnaire. The majority of the subjects were satisfied with the class. As shown in Table 11, nearly 80% of the students showed that they were quite satisfied with the EAVSC. As for the effects of the training in the class, 98.37% of the subjects admitted that this class was helpful in improving their listening and speaking skills (See Table 12). More than 97% of the subjects acknowledged that the communicative activities and oral presentations designed by the teacher were helpful in enhancing their listening and speaking competence (See Table 13).

***Table 11**: Students' feedback on the* EAVSC

Question: Are you satisfied with the EAVSC?			
Results Items	Jan. 2009 (%)	Jun. 2009 (%)	Total (%)
Very satisfied.	30.51	48.44	39.84
Satisfied.	55.93	42.19	48.78
Reasonably satisfied.	10.17	9.37	9.76
Just so-so.	1.69	0.00	0.81
Not so satisfied.	1.69	0.00	0.81

***Table 12**: Effectiveness of the* EAVSC

Question: Do you think the training in the EAVSC was helpful in improving your listening and speaking competence?			
Results Options	Jan. 2009 (%)	Jun. 2009 (%)	Total (%)
Very helpful.	8.47	25.00	17.07
Helpful.	45.76	42.19	43.90
Reasonably helpful.	42.37	32.81	37.40
Not so helpful.	3.39	0.00	1.63

***Table 13**: Effectiveness of the communicative activities*

Question: Do you think doing communicative activities and oral presentations are helpful in improving your listening and speaking competence?			
Results Items	Jan. 2009 (%)	Jun. 2009 (%)	Total (%)
Very helpful.	16.95	21.88	19.51
Helpful.	54.24	53.12	53.66
Reasonably helpful.	23.73	25.00	24.39
Not so helpful.	5.08	0.00	2.44

In the students' progress, practice played an important role, but the teacher's help was also an indispensable factor. 95.12% of the students declared that the teacher was helpful in their learning process (See Table 14).

***Table 14**: Effectiveness of the teacher's help*

Question: Do you think that the teacher is helpful in improving your speaking ability?			
Results Items	Jan. 2009 (%)	Jun 2007 (%)	Total (%)
Very helpful.	16.95	20.31	18.70
Helpful.	45.76	62.50	54.47
Reasonably helpful.	28.81	15.63	21.95
Not so helpful.	8.47	1.56	4.88

CONCLUSIONS

The objectives of the EAVSC are to develop students' competence in understanding all kinds of language input in real-life communicative situations (such as movies, conversations, news and so forth) and to improve their spoken language ability, so as to enhance their practical skills and communicative language ability. The study leads to several conclusions as follows:

***The role of ICT facility**:* The ICT tool adopted in the course – the WE-LL6000 system in CALL environments, supported the whole teaching process and the conduction of the two tests. It functioned as an intermediate medium between the teacher and the students, and made the interaction between every member in the classroom smooth and flexible. Moreover, it helped collect students' recorded data both for analysis in this study and for use in later research.

***The teaching methodology**:* Students' illocutionary competence and sociolinguistic competence can only be acquired through interacting in real language communicative situations. Therefore, the class should contain various opportunities for students to communicate in the target language. In addition, the designing and execution of the speaking activities both in teaching process and the two tests adhere to the principle of being authentic or nearly authentic, an important principle of Bachman's CLA theory.

***Changes in the roles of the teacher and students**:* In an ICT-based teaching model, the teacher's role tends to be multi-dimensional. The teacher should not only create a nearly authentic environment and organise a range of interactive activities for students to communicate in the target language, but also enrich the students' "knowledge of the world" (Bachman 1990), and promote their pragmatic competence by raising their awareness of cultural differences. The students, on the other side, are no longer passive information receivers, but active participants in authentic or nearly authentic communicative situations.

Application of the textbook: It's a major factor in creating situations. Therefore, the course design should also contain a textbook appropriate for students at different language proficiency levels, with various speaking activities, and a pool of cultural knowledge.

Feedback on the EAVSC from students*:* From those positive statistical values of the students' feedback on the EAVSC, we can see that this teaching model achieves both feasibility and effectiveness in creating opportunities for students' to speak in the target language, in improving their listening and speaking abilities and in enhancing their communicative language abilities. This teaching model proves to be successful in the EAVSC in CALL environments at the authors' university.

To sum up, this teaching model counts not only a good exploration of teaching speaking in the specific context at the authors' university, but also serves as a good reference for English teachers in China as well as for researchers and scholars whose teaching background are similar to that of the authors'. Despite its positive contributions, the study also has the following limitations:

Testing content*:* Only in-class performance was evaluated, a follow-up survey should be conducted to assess students' oral performance after class.

Factors not taken into account*:* Some aspects were not covered in the study, such as, learners' individual characteristics - their learning styles and motivations, learning strategies, and their psychological factors. Therefore, the authors suggested conducting further studies from the above perspectives.

Results and findings*:* The subjects were all from the first author's EAVSC at the same university. Therefore, the results only represent a specific teaching and learning context in question: a course carried out in an EAVSC in CALL environments, taught by Bachman' s CLA theory and the textbook is mainly written by the first author. Further generalisations to a larger sample or to other teaching and learning situations are encouraged to be conducted in the future.

ENDNOTE

1. CET is the abbreviated form of "College English Test". The national College English Test Band Four (CET-4) in China aims to evaluate non-English majors' comprehensive language proficiency. Apart from CET-4, there is also CET-6, which is widely used to evaluate above-average students' language proficiency. More than half of the students in this study, except for the Japanese majors, had passed CET-6 before taking the course. SET is the abbreviated form of "Spoken English Test", which is a portion of CET

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Appendix 1

Questionnaire (adapted from Lu, Huang & Sun 2008)
This questionnaire is designed for a general survey on the teaching and learning effects of a student-centred teaching model in an English audio-video speaking class (EAVSC) in computer-assisted language learning (CALL) environments and the using of the textbook □ *Learning English Through Culture: Viewing, Listening, Speaking*. Please complete the questionnaire below. Your answers are of great value in improving our teaching and research. We would greatly appreciate your cooperation.

Personal Information:
School: Major:
Gender: A. Female B. Male

1. As far as you are concerned, which of the following language skills is the most important and practical one?
   A. Listening and speaking. B. Reading.
   C. Translating. D. Writing.
2. Which of the following language skills is your weakest one?
   A. Listening and speaking. B. Reading.
   C. Translating. D. Writing
3. Apart from learning English in classrooms, your average time for previewing or reviewing the textbook – *Learning English Through Culture: Viewing, Listening, Speaking* is around _____.
   A. 3 hours. B. 2 hours.
   C. 1 hour. D. Almost none, relying on class time only
4. Do you think the textbook (*Learning English through Culture: Viewing, Listening, Speaking*) is helpful in improving your listening and speaking competence?
   A. Very helpful. B. Helpful.
   C. Reasonably helpful. D. Not so helpful.
   E. No help at all.
5. Are you satisfied with the contents of the textbook and the interactive functions of the CD-ROM?
   A. Very satisfied. B. Satisfied.
   C. Reasonably satisfied. D. Just so-so.
   E. Not so satisfied.
6. What is your overall view of other audio-video speaking textbooks and courseware you have used?
   A. Very satisfied. B. Satisfied.
   C. Reasonably satisfied. D. Just so-so.
   E. Not so satisfied.
7. In your opinion, the textbook used in this class is_____ .
   A. easy B. average
   C. slightly difficult D. difficult
   E. very difficult
8. In each unit of the textbook, which section is the one you spend most of your time on after class?
   A. Three videos in the Watching part.

B. Short passages in the Listening part.
C. Speaking activities in the Speaking part.
D. Time for Fun.

9. In each unit of the textbook, which section(s) do you have more interests in? (Multi-answers)
   A. Three videos in the Watching part.
   B. Short passages in the Listening part.
   C. Speaking activities in the Speaking part.
   D. Time for Fun.
10. Which sections do you think are more helpful in your English acquisition? (Multi-answers)
   A. Three videos in the Watching part.
   B. Short passages in the Listening part.
   C. Speaking activities in the Speaking part.
   D. Time for Fun.
11. Compared with other textbooks of the same kind, what features does *Learning English Through Culture: Viewing, Listening, Speaking* have? (Multi-answers)
   A. It's more practical and operational.
   B. It possesses rich cultural and language knowledge, and unique cultural perception.
   C. It has authentic language and close-to- life contents.
   D. It has no distinctive features.
12. Do you think the training in the EAVSC was helpful in improving your listening and speaking competence?
   A. Very helpful. B. Helpful.
   C. Reasonably helpful. D. Not so helpful.
13. If D or E is chosen in Question 12, what might be the reasons?
   A. I'm not familiar with the equipment and the software, which causes a lot of inconvenience.
   B. There is no face-to-face communication, which hinders my expression of ideas.
   C. It's inconvenient for the teacher to join students' activities, which prevents the teacher from giving proper instruction.
   D. Activity partners are changed too often.
14. Do you think that the teacher is helpful in improving your speaking ability?
   A. Very helpful. B. Helpful.
   C. Reasonably helpful. D. Not so helpful.
15. If D or E is chosen in Question 14, what might be the reasons? (Multi-answers)
   A. The teacher has rich cultural and background knowledge.
   B. The teacher is good at classroom organization.
   C. The teacher speaks English very well.
   D. The teacher is good at making full use of the textbook.
16. In your opinion, what might be the ideal way of conducting the EAVSC?
   A. The classroom time should be split 50-to-50 for the teacher's instruction and introduction and for students' practice.
   B. The classroom time should be spent as little as possible on the teacher's instruction and introduction, to give as many opportunities as possible for students to practice.
   C. It would be better for the teacher to spend little time on instruction, and to spend more time in organizing speaking activities among students.
   D. Whether the teacher should spend more time or less time on instruction should depend on the content of each lesson. Ways of conducting the class could vary from lesson to lesson.

17. What do you think about a teacher's job in an EAVSC? (Multi-answers)?
    A. Teach language knowledge and educate students.
    B. Provide students with more cultural information but less language knowledge.
    C. Focus more on organizing various speaking activities rather than lecturing.
    D. Focus more on developing the students' communicative language ability.
18. In order to improve your listening and speaking abilities, is it important for the teacher to urge you to preview and review the lessons?
    A. Very important. B. Important.
    C. Reasonably important D. Not so important.
19. Do you like the teacher's involvement in your speaking activities?
    A. I like it very much. B. I like it.
    C. It's acceptable. D. I'm not very fond of it.
    E. I don't like it.
20. If A or B is chosen in Question 18, what might be the reasons? (Multi-answers)
    A. The teacher could correct my pronunciation.
    B. The teacher could point out my language errors promptly.
    C. The teacher could provide new information at any time.
    D. The teacher could urge me to communicate in English.
21. In the EAVSC, how much time do you think has been spent on your oral practice?
    A. More than 75%. B. Between 50% and 75%.
    C. Between 25% and 50%. D. Less than 25%.
22. In your opinion, what are the ideal and most effective speaking activities in an EAVSC?
    A. Pair-work dialogues and small group discussions (3-5 persons).
    B. Big group discussion or debate (above five persons).
    C. Question and answer between the teacher and the students one by one.
    D. Video-based role-play or voiceover.
23. Do the activities organised by the teacher agree with your favourite ones?
    A. Always. B. Often.
    C. Sometimes. D. Seldom.
    E. Never.
24. What's your attitude towards the speaking activities?
    A. Each time, I am well prepared for it.
    B. Most of the time, I will prepare for it.
    C. Sometimes, I will prepare for it.
    D. I never prepare for it.
25. Do you think doing communicative activities and oral presentations are helpful in improving your listening and speaking competence?
    A. Very helpful. B. Helpful.
    C. Reasonably helpful. D. Not so helpful.
26. Do you agree on having one or two students doing oral presentations for each class?
    A. Strongly agree. B. Agree.
    C. Neither agree nor disagree. D. Disagree.
27. Do you think this digital learning system language lab is helpful in increasing your language production?
    A. Very helpful. B. Helpful.
    C. Reasonably helpful. D. Not so helpful.
28. In group discussion or pair-work dialogue, I prefer_____.

A. to talk with fixed partners
B. to do speaking activities with different people
C. a mixture of the above two

29. In group discussions, which of the following is more effective in developing students' communicative ability?
A. Discuss the topics one by one without role-assuming.
B. Each selects one topic to organise the discussion.
C. The above two produces similar effects.

30. In group discussions, the teaching strategies (e.g. small group discussion – regrouping and discussing – re-organizing and re-discussing) that the teacher utilised is helpful in improving your listening and speaking abilities?
A. Very helpful. B. Helpful.
C. Reasonably helpful. D. Not so helpful.
E. No help at all.

31. Are you satisfied with the EAVSC?
A. Very satisfied. B. Satisfied.
C. Reasonably satisfied. D. Just so-so.
E. Not so satisfied.

32. It would be appreciated if you could give your comments and suggestions on this course.

Appendix 2

Final Test for EAVSC

Part I (30 points) Pair-work:
Work in pairs and make a 5-minute dialogue from the following topics.
1) College life: What have you learned during this semester?
2) Holiday arrangement: Talk about your arrangement for the coming winter vacation.

Part II (50 points) Group discussion:
Work in group of three. Each one chooses any topic that you are interested in from the Speaking Activities of the text book and discuss it with your group members. Bear in mind that each one has only two minutes to chair his/her discussion.
Samples:
1) Do you think one day electronic books will replace printed books? Why or why not
2) Do you believe the saying that "music is a universal language"? Why or why not?
3) What's your favourite outdoor activity? Why do you like it?
……

Part III (20points) Personal statement:
Make a one-minute speech on the topic given below. You will be given 15 seconds for preparation and 45 seconds for presentation.

Describe a person who has influenced you in an important way. Explain why this person has had an effect on your life. Include details and examples in your explanation.

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Extracting and comparing the intricacies of metadiscourse of two written persuasive corpora

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ABSTRACT

Previous studies (Wu 2007; Hyland, 2004; Hyland & Tse 2004; Intaraprawat & Steffensen 1995; Crismore et al 1993; Vande Kopple 1985) have established the use of Metadiscourse (MD) as an essential element in writing as it allows the writer to create a dialogic space with his readers. In recent years, attempts have been made to analyse MD through the use of text corpus with the help of computer technology especially when the corpus is large. In this investigation, data have been obtained through an electronic means to illustrate the use of MD in writing samples of a group of Malaysian undergraduates. In order to investigate the use of MD by these students, their writing was benched against an established standard, the open access BAWE corpus, available online. The MD features were analysed through the concordancing software, monoConc Pro 2.2, for this research. The paper demonstrates how the software manages the data to reveal patterns of use between writers of the two corpora. The paper concludes on initial insights obtained from the comparison to show the nature and manner of MD between standard proficient writing (extract from BAWE corpus) and evolving student writing at the tertiary level that would have implications for writing improvement in educational institutions.

Keywords*: student writing; concordancing software; MD; text analysis; BAWE corpus*

WHAT IS METADISCOURSE?

Metadiscourse (MD) has been defined in a number of ways by different researchers. Williams (2007, p. 65), defines it as “the language that writers use to refer not to the substance of their ideas but to themselves, their readers, or their writings”. Similarly, Vande Kopple (1985, p.83) classifies MD into a number of features stating that MD is the:

> *linguistic material that does not add prepositional meaning to the content but signals the presence of the writer*.

This notion is also held by Crismore et al (1993). They further added that MD helps both readers and listeners to “organize, interpret and evaluate the information given” (p.40). This functional interpretation to the definition of MD is supported by Hyland and Tse (2004) who elaborate that it is a useful linguistic resource that writers can use to communicate to their readers their stance and attitude towards the given proposition, thus emphasising the interactive perspective.

Its importance in writing cannot be disputed and over the past decades, the study of MD has garnered much attention from researchers of Second Language (L2) writings. This is evidenced by the number of studies that ranged from classification to cross-cultural studies on MD. Researchers such as Vande Kopple (1985), Crismore et al (1993) and Hyland (2005) have classified MD into different functional categories to explain the workings of MD. Vande Kopple (1985) categorised MD into two main domains – textual and interpersonal. The ‘textual domain’ helps writers link their propositions in a cohesive manner and the ‘interpersonal’ provides writers the avenue to convey their feelings towards the given propositions. The textual MD is exemplified

through the use of 'text connectives' and 'code glosses' while the 'interpersonal MD' is realised through the use of 'illocutionary markers', 'validity markers', 'narrator's, 'attitude markers' and 'commentary'. Based on Vande Kopple's (1985) categorisation, Crismore et al (1993) further modified, collapsed and created new categories of MD. Although they retained the terminology of the two main domains of MD, they further sub-divided 'textual MD' into 'textual markers and interpretative markers'. Under 'textual markers', they added 'logical connectives', 'sequencers', 'reminders' and 'topicalisers'. They then removed temporal connectives and narrators and created the code glosses, illocution markers and announcement as interpretative markers. Other than these frameworks, Hyland (2005) promotes the interpersonal model of MD. His model is not only an update on the taxonomies used by Vande Kopple (1985) and Crismore et al (1993), it also gives greater comprehensibility and distinction to the varieties of MD features. As a result, his framework is adopted in this study, though keeping in mind that it is still open for further refinement. Hyland (2005), in the same manner of Vande Kopple (1985) and Crismore et al (1993), distinguishes MD into two main domains. However, he identifies them as 'Interactive' and 'Interactional MD'. He explains that the function of the 'interactive MD' is to help guide readers through the text while that of the 'interactional MD' is to involve the reader in the argument. Interaction with the reader is firmly anchored in his framework and he further details the categories of the interactive and interactional MD, providing comprehensive examples for each sub-category. The sub-categories of the 'interactive' MD are manifested as 'transitions', 'frame markers', 'evidentials', 'endophoric markers' and 'code glosses'. For the 'interactional' MD categories, they are realised as 'hedges', 'boosters', 'engagement marker', 'attitude markers' and 'self-mention' (the framework is presented in Table 1).

With the advent of information and computer technology (ICT), the study on MD took on a new dimension. ICT made possible the investigation of large corpora through the use of concordance software. A case in point is the comparative study carried out by Hyland (1999) where he compared the use of MD in textbooks and research articles. The results showed that research articles have more interpersonal MD. Another corpus study on MD is Hyland's (2004) investigation on the use of MD in postgraduate writings. The study revealed that doctoral theses have more interactive MD than masters' theses. Interestingly, 'evidentials' were seen as appearing four times more in doctoral theses indicating the value placed on the greater use of citation as central to the argumentative or persuasive force of the text. Comparison of MD use between good and poor ESL undergraduate writers is evident in Intaraprawat and Steffensen's (1995) work which found that good essays have more MD features than poor essays.

Apart from the various studies that explore the use of different categories of MD others have been done to explore specific MD features. Wu (2007) concentrated on the use of engagement resources in high and low rated undergraduates' geography essays, while Hyland (2001a) studies the importance of audience engagement in academic arguments. Harwood (2005) concentrates on the use of self-mention, especially the use of inclusive and exclusive pronouns, and Hyland (2001b) focuses on the use of self-citation and the exclusive pronouns.

The investigation of cross cultural perspectives added another dimension to the studies on MD, as seen in the work by Crismore et al (1993) where they compared the use of MD in argumentative essays written by American and Finnish students. Both Dafouz-Milne (2008) and Aertselaer (2008) compared the use of MD between Spanish and English writers. While Dafouz-Milne (2008) focuses on the construction and attainment of persuasion in newspaper writings: *The Times* (British) and El Pais (Spanish), Aertselaer (2008) concentrated on the use of MD in the English-Spanish Contrastive Corpus (ESCC) argumentative texts. Culture is an important variable that impinges on the understanding of written language use and cultural differences are reflected through different thought processes in dealing with reader-writer interaction which could be captured in the use of MD.

PURPOSE OF THE STUDY

Previous studies on MD have one striking similarity in their choice of writing samples - writing taken from experienced writers. This study intends to build on the existing knowledge on MD by investigating the use of MD through the use of technology – that of a concordancing tool, of a group of first year Malaysian undergraduates (MU) enrolled in a writing skills course. Through the application of the computer software, the undergraduate writing is compared to a group of acclaimed proficient writers in terms of MD use. The writings of these acclaimed proficient writers were drawn from an electronic source of open access text corpora compiled by academics from Great Britain known as the BAWE (British Academic Written Essays) corpus. One of the intentions behind the compilation of the corpus was to have an international benchmark for student academic writing and also to provide a corpus for research studies on writing. The lack of borders in this global world has pushed many countries especially where English is used as an L2 to seek indicative markers that could be used to gauge local performances as against those that are external and seen as desirable. Every writing teacher strives for improvement in their student work and a corpus of good writing could serve as a yardstick for performance which L2 learners could aspire to. To understand the operations of exemplary writing, specific elements could be isolated for meaningful exploration so that data obtained could give learning pointers for the writing classroom to enhance writing. Essentially, the study undertaken is to examine the specificities in the use of MD of local student writing with a view of its approximation to an international standard.

Research Questions

The questions that guided the research are:

- What are the frequency and forms of MD use in the persuasive writing of L2 Malaysian undergraduate (MU) writers compared to the BAWE writers?

- Are there any differences or similarities in the MU writers' use of MD when compared with the BAWE writers?

METHODOLOGY

Sampling was both purposive and stratified. In the selection of the MU corpus, writing samples were drawn from first year university students enrolled in a writing course - General Writing Skills. They had obtained grades A1 and A2 for English in the Sijil Peperiksaan Malaysia (SPM) which is equivalent to the British O'Level on leaving secondary school. . They represented the undergraduate writers with high proficiency in English and the sample size amounted to 294 texts with a total word count of 145,425 words. A1 in SPM is a Malaysian national indicator for a large portion of school-leavers who have reached the prescribed standards. Our interest in this study focuses on students who have exited the national evaluation assessment system and are given a recognition to show a particular level of competence. It is a general criticism that students entering university are not able to write well in spite of attaining anA1 proficiency. This has actually given the researchers a concern about the discrepancy between the Malaysian A1 students and an acclaimed good writer. The BAWE corpus, as the benchmark, was identified through a survey of possible written text corpora available on the Internet. The BAWE corpus claimed that their corpus is the standard for student academic writing and it was constructed as a research reference for researchers to use. From the outset, it must be made known that this study is not a comparison of Malaysian English versus British English. Contact was established

with the sites and after weighing the choices in terms of accessibility, and verification about the corpus through personal communication, including the writing genres involved, the researchers decided on the use of the BAWE corpus. In the selection of the BAWE corpus, reference was made to the Oxford Text Archives-Resource Number 2539 which was an online resource. From the BAWE spreadsheet, a total text number of 2761 (from Humanities, Social Studies and Science) was found. Text types include essays, research report, literature survey, critique, methodology recount, empathy writing, problem question, explanation and design specification. The writers were from Years 1, 2, 3 of their undergraduate studies and masters programmes. To ensure the relevant use of the BAWE essays, the researchers established direct contact with the Director of the BAWE corpus project to identify the text-type and level of study of the writers. Together with the help of the BAWE spreadsheet, the choice was narrowed to essay type (argumentative texts) and year 1 category of undergraduate writing. Since the essays in the BAWE corpus were obtained from students from varied disciplines, the titles of their essays were also varied (Nesi et al 2004, p.441). Therefore, the comparison of MD used between the BAWE corpus and the MU corpus was not based on similarity of essay titles but rather on the similarity of text rhetoric which is that of the argumentative type. In total, there were 400 texts selected with a total running number of 808,642 words.

The Writing Task

To elicit the writing evidence, students were asked to write an argumentative essay based on the topic of smoking, A persuasive task was chosen as it is deemed to be a rhetorical form that is most likely to exhibit the varieties of MD (see Appendix for the essay prompt). The task was timed for the writing of the final essay and the duration given for completion was 1 hour 15 minutes. Prior to the administration of the writing task to the participants, a pilot study was conducted on a group of 126 undergraduates. Based on the feedback, the writing task was further revised to enable all categories of MD to be captured in the participants' writing (which included the evidentials and endophoric markers which were found to be lacking in the pilot analysis).

The first draft of the essay was written in the second week of the semester. After that, input on MD (12 hours) was given to the undergraduate students. The instructional input of MD focused on samples of text that had MD features. They were taken from varied sources such as textbooks, articles in the Internet and newspapers. Probing questions were created after the introduction of each text sample to direct the subjects' attention to the use of MD. One of the exercises in the instructional input included the drafting and redrafting process of written work. After acquiring the knowledge on the use of MD, the subjects were required to improve a given text using appropriate MD. This mirrored the need for redrafting of the essay they had written earlier which was to be done at the end of the intervention period. Thus, the first drafts of the students were returned and the students were told to improve on their writings in their second drafts. The second drafts were then collected and analysed to obtain the data for the study.

Instrument

To analyse the MD used, Hyland's (2005) Interpersonal Model of MD provided the initial guidelines. Hyland's framework has been chosen over others, such as Crismore et al's (1993) and Vande Kopple's (1985) after a detailed comparison has been carried out. Hyland's (2005) framework is seen as the most comprehensive. This framework however is seen as evolving and open in the sense that studies into MD could still contribute to the building up of the MD categories. As such, MD features that are considered to be not fitted in the model will definitely be extricated as building upon the model adopted. The details of Hyland's (2005) model are as follows.

***Table 1**: An interpersonal model of MD (Hyland 2005, p. 49)*

Category	Function	Example
Interactive	***Help to guide reader through the text***	
Transitions	express semantic relation between main clauses	in addition/but/thus/and
Frame markers	refer to discourse acts, sequences, or text stages	finally/to conclude/my purpose here is to
Endophoric markers	refer to information in other parts of the text	noted above/see Fig/in section 2
Evidentials	refer to source of information from other texts	according to X/(Y 1990)Z states
Code glosses	help readers grasp functions of ideational material	namely/e.g./such as/in other words
Interactional	***Involve the reader in the argument***	
Hedges	withhold writer's full commitment to proposition	might/perhaps/possible/about
Boosters	emphasise force or writer's certainty in proposition	in fact/definitely/it is clear that
Attitude markers	express writer's attitude to proposition	unfortunately/I agree/surprisingly
Engagement markers	explicitly refer to or build relationship with reader	consider/note that/you can see that
Self-mentions	explicit reference to author(s)	I/we/my/our

The instrument used to analyse the texts was the monoConc Pro version 2.2, a word concordancing software developed by Barlow (2003). The use of the electronic tool is adopted to facilitate text analysis, in particular that of MD use.

IDENTIFICATION OF MD

To run the programme, there are some preliminary procedures. First, only words or expressions that have metadiscoursal values are classified as MD. For example, transition 'and' is counted as an MD token only when it is used to link two clauses. If it is used as a linker in listing such as in "heart attack, strokes and cancer", it is discounted as an MD feature.

In the MU corpus, some metadiscoure features were found to be lifted directly from the essay prompt. This was another constraint in the tagging of MD. They were again ignored as a token of MD use by the writer.

For words having 200 hits/matches or more (and in BAWE corpus has 23,707 hits), the list was randomised and the first 200 concordance lines were analysed for MD use. The number of MD features identified will be extrapolated as a percentage of the total number of MD features analysed. It is then normed to an occurrence of 10,000 words so that the MD used can be compared between two corpora of unequal size (MU corpus: 145,425 words and BAWE corpus: 808,642 words).

RESULTS AND DISCUSSION

To begin with, a frequency count was made in the use of MD. It was found that the total number of words of the BAWE corpus is 808,642 words while that of the MU corpus is 145,425 words. The corpus size of MU is much smaller as it consists of L2 written texts with an average length of 500 words while the text length of the BAWE corpus is between 1000 - 5000 words (Nesi et al 2004, p.441). The frequency count is displayed below according to the two major categories of MD use.

***Table 2**: Frequency of use of interactive and interactional MD*

	BAWE Corpus (Total words: 808,642 words)		**MU Corpus (Total words: 145, 425 words)**	
MD Category	**Total Hits**	**Occurrence per 10,000 words**	**Total Hits**	**Occurrence per 10,000 words**
Interactive	30,646	**379.0**	4644	**319.3**
Interactional	19,571	**242.0**	5151	**354.2**

It is found that the BAWE corpus has a higher frequency of use in interactive MD (379.0 occurrences per 10,000 words compared to 242.0 occurrences per 10,000 words in interactional discourse). This result is similar to other MD studies (Hyland 2004, Hyland & Tse 2004, Intaraprawat & Steffenson 1995) whereby the frequency of use of the interactive MD is more dominant compared to the interactional MD. Interactive MD encompasses linguistic resources that writers use to organize and to structure their propositions so that the text would be more coherent to the readers. The use of transitions, frame markers, endophoric markers, evidentials and code glosses are examples of interactive MD.

In direct contrast to the findings on the BAWE corpus, the MU corpus exhibited a higher frequency of interactional MD when compared with the interactive MD (354.2 occurrences per 10000 words compared to 319.3 occurrences per 10,000 words for interactive MD). Interactional MD focuses on linguistic signals that attempt primarily to connect to the audience, such as, in the use of hedges, boosters, engagement markers, attitude markers and self-mention.

It could be said that interactive signals engages the reader on a level that relates more to formal grammar while the interactional use relates more to the socio-affective level where audience engagement from that perspective is prioritised in discourse. The MU writers seem to reveal a lack of sensitivity and ability in achieving coherence in writing from the interactive perspective. This is not surprising as the MU corpus consists of texts written by L2 undergraduate writers. Although these L2 undergraduate writers are deemed to have high general English proficiency (obtaining A1 and A2 in English in the secondary school leaving examination), they may not have attained a writing proficiency level that could mobilise all the linguistic resources of the target language to craft a coherent piece of academic writing in English compared to the BAWE writers.

While interactional MD provides writers the opportunity to engage with their readers with linguistic resources that 'gives life' to the piece of writing, the writers have yet to meet the demands of academic writing conventions which appear to juggle a sensitive 'balanced' use of both types of MD. The MU writers may have built solidarity with their readers but are still strategising to align their writings according to the expectations of experienced readers linguistically on a more formal level.

The next aspect was to examine the frequency of use according to the specific sub categories of interactive and interactional use. The table below shows the analysis as generated by electronic means for interactive MD.

***Table 3**: Number of occurrences of the categories of interactive MD in the BAWE and MU corpus*

	BAWE (Total words: 808,642 words)			**MU Corpus (Total words: 145. 425 words)**		
MD Category	**Total Hits**	**Occurrence per 10,000 words**	**% of Total**	**Total Hits**	**Occurrence per 10,000 words**	**% of Total**
1. Interactive						
Transitions	19,564	241.9	63.8	3579	246.1	77.1
Frame Markers	939	11.6	3.1	363	25.0	7.8
Endophoric Markers	1257	15.5	4.1	148	10.2	3.2
Evidentials	5415	67.0	17.7	117	8.0	2.5
Code Glosses	3471	42.9	11.3	437	30.0	9.4
Total	**30,646**	**379.0**	**100.0**	**4644**	**319.3**	**100.0**

Among the five categories of interactive MD in the BAWE and MU corpus, transitions has the highest frequency of use with more than half of the total percentage of overall interactive MD (BAWE Corpus: 241.9 occurrences per 10,000 words; MU Corpus: 246.1 occurrences per 10,000 words). However, between the BAWE and MU corpus, the frequency of use of transitions in the MU corpus is marginally higher. The next highest frequency of use in the BAWE corpus is evidentials (67.0 occurrences per 10,000 words) while for the MU corpus, it is the use of code glosses (30.0 occurrences per 10,000 words). In comparison, the use of evidentials in the MU corpus is the lowest with only 8.0 occurrences per 10,000 words. With the use of evidentials in the BAWE corpus registering eight times more than their use in the MU corpus, the BAWE writers seem to exhibit a greater awareness of the need to establish writers' credibility. Using evidentials as Hyland (2005, p.67) puts it is "*the perceived credibility that readers grant to writers*".

In the BAWE corpus, the third highest frequency of use is the use of code glosses (42.9 occurrences per 10,000 words) and its use is also significantly higher than that in the MU corpus (30.0 occurrences per 10,000 words). The other two categories, frame markers and the endophoric markers have very low frequency of use. Each of these two categories registers less than 10% of the total interactive MD with the frame markers noted as only 3.1% of the total interactive MD (11.6 occurrences per 10,000 words). The endophoric markers account for only 4.1% of the total interactive MD (15.5 occurrences per 10,000 words). In the MU corpus, the use of frame markers is the third highest (25.0 occurrences per 10,000 words) and it is marginally higher than those recorded in the BAWE corpus, while the use of endophoric markers accounts for only 3.2 % of the overall use of interactive MD (10.2 occurrences per 10,000 words).

***Table 4**: Number of occurrences of the categories of interactional MD in the BAWE and MU corpus*

	BAWE (Total words: 808,642 words)			**MU Corpus (Total words: 145. 425 words)**		
MD Category	**Total Hits**	**Occurrence per 10,000 words**	**% of Total**	**Total Hits**	**Occurrence per 10,000 words**	**% of Total**
2. Interactional						
Hedges	9331	115.4	47.7	819	56.3	15.9
Boosters	3966	49.0	20.3	966	66.4	18.8
Engagement Markers	3704	45.8	18.9	2918	200.7	56.6
Attitude Markers	1521	18.8	7.8	166	11.4	3.2
Self Mention	1049	13.0	5.4	282	19.4	5.5
Total	**19571**	**242.0**	**100.0**	**5151**	**354.2**	**100.0**

Table 4 displays the frequency observed in the use of interactional MD. Of the five categories, hedges has the most number of occurrences (115.4 occurrences per 10,000 words) followed by boosters (49.0 occurrences per 10,000 words) and engagement markers (45.8 occurrences per 10,000 words) in the BAWE corpus. In contrast, the MU corpus exhibited an extremely high occurrence of engagement markers when compared with the other interactional categories. It accounts for 200.7 occurrences per 10,000 words while boosters which is the next highest frequency of use only accounts for 66.4 occurrences per 10,000 words and hedges has a frequency of use of 56.3 occurrences per 10,000 words.

The function of both hedges and boosters are in a way diametrical. If the function of the hedges is to tone down assertions, the function of boosters is to increase the force of the assertion. In an academic discourse, the careful balance of the use of both hedges and boosters is important as they reflect the writers' ability to balance a show of their confidence with caution. Essentially, the balance reveals the writers' readiness to accept alternative views while at the same time there is evidence of their own confidence of their own propositions.

In the MU corpus, the dominant use of engagement markers, particularly the use of the inclusive pronoun 'we' indicates writers' sensitivity to include the readers into their arguments. The use of such engagement markers at strategic points in the text enhances writer-reader solidarity, facilitating the readers to accept the argument. However, the high use of boosters compared with the use of hedges seems to indicate the writer's over-confidence of their argument to the exclusion of being modest when presenting one's viewpoint. Perhaps in this area, undergraduate writers need to be taught to write with greater caution by using more hedges than boosters. As claimed by Williams (2007), confident writers use more hedges than boosters because they do not want to appear too assertive. In short, a persuasive piece of writing with an adequate balanced use of hedges and boosters would aid readers to accept the argument more readily.

The lowest use of the interactional MD in the BAWE corpus is self mention with only 13.0 occurrences per 10,000 words, while attitude markers account for 18.8 occurrences per 10,000

words. Similarly, in the MU corpus, both the attitude markers and the self mention showed the lowest frequency of use. However, in the MU corpus, the lowest frequency of use was seen in attitude markers (11.4 occurrences per 10,000 words) followed by self mention (19.4 occurrences per 10,000 words). Although their use is significantly lower compared to other categories of interactional MD, it does indicate that the writers have the repertoire of MD skills.

FORMS OF MD

Hyland (2005) has categorised ten different types of MD, with each category realised through a variety of forms. As one of the universal properties of human language is creativity (Fromkin et al 2007), it is to be expected that writers have a wide mental list of lexicons to express their thoughts. In other words, each category of MD can be realised linguistically through a variety of forms. It is also this very characteristic of human language that the analysis of any MD features needs to be done in context as any linguistic realisation can be interpreted as having either propositional or metadiscoursal meaning. Below are some discussions on the linguistic expressions of the different categories on MD used by the writers of both the BAWE and MU corpus obtained from the concordancing display made possible by the electronic programme.

Transitions

In the use of *transition*s, the five most common linguistic realisations in the BAWE and MU corpus are the use of co-ordinating and sub-ordinating conjunctions. In the BAWE corpus, the co-ordinating conjunctions are realised through the use of 'and', 'but' and 'also'. In the MU Corpus, the co-ordinating conjunctions are realised mainly through the use of 'also', 'and', 'but' and 'so'. As for the use of subjunctive conjunctions, the BAWE writers preferred 'however' and 'because' while the MU writers tend to use the word 'because'.

***Table 5**: The first five preferred forms of transitions in BAWE corpus and MU corpus*

	BAWE Corpus			MU Corpus		
NO	**Forms of Transitions**	**Total Hits**	**Total Occurrence per 10,000 words**	**Forms of Transitions**	**Total Hits**	**Total Occurrence per 10,000 words**
1	And	7112	87.9	Also	707	48.6
2	But	2108	26.1	Because	665	45.7
3	Also	1760	21.8	And	453	31.2
4	However	1638	20.3	But	406	27.9
5	Because	917	11.3	So	396	27.2

Overall, the BAWE corpus showed more variety of linguistic expressions used as transitions. Of the total of 47 forms of transitions analysed, the BAWE corpus recorded 46 varieties of linguistic forms while the MU corpus recorded only 31 varieties of linguistic forms. This leads us to conclude that although the MU writers attempted to use transitions in their writings, their varieties of forms used are more restricted compared to the BAWE writers.

Frame Markers

In both the BAWE and MU corpus (Table 6), the five most preferred frame markers are mostly those that signal the sequence of the text structure. For the BAWE corpus, the five most preferred forms (in order of the most to least preferred forms) are 'firstly', 'in conclusion', 'then', 'finally' and 'first'. In the MU corpus, the preferred forms are 'first', 'in conclusion', 'finally', 'last' and 'firstly'. To mark the beginning of a sequence of ideas, the BAWE writers prefer the form 'firstly' as compared with the writers of the MU corpus who preferred the form 'first'.

Table 6*: The first five preferred forms of frame markers in BAWE corpus and MU corpus*

	BAWE Corpus			**MU Corpus**		
NO	**Forms of Frame Markers**	**Total Hits**	**Total Occurrence per 10,000 words**	**Forms of Frame Markers**	**Total Hits**	**Total Occurrence per 10,000 words**
1	Firstly	124	1.533435	First	72	5.0
2	In conclusion	96	1.187176	In conclusion	60	4.1
3	Then	95	1.174809	Finally	44	3.0
4	Finally	80	0.989313	Last	27	1.9
5	First	74	0.915114	Firstly	26	1.8

The function of 'last' can be expressed in a variety of manner and the concordance lines in the MU corpus reveal that the form 'last but not least' occurred no less than 20 times. Such a form is not present in the BAWE corpus but it seems to be the preferred frame markers among the MU writers. This expression, however, is generally considered to be a cliché and inappropriate for academic writing. The MU writers will have to 'unlearn' the expression to be more discerning.

Similar to the use of transitions, the BAWE corpus also reveals a wider variety of forms in the use of frame markers compared to the MU corpus. While the MU corpus exhibited 20 forms, the BAWE corpus has a total of 43 forms of frame markers. The BAWE writers were able to use sequencing such as 'firstly', 'to begin', 'in this chapter', 'in this part', 'in this section'. One possible reason that the last three forms are absent could be that MU writing was only in the form of an essay. Therefore, it may not have been necessary for the writers to resort to the use of these frame markers. However, there was a marked absence in the MU corpus the following expressions: '*to conclude', 'thus far', 'to summarise', 'in sum', 'in summary', 'to sum up', 'at this point', 'on the whole', 'at this stage', 'to sum up', 'for the moment'*. Besides, frame markers that announce goals such *as '*objective', 'intend to', 'aim', 'purpose', 'wish to' and those that denote a shift in topic, such as, 'back to', 'with regard to', 'move on', 'return to', 'turn to' were also not found in the MU corpus. We may conclude that the BAWE writers had a wider and richer repertoire of frame markers compared to the MU writers.

Endophoric Markers

Endophoric markers are a form of MD that refers readers to information in other parts that are within or outside the text. This intratextual feature is used to provide support to the argument with the purpose of convincing readers of the validity of the argument. In the BAWE corpus, the following linguistic expressions 'p.X', 'X above', 'page X', 'X earlier', 'in section X'/'the X section', 'Table X', 'X below', 'X later', 'in chapter X'/'the X chapter', 'X before', 'in part X'/'the X part', 'see

X', and 'Fig. X' (see Table 7 below). In the MU corpus, however, only five different linguistic variations of endophoric markers were used. They were 'Table X', 'X above', 'X earlier', 'X before' and 'X below'. One possible reason for the limited linguistic choices could be the length of the MU essays (500 to 600 words). Below are examples of the linguistic realisations as revealed by the concordance lines.

***Table 7**: The first five preferred forms of endophoric markers in BAWE corpus and MU corpus*

	BAWE Corpus			MU Corpus		
NO	**Forms of Endophoric Markers**	**Total Hits**	**Total Occurrence per 10,000 words**	**Forms of Endophoric Markers**	**Total Hits**	**Total Occurrence per 10,000 words**
1	p. X	687	8.5	Table X	114	7.8
2	X above	118	1.5	X above	20	1.4
3	page X	94	1.2	X earlier	6	0.4
4	X earlier	84	1.0	X before	4	0.3
5	(in) section X/ the X section	57	0.7	X below	4	0.3

The use of the form p. X/p X in the BAWE corpus could be closely linked to the use of citation as a persuasive strategy in the crafting of academic writing. Reference to the page number complements the citation process and it reinforces the validity and reliability of the writers' arguments.

Evidentials

***Table 8**: The first eight forms of evidentials in BAWE corpus and MU corpus*

	BAWE Corpus			MU Corpus		
NO	**Forms of Evidentials**	**Total Hits**	**Total Occurrence per 10,000 words**	**Forms of Evidentials**	**Total Hits**	**Total Occurrence per 10,000 words**
1	name/date	4926	60.9	According to X	96	6.6
2	cited in	190	2.3	X states/ state that	13	0.9
3	According to X	131	1.6	Said	7	0.5
4	X states/ state that	79	1.0	quoted in/as quoted	1	0.1
5	quoted in/as quoted	48	0.6	name/date	0	0.0
6	Said	35	0.4	(to) cite X	0	0.0
7	(to) cite X	3	0.0	(to) quote X	0	0.0
8	(to) quote X	3	0.0	cited in	0	0.0

As seen in the Table 8, evidentials can also be realised through various forms. It is clear that the BAWE corpus utilizes more varieties of evidentials than the MU corpus. At the top of the list is the use of the common citation convention techniques where the names of the author, followed by the year of publication and the page number, are cited. The forms of evidentials that are least used in the BAWE corpus are: '(to) cite X…' and 'to quote…'.

In the MU corpus, the form 'as quoted' is the least preferred form. There was only one such instance in the whole corpus. The other four forms such as name/date, (to) cite X, (to) quote X, and cited in were also not present in the MU corpus.

Code Glosses

Table 9*: The first five preferred forms of code glosses in BAWE corpus and MU corpus*

	BAWE Corpus			MU Corpus		
NO	**Forms of Code Glosses**	**Total Hits**	**Total Occurrence per 10,000 words**	**Forms of Evidentials**	**Total Hits**	**Total Occurrence per 10,000 words**
1	such as	976	12.1	such as	207	14.2
2	( )	454	5.6	for example	95	6.5
3	or X	366	4.5	in fact	21	1.4
4	_	338	4.2	or X	21	1.4
5	Indeed	231	2.9	( )	17	1.2

Based on the figures in the table above, it is observed that the most preferred form of code glosses in both the corpora is the use of 'such as'. A parallel form to 'such as' is 'for example' which is a preferred form in the MU corpus.

The use of the bracket and dash indicates that MD, particularly in the use of code glosses, is not realised by words alone. Punctuation marks also have metadiscoursal meaning which allow writers to elaborate further on what they have conveyed in writing. The conjunction 'or' is also used as code glosses in both the BAWE and MU corpus. Forms such as *'as a matter of fact'* and 'put another way' found in the MU corpus were not found at all in the BAWE corpus. However, the dash '(-)', 'e.g.',' i.e.', 'indeed', 'namely', 'that is to say', and 'viz' were not found in the MU corpus.

Hedges

***Table 10**: The first five preferred forms of hedges in BAWE corpus and MU corpus*

	BAWE Corpus			MU Corpus		
NO	Forms of Hedges	Total Hits	Total Occurrence per 10,000 words	Forms of Hedges	Total Hits	Total Occurrence per 10,000 words
1	Would	1840	22.8	May	177	12.2
2	May	1234	15.3	Would	98	6.7
3	Could	981	12.1	About	96	6.6
4	Perhaps	433	5.4	Might	72	5.0
5	Seems	387	4.8	Could	63	4.3

In examining the use of *hedges*, the concordancing outcomes revealed that the prevalent form is the use of the auxiliary verb. The first three preferred forms in the BAWE corpus are 'would', 'may' and 'could'. Similarly, the MU corpus also exhibited the use of auxiliary verbs where the first, second, fourth and fifth preferred forms are 'may', 'would', 'might' and 'could' respectively. The third preferred form is the adverbial 'about'. The fourth preferred form in the BAWE corpus is the adverbial 'perhaps' with the fifth, a linking verb, 'seems'.

In the MU corpus, the adverbial used is the form 'about'. Almost all instances of the use of 'about' in the MU corpus were found before the presentation of statistical information. This indicated that the MU writers were cautious not to demonstrate that they have absolute knowledge on the proposition. (Please see the concordance output below).

1. ... 06 , the smokers among women increasing [[about]] 0.3 % from the year before and for t
2. ... cigarette smoking . Whereas , there is [[about]] 0.9 % of men deaths caused by cigarette
3 ... creasing from year 2006 to year 2007 at [[about]] 1.3 % because most of them came from
4. ... e age of 18 start smoking and currently [[about]] 1 in 5 teenagers smoke . Many steps h ..
(Essays of MU participants)

Hedges can be linked to the expression of uncertainty or a lack of commitment to the truth of the propositions. In choosing to use the auxiliaries, the writers are conveying the message that they may not possess the absolute knowledge on the subject. In a persuasive discourse, this strategy is necessary to win the acceptance of the readers towards the arguments. Although the MU corpus also uses the linking verb 'seems', it is not dominant compared to the BAWE corpus. Just like the use of adverbials, the use of the linking verb, 'seems' indicates uncertainty. It allows writers to convey the message that the meaning of the proposition is only 'somewhat' and not absolutely the case.

Apart from the above forms, other forms of hedges are also detected, such as 'suggests', 'claim', 'possible', etc. Their distributions in the two corpora were quite varied. The BAWE corpus had a total of 343 hits for 'suggests' while in the MU corpus, it only recorded a total of three hits. In another instance, the word 'possible' garnered a total of 280 hits while there was none found in the MU corpus. It is apparent then that the use of hedges in the MU corpus is not only less frequent but is also less varied. The analysis points to the likelihood of the need of a greater

awareness of the role of hedges in L2 writing. Successful writers usually are able to hedge more. This fact has been highlighted in Williams' (2007) writing manual and has also been proven in Intaraprawat and Steffenson's (1995) study. Thus, L2 writers would need more training to enhance their use of this aspect of metadiscourse.

Boosters

Table 11*: The first five preferred forms of boosters in BAWE corpus and MU corpus*

	BAWE Corpus			MU Corpus		
NO	**Forms of Boosters**	**Total Hits**	**Total Occurrence per 10,000 words**	**Forms of Boosters**	**Total Hits**	**Total Occurrence per 10,000 words**
1	Must	741	9.2	Very	215	14.8
2	Very	705	8.7	Must	181	12.4
3	Indeed	266	3.3	Always	115	7.9
4	Never	264	3.3	Actually	109	7.5
5	Always	253	3.1	Really	97	6.7

Three of the common forms that appear in both the BAWE and MU corpus are 'must', 'very' and 'always' (table 11). These expressions in the form of modal verbs, modifiers or adverbs, play a similar role, that is, they accentuate the certainty of the propositions. Similarly, the other forms found in the table above – 'indeed', and 'never' in the BAWE corpus and 'actually' and 'really' in the MU corpus also increase the certainty of the proposition.

Akin to the other categories of MD discussed earlier, it is again found that boosters used in the BAWE corpus were more varied. In the BAWE corpus, a total of 38 different linguistic expressions were recorded while the MU corpus only had 24 different linguistic expressions of this category. The BAWE corpus also recorded more forms, having over 100 hits (12 in total) while the MU has only four forms (see Table 12).

Table 12*: Forms of boosters in BAWE corpus and MU corpus with more than 100 hits*

	BAWE Corpus			MU Corpus		
NO	**Forms of Boosters**	**Total Hits**	**Total Occurrence per 10,000 words**	**Forms of Boosters**	**Total Hits**	**Total Occurrence per 10,000 words**
1	Must	741	9.2	Very	215	14.8
2	Very	705	8.7	Must	181	12.4
3	Indeed	266	3.3	Always	115	7.9
4	Never	264	3.3	Actually	109	7.5
5	Always	253	3.1			
6	Clearly	215	2.7			
7	In fact	209	2.6			
8	Actually	184	2.3			
9	Certainly	110	1.4			

10	Obvious	106	1.3
11	True	105	1.3
12	Really	102	1.3

Engagement Markers

Table 13*: The first five preferred forms of engagement markers in BAWE corpus and MU corpus*

	BAWE Corpus			MU Corpus		
NO	**Forms of Engagement Markers**	**Total Hits**	**Total Occurrence per 10,000 words**	**Forms of Engagement Markers**	**Total Hits**	**Total Occurrence per 10,000 words**
1	We (inclusive)	1601	19.8	We (inclusive)	974	67.0
2	Our	568	7.0	Our	811	55.8
3	Us (inclusive)	476	5.9	You	383	26.3
4	?	441	5.5	?	259	17.8
5	You	243	3.0	Your	197	13.5

'Engagement markers' provide the avenue for writers to build solidarity with their readers. The inclusive 'we' topped the list of the five most preferred forms of engagement markers. Other forms of engagement markers in the above list were the use of the pronoun 'you', possessive pronoun 'our' and 'your' and the object form of the plural 'we' and 'us'.

It is interesting to note that the writers from both corpora also made the effort to engage their readers by using questions. This is a useful strategy as posing a rhetorical question in the text draws the readers to participate actively in the process of the argument. From the concordance lines, it is seen that although the MU writers made attempts to use questions to engage their readers, there were, however, instances where the questions were not constructed correctly, or the writers had used awkward sentence structures. This inability to use standard sentence construction is a common problem among L2 writers. As evolving writers attempt to write in the target language, there is bound to be some confusion because of their first language interference or inability to acquire the structures is yet in the developmental stage.

Just as there are dominant linguistic expressions of engagement markers in the corpora, there are also linguistic realisations of engagement markers that have very low frequency of use. The forms of engagement markers that only account for between one to ten hits in the BAWE corpus are the following: 'imagine', 'notice', 'assume', 'look at', 'let's', 'observe', 'suppose', 'by the way', and 'think about'. As for the MU corpus, the forms of engagement markers that have ten hits or less are 'think about', 'let us', 'note', 'notice', 'by the way' and 'suppose'. Why this is so merits further investigation.

Attitude Markers

***Table 14**: The first five preferred forms of attitude markers in BAWE corpus and MU corpus*

	BAWE Corpus			MU Corpus		
NO	Forms of Attitude Markers	Total Hits	Total Occurrence per 10,000 words	Forms of Attitude Markers	Total Hits	Total Occurrence per 10,000 words
1	Important	686	8.5	!	74	5.1
2	Essential	137	1.7	Unfortunately	25	1.7
3	Interesting	78	1.0	Important	19	1.3
4	Essentially	71	0.9	Agree	12	0.8
5	Dramatic	55	0.7	Disagree	6	0.4

In comparing the use of attitude markers, it is observed that they are realised through the use of adjectives, adverbs, attitude verbs and punctuation (table 14). In the BAWE corpus, the first five preferred forms of attitude markers were mostly the use of adjectives ('important', 'essential', 'interesting' and 'dramatic') and one adverb ('essentially'). In the MU corpus, however, there were more varieties. Besides the use of adjectives ('important'), the writers also used punctuation ('!') as well as adverbs ('unfortunately') and attitude verbs ('agree' and 'disagree'). The use of these different linguistic realisations allows readers to understand not just the propositional content but also the stance of the writers towards the propositions. The use of attitude markers is essential in a persuasive written text as a text devoid of attitude markers would be too arid and impersonal.

Apart from the five most preferred forms of attitude markers, there are other forms of attitude markers used in the two corpora. In the MU corpus, however, their use is not that significant with a total of less than five hits. The BAWE corpus on the other hand, exhibited a total of 23 different linguistic realisations. This difference again speaks of a wider repertoire of linguistic realisations that are used by the BAWE writers.

Self Mention

***Table 15**: The five preferred forms of self mention in BAWE corpus and the three preferred forms of MU corpus*

	BAWE Corpus			MU Corpus		
NO	Forms of Self Mention	Total Hits	Total Occurrence per 10,000 words	Forms of Self Mention	Total Hits	Total Occurrence per 10,000 words
1	I	758	9.4	I	223	15.3
2	My	175	2.2	My	39	2.7
3	Me	62	0.8	Me	20	1.4
4	The author	24	0.3			
5	The writer	13	0.2			

Table 15 shows, the first five preferred forms of self mention in the BAWE corpus (out of a total of nine different forms). In the MU corpus, however, there were only three preferred forms. Linguistic forms such as 'mine', 'the author', 'the author's', 'this author', 'the writer' and 'the writer's' were uncommon in the MU corpus. Alluding themselves as 'the writer' or 'the author' in an expository essay may sound too formal as the topic of the essay is about persuading young people not to smoke. On the contrary, in the BAWE corpus, the topic for the academic assignment is formal and longer covering three broad disciplines: humanities, social sciences and science (Nesi et al, p.443). Therefore, their use may be deemed necessary.

It was also found that the three most preferred forms for both corpora were the same and these occur in the same order of frequency (highest to lowest). They are the first person pronoun, 'I', possessive pronoun, 'my', and the normative case of 'I' and 'me'. All these three forms allow writers to intrude into the text and signal their presence. Of the three forms, the first person pronoun, 'I', allows writers to invariably state their stand in relation to their arguments.

As found in the data display generated, the first person pronoun allows writers to categorically state their stand such as 'I strongly believe', 'I strongly discourage' or 'I absolutely agree'. In addition, the use of the first person pronoun also demonstrates the writers' personal feelings towards the proposition as in the expressions 'I hope', 'I admit', or 'I'm sure'.

In the BAWE corpus, the first person pronoun is also used for the same effect. Furthermore, writers also use the first person pronoun to inform the writers of their intention such as 'I will look at', 'I will then explore' and 'I will limit'. This can also be said for the use of linguistic expression 'me'. Similar to the use of the first person pronoun, the use of 'me' also indicates the writer's presence. As highlighted by Hyland (2005, p.53), the signaling of the writer's presence or absence in the text is a matter of the writer's conscious choice. In stating their stance, writers have the liberty to project their presence or distance themselves from their proposition depending on how they would like to relate their argument to their readers or their community's expectation.

The possessive pronoun is used to signal that the proposition given is entirely the writers' and not anyone else. They are expressed in linguistic choices such as 'in my opinion', 'in my essay', 'for my decision', 'in my view', etc.

CONCLUSION

There is much evidence in the use of MD in both the BAWE corpus and the MU, evidence made possible for easy display by the concordancing tool. While there were similarities in use, the results showed a major difference in the frequency of occurrence and distribution and variety of forms in both the corpora. The data supports the conclusion that the BAWE corpus exhibited a greater use of MD. The BAWE also showed more use of the interactive MD while the MU corpus exhibited more interactional MD. This phenomenon reflects that the BAWE writers could be more concerned with and were more aware of the internal structuring of their argument, while the writers of MU corpus were more inclined towards building readers' relationship in forwarding their arguments. The MU writers likely need to improve on the internal structuring of their text to show more sophistication in their writing.

Among the different categories of interactive MD, transitions seem to enjoy the highest frequency of use. This is not surprising as transitions consist of conjunctions that allow writers to link their ideas in the text and they are generally much emphasised in the teaching of writing. As for the least frequently used, frame markers dominate for the BAWE corpus and the endophoric markers for the MU corpus. The reason is likely that the essays in both the corpora are not exceptionally

long thus they do not enable the writers to exhibit a greater use of frame markers or endophoric markers.

For interactional MD, the use of hedges was more dominant in the BAWE corpus while in the MU corpus, engagement markers were most frequently used. This indicates that the BAWE writers are more conscious of the need to hedge while the MU writers appear to focus more on the building of solidarity with their readers to engage them in their arguments. It could also be construed that the more proficient BAWE writers were more aware of the demands of academic writing whereby hedging invites readers to accept the propositions made by the writer in a subtle way. The L2 MU writers, on the other hand, showed a preeminence of the use of the engagement marker 'we' as a solidarity marker. This marker if overused could sound overbearing. Again relative effects of MD need to be explained and greater use of hedges deserves more highlight in teaching L2 writing.

Apart from the frequency of use, the forms of MD between the two corpora are also markedly different. One common thread that runs through the BAWE corpora was the consistent use of a greater variety of forms among the BAWE writers. In addition, the forms in the BAWE corpus also had a higher number of electronic hits. Therefore, we can conclude that the BAWE writers as better writers were more conscious of the features of formal academic writing and were also able to use more appropriate and varied MD forms in the writings to convey their thoughts. In addition, it was also generally noted that the greater number of hits in the context of occurrences per 10,000 words seem to indicate that many of the MD features are spaced out. It could lead to the conclusion that MU writers use much shorter sentence construction for idea connection. A study into the connection between MD features and sentence length or idea units is potentially invigorating.

Although the MU writers had obtained a distinction (A1 and A2) in their English subject for their higher secondary school leaving certificate, their proficiency level of the English language still needs to be improved. As developing writers in the English language, they not only have to grapple with the syntactic and morphological rules of the language but also the writing genre conventions of a discourse community. This problem or difficulty was also voiced by Intaraprawat and Steffensen (1995). The lack of vocabulary and knowledge on syntactic rules of the language hamper the effort of some of the MU writers to construct meaningful sentences that would aid the readers' understanding of the texts. For these reasons, attempts to use metadiscoursal features were sometimes found in non-standard sentence construction. Therefore, from the results obtained, we can conclude that MU writers are still at the evolving writer's stage and have not approximated closely to the writing ability of the BAWE writers.

Writing is also culture bound and therefore may be characterised by idiosyncratic use. The same can be said of MD as a feature of writing (cf. Crismore et al1993; Dafouz-Milne 2008; Aertselaer 2008). However, in the case of undergraduate academic writing, the norm that instructors would aspire is one that is generally seen to be acceptable as good writing which can exist regardless of situation and place, though criterion features undoubtedly are influenced by L1 writing development from the west. In understanding emerging L2 writers using the English language, there is certainly a place for cross-cultural investigation to establish the 'norms' that characterise their writing and this would certainly include the use of MD. The explication of these particularised 'norms' would serve as a comparison between cultural perspectives to achieve an understanding of underlying influences in L2 writing, and thence could move to the next stage of showing a conscious adapting perhaps of prevalent expectations of a broader and more influential discourse community.

To conclude, some relevant points can be reiterated about technology and writing. First the electronic concordancing tool can be seen as a powerful facilitator in revealing textual differences between groups. Patterns of use and frequency of use of particular features of MD could not be so readily accessible had it not been for this facilitation. The electronic tool enabled the human eye to survey a comprehensive display of the forms of MD. Such a display would have been too complicated for the human hand to manage without technological aid. Using the tool has also given the researchers a means of analysis that is objective and fast once the parameters are set. The Internet has also helped pull together resources that are managed online such as the BAWE corpus, enabling open access that transcends borders.

In the age of the Internet, electronic texts captured in large corpora are now more amenable for comparative analysis. In this manner, standards are made available for researchers and in this case, to benchmark developmental writing. The learners could benefit as they can be made to be more consciously aware of the importance of writing conventions in the crafting of successful writing. The teacher, on the other hand, could use the output of the concordance lines as authentic teaching resources to raise students' awareness on the construction of linguistic realisations of appropriate MD accompanied by appropriate syntax and morphology of English language use. Exposing students to real life writing examples of how more experienced writers manage their writing will serve as an eye opener to the world of a wide array of rich discourse possibilities, and to the cultures of writing. New writing goals in education could evolve to guide undergraduate writers to greater writing maturity aided by technological use.

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APPENDIX

WRITING TASK

Duration: 1 hour 15 minutes

Situation:

You are concerned that despite efforts by the government to discourage young people from smoking, the number of smokers particularly among teenagers is on the rise. You are also unhappy about how cigarette companies have exploited young children in marketing their products. You have read several articles about the problem and extracts from three articles are shown below.

Extract A

Tobacco's Influence on Asian Youth
By: Simone Provence
http://bang-ishotyou.livejournal./2003/com/

As teenage girls are included in the group of young, and often underage, smokers, many tobacco advertisements in Asia are geared towards female's self-esteem to encourage them to smoke for a variety of reasons. In a mall in the Philippines during 1992 there was an advertisement of a beautiful, young Asian woman wearing a Marlboro jacket and hat surrounded by giant Marlboro signs and posters that caught the eyes of every shopper in the mall[5]. Similar events using highly attractive, young Asian women in Cambodia during 2001 and Vietnam in 1996 for cigarette ads lead young girls to believe that smoking makes them more attractive, and therefore they pick up the deadly, addicting habit[6]. Tobacco, specifically cigarettes, has been used as an appetite suppressant for years now, and young women world-wide still think that smoking will help prevent them from gaining weight. Movie advertisements in Asia reflect beautiful young women smoking cigarettes, which in turn leads to an increase in smoking among female teenagers who desire the beauty of the actress they see holding the cigarette.

Similar to the toy and video game advertisements, and aside from movie ads and rock stars that imply to young children and teens that smoking is cool, other children are also partly responsible for the increase in popularity of cigarette smoking. Lower class youth view fellow friends and classmates from higher income families as role models and look up to them. Those higher class youth are the ones who can afford to, and often do, smoke, which makes smoking look cool and desirable[10].

Extract B

Tobacco Control 2004;**13**:ii37-ii42

Industry sponsored youth smoking prevention programme in Malaysia: a case study in duplicity

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"We strongly believe that children should not smoke and that smoking should only be for adults who understand the risks associated with it". This statement was made by British American Tobacco (BAT) Malaysia in its first social report released in June 2002.1 Tobacco companies in Malaysia have been collaborating on youth smoking prevention programmes since 1994.2 The top three tobacco transnationals, BAT, Philip Morris (PM), and the former RJ Reynolds (RJR), have conducted three joint anti-smoking campaigns directed at youth: "Youth Should Not Smoke" (1997); "No Sale to Under 18s" (1998); "On top of the World-Without Smoking" (2001).

The Control of Tobacco Products Regulation 1993 banned direct tobacco advertisements, the sale of cigarettes to under 18 year olds, and prohibited this group from purchasing cigarettes or smoking. However, brand stretching activities and sponsorship of sports and entertainment events remained legal and extremely widespread.3 On average, every day about 50 teenagers below the age of 18 years start smoking in Malaysia and currently about one in five teenagers smoke.4 Smoking prevalence among teenage boys aged 12–18 years is 30% while smoking among girls has doubled from 4.8% in 1996 to 8% in 1999.4 The second national health and morbidity survey in 1996 reported the public health sector has not acted in a timely manner to curb the marketing tactics of the transnational tobacco companies and this "failure to act aggressively from the 1970s has made action in the 1990s more difficult".5 Between 1986 and 1996 there was a 67% increase in the number of teenage smokers.6 Ninety eight per cent of the tobacco market in Malaysia is controlled by transnational tobacco companies.7

In 1997 the Malaysian government fully endorsed the industry sponsored youth smoking prevention (YSP) programme. This endorsement put the tobacco industry in a favourable position to influence the government in its tobacco control efforts. While the influence of industry sponsored YSP programmes in preventing effective tobacco control legislation has already been documented,8–10 this paper provides further insight to a developing country's situation where, in the absence of a government anti-smoking campaign, the industry successfully used the YSP programme to counter legislation restricting tobacco marketing and continued to promote tobacco to youth.

Extract C

Table 1.1 Estimated death caused by cigarette smoking in Malaysia: 2005, 2006, 2007

	Estimated number of deaths caused by cigarette smoking	
Year	**Women**	**Men**
2005	8.5 %	21.4%
2006	8.8%	21.6%
2007	10.1%	22.3%

Source: *Health Digest*, January 2008

Task:

As a responsible journalist in a newspaper agency, write a 5 paragraph persuasive essay (which includes **an introductory paragraph, three developmental paragraphs and a concluding paragraph)** that discourages smoking among teenagers. Give at least **three** convincing reasons to explain your stand on the issue. To support your stand on the issue, you **have to do** the following:

- **Quote some of the information in extracts A and B in your essay.**
- **Insert Table 1.1 of Extract C in your essay and comment on the information provided in the table.**

You are allowed to add more points of your own.

The length of your essay should not be less than **500 words.** Before you begin writing, take 5-10 minutes to read the question and plan your essay. Then, in about 60 minutes, write your 5 paragraph essay. Use the last 5 minutes to revise or edit your essay.