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## Investigating the Information Technology Courses for Pre-service and In-service English Teachers in Hong Kong

Investigación de los cursos de tecnología de la información para profesores de inglés de pregrado y en ejercicio en Hong Kong

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This paper focuses on the views of twenty-six pre-service and eight in-service English teachers in Hong Kong concerning the information technology courses in their teacher education programmes. The findings of the study show that while both software applications and technological integration in teaching are highlighted in the course outline, the instructor focused more on the application aspect, with the technology integration being less emphasised. Another important finding is that PowerPoint was still the most commonly used application in teaching. Likewise, usually the involved pre-service and in-service teachers just simply used different computer applications as alternatives to traditional teaching resources. This may reflect the fact that the information technology courses are not adequate to prepare teachers to teach with it.

*Key words:* English teacher education, information technology courses, in-service teachers, pre-service teachers.

Este artículo se centra en las opiniones que tienen veintiséis profesores practicantes y ocho profesores de inglés en Hong Kong sobre los cursos de información de tecnología en sus programas de licenciatura. Los resultados muestran que mientras las aplicaciones de *software* y la integración de tecnología se destacan en el esquema del curso, el instructor se enfoca más en los aspectos de aplicación. A su vez, la integración de tecnología no tuvo tanto énfasis. Otro hallazgo importante es que Power Point siguió siendo la aplicación más empleada en la enseñanza. Asimismo, los docentes y profesores practicantes involucrados generalmente solo usan diferentes aplicaciones de computadores como alternativas a los recursos de enseñanza tradicional. Esto puede reflejar el hecho de que los cursos de información de tecnología no son adecuados para preparar a los profesores para hacer uso de esta en su labor educativa.

*Palabras clave:* cursos de información de tecnología, formación de profesores de inglés, profesores en ejercicio, profesores en formación.

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## Introduction

Information technology (IT, the term more commonly used in Hong Kong) or information and communication technology (ICT) has played an important role in the school education in Hong Kong since the former Chief Executive, Tung Chee Hwa, announced the IT initiatives in his Policy Address of 1997. However, the problem was that teachers in general had little knowledge of using IT to teach and the IT culture at schools, especially primary schools, was not strong enough. Thus, one of the initiatives to show the government's serious commitment to IT in education was by providing over 45,000 training places for teachers in 1997 (Education and Manpower Bureau, 1998). In addition, the government set the long-term targets for teacher training in its document, *Information Technology for Learning in a New Era: Five-Year Strategy 1998/99 to 2002/03* as shown below:

- By the 2000/01 school year:
- All teachers reach at least the "basic" level<sup>1</sup> of IT competency;
- All graduates of pre-service teacher education programmes reach at least the "competent" level<sup>2</sup> of competency;
- By the 2002/03 school year:
- About 75% of the teachers reach at least the "comfortable" level<sup>3</sup>;

<sup>1</sup> "Awareness of the need to take up the new role as a learning facilitator, general computer operation and basic skills such as word-processing, surfing through the Internet, as well as operating readily available educational software" (Education and Manpower Bureau, 1998, p. 11).

<sup>2</sup> That is the Upper Intermediate Level which refers to the "capability to handle computer networking, resolve simple hardware and software problems, make more advanced use of authorware for lesson preparation etc., and understand the characteristics and uses of different IT tools and resources" (Education and Manpower Bureau, 1998, p. 11).

<sup>3</sup> That is the Intermediate Level which refers to the "capability to use IT tools and make use of teaching resources available on the Internet and the Intranet etc. in classroom teaching and lesson preparation" (Education and Manpower Bureau, 1998, p. 11).

- About 25% of the teachers reach at least the "competent" level; and
- One to two teachers in each school reach the "creative" level<sup>4</sup> (Education and Manpower Bureau, 1998, p. 13)

With these long-term targets, by the end of the 2002/03 school year, all teachers had attained the Basic Level, 77% of the teachers the Intermediate Level, 27% of the teachers the Upper Intermediate Level and 6% of the teachers the Advanced Level. However, "while all teachers have been provided with basic training in the use of IT, many are still not familiar with the application of IT to enhance the effectiveness of learning and teaching" (Education and Manpower Bureau, 2004, p. 7), though many of them (86% of the primary school teachers and 71% of the secondary school teachers) agree that using IT can make teaching more effective (Education Bureau, 2007). IT in education is perceived by both school heads and teachers as one of the major forces contributing to the progress of the implementation of curriculum reform. Nevertheless, according to the figure provided by the Education Bureau (2007), only about 50% of the teachers in Hong Kong indicated that they use IT frequently in class. Therefore, one of the actions suggested by the Education Bureau (2007) is to continue to sharpen teachers' IT pedagogical skills by revising the existing IT professional development framework for teachers. The revised framework highlights four dimensions: technical knowledge, pedagogical integration, managing and leading IT, and socio-cultural awareness in using IT (Education Bureau, 2007).

<sup>4</sup> That is the Advanced Level which refers to the "capability to understand the functions of computer managed instruction systems, evaluate the effectiveness of instructional computer programs, design instructional materials with use of IT, and choose appropriate IT equipment to meet a school's needs" (Education and Manpower Bureau, 1998, p. 11).

IT training courses have been offered to all first year undergraduate students in the researcher's Institute (a publicly-funded teacher training institute in Hong Kong, with around 7,000 students attending it) as compulsory modules since the government's implementation of the Five-Year Strategy in 1998. The specially developed IT courses for English majors have also been offered by the Department of English for a number of years. This drives the motivation of the researcher, as the instructor of the courses, to conduct the present study which aims to investigate whether or not the IT courses offered are adequate for strengthening the pre-service and in-service English teachers' technical knowledge and sharpening their IT pedagogical skills. With these two dimensions being highlighted, will the teachers use IT in their teaching more frequently? These are the key issues that will be dealt with in this paper.

This paper is structured in the following ways: First, the related literature about IT courses for teachers is briefly reviewed. Then, the research approach and method used are described. Following that, the data collected are presented. Finally, the findings are discussed and the implications for IT courses in teacher education programmes are suggested.

### **An Overview of the Professional Training Courses for Teachers**

An IT course for teachers not only needs to teach them to use IT but also how to use IT to teach. Dawes (2001) quoted some of the key elements of effective teacher training from the Teacher Training Agency (TTA), which includes an identification of the current IT level of the teachers, the required IT knowledge, pedagogical applications of IT, and time for practising what has been taught as well as considering ways to integrate IT into teaching.

Siddiqui (2004) adds that the IT course is most effective if it addresses the real problems faced by teachers when they integrate technology into their own teaching and can "model the forms of pedagogy that teachers can use in their classrooms" (p. 252).

In terms of the format, the IT course needs to combine lecture with discussion, individual and collaborative activities and opportunities for teachers to reflect on how to integrate what they have learnt into their own teaching. An optimal IT course should be the one that can "combine instruction with discussion, reflection, application, and evaluation" (Siddiqui, 2004, p. 253).

Watson (2001) suggests that whether or not teachers are willing and have the ability to integrate IT into their teaching depends largely on the professional development they receive. She also identifies four approaches of IT professional development: the 'Home-grown Expert', the 'Comfortable Shoes' Approach, 'Let Them Struggle' and the 'Killer Application'. In the first approach, the tutor him/herself is a school teacher who knows clearly what works and what does not in teaching. The second approach, the 'Comfortable Shoes' Approach to professional development, starts with the tutor's demonstration and then the teachers work in small groups or individually. For the third approach, the tutor takes on the responsibility "to model the guide on the side role" (p. 187). Finally, the 'Killer Application' approach adopts some attractive IT applications to make teachers feel interested in using IT.

When using IT as a means to enhance students' learning, Cox (1997) emphasises the importance of a substantial change in pedagogical practice. Watson (2001, p. 183) also suggests a change which involves "change in the way teachers think about teaching and in their teaching practices". King (2002) revealed three themes of perspective transformation in the teachers' educational practice in her study of 175

teachers enrolled in graduate education technology courses. These include changes in teaching methods, changes in preparation and research methods, and increased self-confidence. For teacher preparation and research methods, teachers will prepare new types of teaching materials (e.g. Power Point presentations) and collect resources from the web. For self-confidence, teachers become more confident and are ready to explore how to use technology to support their teaching.

There are numerous research studies that investigate the effectiveness of information technology programmes in teacher education e.g. Wild (1995), Simpson et al. (1998), etc. While the technology courses may play a role in equipping teachers with knowledge and skills to use IT in their teaching, there are some barriers that may hinder technology integration in the classrooms. These problems include a tight teaching schedule bounded by a heavy-content curriculum (Dawes, 2001), time constraints, heavy workload (Davis & Smith, 2006), and the lack of parental cooperation/involvement (Strudler, et al., 1999).

Unlike Wild's (1995) study, which highlighted the IT applications used by the student teachers during their teaching practice, this study aims to find out whether or not the IT courses offered in the teacher education programmes are effective in preparing the participants to use IT in their teaching. As in the study by Bronack et al., (1999) the viewpoints of the involved pre-service and in-service teachers were gathered. To achieve the aim of the study, the following research questions were asked:

1. What are the involved pre-service and in-service English teachers' views of the IT courses in their teacher education programmes?
2. Do the teachers use IT in their teaching more frequently after finishing the IT courses in their teacher education programmes?

3. If so, what computer applications do the teachers use frequently and how do they use the applications in their teaching?

### Design of the Study

To answer the aforementioned research questions, the IT courses taught by the researcher were investigated. The participants involved and the IT courses studied are described first, followed by the instruments and procedures of the study.

### Participants

A total of 34 participants ( $n = 34$ ) (26 pre-service and 8 in-service English teachers) were involved in this study. Among all of them, only 5 were males and 29 were females. It has to be acknowledged that the uneven number of pre-service and in-service teachers and male and female participants may affect the generalisation of the study. The pre-service teachers were final-year students of the four-year full-time BA (Contemporary English and Education) programme, whereas the in-service teachers were second and third-year students of the three-year Mixed Mode<sup>5</sup> BED (Language Teaching) programme for serving non-graduate primary or secondary teachers offered by the teacher training institute in Hong Kong. The BA students' (4 males and 22 females) ages ranged between 21 and 25 with an IT level of competency of Upper Intermediate level. They were all pre-service, secondary school English teachers. For the in-service teachers (1 male and 7 females), their ages ranged between 26 and 45. One of them was a secondary school teacher and the others were all teaching in primary schools with their teaching experience ranging from 7 to 20 years. Regarding the attained IT level of competency, 43% of them had attained Intermediate level, 43% had Upper Intermediate level and one of them (14%) had Advanced level.

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5 Six part-time semesters plus 2 full-time summer blocks.

### The IT Courses

The IT courses investigated in this study were particularly designed for the pre-service and in-service English teachers in Hong Kong. The course undertaken by the BA students was named *Integrating Information Technology in the ESL Classroom*. It was a core module for Year 4 students whereas the BED course was called *Integrating Information Technology in ELT* which was an elective module offered for Year 2 or Year 3 participants. The two courses had the same number of teaching hours (30) spread over 10 to 15 weeks. There were 10 sessions in the BA course (one three-hour session each week) while the BED course had 15 sessions (two hours each session and there was only one session per week). The objectives and content of these two courses are more or less the same. They are aimed to enable participants to achieve the following:

- a. develop an understanding of the principles, concepts and roles underpinning the integration of information technology into English language teaching and learning;
- b. understand how information technology can be used to support and enhance the teaching and learning of English; and
- c. develop and evaluate teaching and learning activities and applications that involve the use of information technology to support English language teaching and learning (Department of English, 2005). The details of the content of the two courses are shown in Table 1.

For the teaching and learning activities, only a small amount of class time was spent on lecturing. Most of the time was given to participants' hands-on practice of the software introduced, sharing and discussing how the introduced software and resources could be integrated into English language teaching and learning. The assessment tasks of the two courses are the same,

including: i) a design of an IT application (e.g. an electronic storybook, WebQuest, etc.) suitable for use with primary or secondary students; and ii) a written assignment explaining the principles of the integration of IT and the design and procedures for using the designed IT application in English language teaching (Department of English, 2005).

**Table 1.** The Objectives and Content of the Two IT Courses

Objectives	Course Content
a.	<ul style="list-style-type: none"> <li>• Introduction to the rationale, principles, concepts and roles underpinning the integration of IT in English language teaching and learning.</li> </ul>
b.	<ul style="list-style-type: none"> <li>• Designing an electronic storybook with Story Maker or PowerPoint.</li> <li>• Exploring pedagogical implications of using IT to support students' English oral fluency and literacy development.</li> <li>• Using the Web for English language teaching and learning.</li> <li>• Introduction to the use of SMART Board.</li> <li>• Introduction to the use of Multi-media Learning Centre.</li> <li>• Pedagogical applications of corpus linguistics</li> </ul>
c.	<ul style="list-style-type: none"> <li>• Critical evaluation and pedagogical application of software applications for English language teaching and learning.</li> <li>• Evaluating the roles and possibilities of integrating IT into English language teaching and learning.</li> </ul>

### Instruments and Procedures

This study adopted both quantitative and qualitative methods of data collection. The instruments

included both a questionnaire and interviews. The questionnaire was developed by the researcher and was first piloted with another group of BED English-major students. Some unclear wording was changed based on their feedback. The revised questionnaire was then checked by the coordinator of the IT courses in the English Department. The questionnaire was distributed to the involved pre-service and in-service English teachers in the last session of the two courses to find out their perceptions of the IT courses. Except for Section I, which elicited the participants' personal details including their ages, years of teaching experience (for the in-service participants only) and IT competency level, all the question items (statements that are aimed to elicit respondents' perceptions of the effectiveness of the IT courses) were on a 4-point Likert Scale, ranging from 'Strongly agree' to 'Strongly disagree' (4 = 'Strongly agree'; 3 = 'Agree'; 2 = 'Disagree'; 1 = 'Strongly disagree'). A 'Neutral' option was avoided because Busch (1993, p. 735) thinks that "neutrality can lead to indecisive data". Twenty-six questionnaires were given out to the involved pre-service English teachers, with 20 questionnaires completed fully and returned to the researcher (i.e. 76.9% return rate). For those in-service English teachers involved, 8 questionnaires were distributed and 7 were returned (87.5% return rate).

At the end of the participants' field experience<sup>6</sup> (about six months after the IT courses), another set of questionnaires, which was comprised of both open and closed questions, was sent to the participants through e-mail to find out whether or not they used computers in their teaching more often than before; which computer application(s) introduced in past courses had they used, and how often they

used computers in their teaching. Like Wild's (1995) study, this questionnaire was completed one week after the participants' teaching practice. The completed questionnaires were returned to the researcher through e-mail. The return rate for the pre-service participants was 61.5% and all the returned questionnaires were from the female students. Then, among the in-service participants, the return rate of the questionnaires was 87.5%.

Semi-structured interviews (see Appendix A for the interview questions) were also conducted with three pre-service and three in-service participants at the end of their field experience. They were selected by convenience sampling because they were the researcher's supervisees in the field experience. However, the participants' participation in the interviews was totally voluntary with their consent having been obtained beforehand. These six English teachers (two males and four females) were interviewed so as to obtain more information about their use of computers in teaching. The interviews were audio recorded, transcribed and analysed qualitatively by the researcher using content analysis. Through reading the interview transcripts carefully and in detail, central themes emerged and the data were then summarised in a systematic way. After that, the data were verified by the IT course coordinator, as an independent coder, to examine whether or not the same patterns emerge again (Seliger & Shohamy, 1989). The agreement in coding between the two coders was above 80%.

## Results

To answer the research questions suggested at the beginning of this paper, the data collected through the questionnaire and interviews are presented in this section. With the use of a coding method, certain categories came out. For coding, it is defined by Gibbs (2007, p. 38) as "a way of

<sup>6</sup> Field experience is one of the graduation requirements for both the pre-service or in-service teachers in their BA and BED programmes.

indexing or categorizing the text in order to establish a framework of thematic ideas about it". By using qualitative content analysis (Flick, 2002), central themes which were relevant for answering the research questions, including the teachers' views of the IT courses, their use of IT in teaching and the computer applications used in their IT, emerged.

### Teachers' Views of the IT Courses

Overall, the results of the questionnaire show that the involved pre-service and in-service English teachers were rather positive about the IT courses offered in their BA and BED programmes. From the figures shown in Appendix B, it can be seen that, except for the responses given by the pre-service participants in items 3, 4, 12 and 15, the mean of many items is 3.00 or above. For the responses given by those in-service participants, no items are below a mean of 3.00. Some positive feedback about the courses can be found in the open-ended question of the questionnaire:

It was a good opportunity to learn some IT skills that are useful to my daily teaching such as creating an e-book and a WebQuest. Also, the software introduced in the course is user-friendly. (In-service Respondent 1)

I treasure the ample and useful websites suggested by the course instructor. (In-service Respondent 6)

Although the respondents were satisfied with the IT courses in general, 32% of the pre-service participants disagreed and strongly disagreed that they felt more confident in using IT (Item 3) after finishing the course ( $M=2.65$ ;  $SD=0.75$ ). Some illustrative views obtained from the follow-up interviews (the names of the participants listed below are pseudonyms) include the following:

No. Familiarity breeds confidence. The IT course acquainted us with different programs, but not familiarizes us with them ... The lack of intermittent assignments during the course prevented any deep understanding of the use of different software. (Patrick)

Not quite because I have already acquired the computer literacy skills taught in the course. The course content is a bit easy for me. (Cynthia)

Regarding the integration of IT into English language teaching, there is some contradiction in the results obtained. While only one pre-service participant disagreed with the item, 'The IT course is effective in making me become more confident to integrate IT into English language teaching' (Item 5), four pre-service participants (20%) and one in-service participant disagreed that they felt more confident about integrating IT into English language teaching (Item 4) ( $M=2.90$ ;  $SD=0.55$  and  $M=3.14$ ;  $SD=0.69$  for the pre-service and in-service participants, respectively). Below is some negative feedback, collected from the interviews, of the participants:

No. The course introduced me to the rationale behind using IT, and how various applications may be used in the context of teaching. However, they were only some theories and were not integrated into micro-teaching. This puts a disjunction between knowledge and practice, which does not allow 'confidence of using computers in classroom teaching' to develop. (Patrick)

The course familiarized us with the use of many different kinds of computer applications such as audio and video capturing. However, the instructor did not give us adequate opportunities to have discussion and reflect on how the applications can be applied in teaching. I also expect her (the instructor) to give more lectures on technology integration theories. (Annie)

Despite having the techniques, my ideas of integrating IT into English language teaching are still not very clear and concrete. The course helps me to understand the teaching theories more than the techniques. (Connie)

### Teachers' Use of IT in Teaching

The questionnaires returned by both the pre-service and in-service participants after their field experience show that most of them had used IT



in their teaching (87% for the pre-service and all the in-service participants). Also, 75% and 100% of them agreed and strongly agreed that after taking the IT courses they use IT in their English language teaching more often than before. One illustrative comment given by a participant is presented below:

I use IT more often than before because I can use other kinds of computer applications, not just PowerPoint, in my English language teaching. For example, I can make e-books of some readers or storybooks which do not have the e-version. (In-service Participant 7)

For those who had used IT in their teaching, slightly more than half of the pre-service participants (57%) indicated that they used IT in most of the teaching, while 57% of the in-service participants used IT at more than half of their teaching time.

Regarding the reasons some pre-service participants did not use IT in their teaching, 44% of them indicated a time consuming and tight teaching schedule, followed by heavy workload (19%), lack of relevant teaching resources in the school (15%), avoidance of technical problems that may occur (11%), poor school facilities (7%), and lack of ideas integrating IT into English language teaching (4%). Avoidance of technical problems, lack of relevant resources and poor facilities in the

school as well as tight teaching schedules were also suggested by the in-service participants as their reasons for not using computers in their teaching (see Table 2 for details).

Other reasons for not using IT in teaching mentioned by the participants in the open-ended question of the questionnaire and the follow-up interviews include:

Undoubtedly, using computers (especially using PowerPoint) can draw students' attention. However, I wonder if the use of computers would affect the interaction between the teacher and the students as they may only focus on the screen. (Pre-service Participant 14)

There is no such a culture among my colleagues to use IT in English language teaching and students are still required to do their compositions in handwriting. (In-service Participant 6)

Actually, the course was good in terms of letting me know different useful software that I can use in teaching. However, my school did not have these kinds of software and so I didn't have a chance to further explore the use of them. (In-service Participant 3)

Basically, it made no increase in the frequency of my use (of IT) because of my wanting to cope, in the first place, with the role of being a teacher and its various chores, e.g., lesson planning, rather than spending time on designing IT teaching materials. Also, the class I taught would have their public exam next year. The teaching schedule was so tight that made me don't want to use IT because it's too time-consuming to do that. (Cynthia, a pre-service participant)

**Table 2.** Reasons for Not Using IT in English Language Teaching

Reasons for not using IT in English language teaching	Pre-service Teachers		In-service Teachers	
	N	%	N	%
Lack of ideas of integrating IT into English language teaching	1	4	0	0
Avoidance of technical problems that may occur	3	11	2	40
Lack of relevant teaching resources in the school	4	15	1	20
Poor school facilities	2	7	1	20
Heavy workload	5	19	0	0
Time consumption	6	22	0	0
Tight teaching schedule	6	22	1	20

To briefly conclude, the IT courses offered in the teacher training programmes may not guarantee teachers' frequent use of IT in teaching because the culture of using IT and the availability of necessary resources in their schools are factors that determine their use of IT. Another important issue is that while it is considered that IT can facilitate teaching, achieving the key teaching objectives is more essential.

### Computer Applications Used in Teaching

Among those pre-service participants who indicated that they had used IT in their teaching, 52% of them used PowerPoint and Internet resources, followed by word processing (25%), VCDs and/or DVDs (13%), Multimedia Learning Centre (MMLC) (6%) and E-books (4%). For the in-service participants, Word and PowerPoint were most commonly used (40%), followed by E-books (18%), Internet resources (18%), and VCDs and/or DVDs (18%). A few of them (6%) used the MMLC system and Flash animation. Table 3 below shows the computer applications used by the participants in their English language teaching.

With regard to the ways IT was used in teaching explored from the interviews, the involved pre-service and in-service teachers tried to apply what they had learned in the IT courses and used

computers in different ways instead of using PowerPoint presentations only. The following are some examples mentioned by the participants:

#### Pre-service participants:

I used PowerPoint very often in my teaching, with pictures searched from the Internet. (Annie)

For the Form 4 class I taught, as they will have their public exam very soon, my teaching was just in a traditional form of direct knowledge transmission and I usually used Word to show students the answers. But I also used the Internet resources and played YouTube videos. (Cynthia)

#### In-service participants:

I often surf the Internet to find some pictures and video clips about a certain lesson topic and then show them to my students in the classroom. Interactive games from the Internet are also used to teach grammar to make the lessons more fun. (Emma)

For the P1 (grade one) class I teach, I've tried to create an e-book adapted from a print storybook. With the audio and visual effects, the children found reading very interesting. (Connie)

At the end of the first term, I used WebQuest to guide my P6 (grade six) students to complete a project. The students need to search information from the Internet and analyse the acquired knowledge. At the end, each group had to do a PowerPoint presentation. (Tony)

To summarise, the teacher participants had tried to apply the different types of computer applications in their teaching. This was done after

**Table 3.** Computer Applications Used in English Language Teaching

Computer applications used in English language teaching	Pre-service Teachers		In-service Teachers	
	N	%	N	%
Word	13	25	7	20
PowerPoint	14	26	7	20
E-books/Electronic storybooks	2	4	6	18
Internet resources (including YouTube videos and movie trailers)	14	26	6	18
VCDs and/or DVDs	7	13	6	18
Multimedia Learning Centre (MMLC)	3	6	1	3
Flash	0	0	1	3

finishing the IT courses offered in their teacher training programmes as well as based on the objectives they wanted to achieve in the lessons.

### **Discussion and Conclusions**

This study investigated the IT courses for pre-service and in-service English teachers offered by the teacher training institute in Hong Kong. The results obtained from the questionnaire and interviews are not consistent. From the findings of the questionnaire, it can be discovered that the pre-service and in-service English teachers involved were generally satisfied with the IT courses offered in their BA/BED programmes. However, contradictory results were obtained from the follow-up interviews. The interviewees were rather negative about the course, particularly in the aspect of technology integration. One of the interviewees mentioned that she had already been competent in using the software introduced in the course. Three interviewees also mentioned that they did not feel confident to integrate IT into their teaching. This aspect is similar to the results of previous research studies (e.g. Wild, 1995; Simpson et al., 1998), which usually found that the IT courses in teacher education programmes were not adequate to prepare students to use IT in classrooms confidently because more emphasis of the technology programmes was put on the basic operation of computer software, with less teaching time being devoted to the pedagogical use of IT. The participants in this study did not have great confidence in using IT in English language teaching because the instructor introduced a lot of computer software and theories about using IT but did not give them enough opportunities to have discussions and reflections on how different IT applications can be used in teaching.

Regarding the use of IT in teaching, many pre-service and all in-service English teachers involved in this study used IT in their teaching more than

before after finishing the IT courses. Nevertheless, competency in computer operation does not guarantee frequent use of IT because teachers' uptake of IT in their teaching may be hindered by other factors such as tight teaching schedules, lack of relevant resources and poor facilities in schools. Definitely, the uptake of information technology in teaching should not only be determined by the frequency of its use. What is even more essential, in fact, is the consideration of the pedagogical purpose of using IT. The higher frequency of IT use is not the best strategy but, as the title of the Consultation Document on the Third Strategy on Information Technology in Education published in 2007 suggests, teachers should use the 'Right Technology at the Right Time for the Right Task'.

Finally, for the computer applications used in teaching, PowerPoint was still the most commonly used application among the involved pre-service and in-service teachers, though Word and Internet resources were also used by many of them. However, usually the participants simply used the different computer applications as substitutes for those traditional teaching resources (e.g. showing answers using Word) or for motivating students (e.g. converting a print storybook into an e-book to arouse students' reading interests).

### **Implications for Information Technology Courses in Teacher Education Programmes**

Based on the results of this study, a number of implications can be drawn for information technology courses in teacher education programmes.

First, teacher educators should try to strike a balance to familiarise participants with the operation of different software and computer applications and how these software applications can be used in their teaching. However, the 30-hour IT courses offered the pre-service and in-service English teachers may

not guarantee their developing competence in IT and putting it into practice because teacher change is a complex process which certainly requires the teachers to be mentored and coached in their own classrooms by either the course instructors or more competent peers.

With the teachers in Hong Kong who have attained at least a 'basic' level or even 'competent' level of IT competency and for pre-service teachers, computer operation and software applications are not a problem for them. What is more important is technology integration into the curriculum. Providing participants with more opportunities to have discussions on how the software and computer applications introduced in the course can be applied in teaching is essential, especially for those pre-service teachers who do not have much teaching experience. The contents of the IT courses for the pre-service and in-service teachers need not be the same. As noticed in the interview responses, the pre-service and in-service teachers were different in terms of their IT competence with the pre-service participants as already advanced IT users rather than only possessing a familiarity with PowerPoint and word processing. The difference in expertise and skills needs to be taken into consideration when proposing the IT courses in teacher education programmes in the future.

In assessment, microteaching should be included as one of the assessment components. In the investigated IT courses, the two assessment tasks (i.e. the design of an IT application and the written essay) can only assess participants' technical skills, and knowledge about the technology integration theories and academic writing skills. Achieving a high grade in the course does not mean that the participants have the appropriate competence in technology integration. By including microteaching, the participants can have

opportunities to try integrating the IT knowledge into real teaching. They should also be required to keep reflective journals so as to allow them to have more reflections on how the IT knowledge acquired can be applied to teaching.

Finally, in the information technology courses in teacher education programmes, teacher educators should highlight the importance of using IT to develop students' higher-order thinking skills through, for example, the use of WebQuest and other project work. Teacher participants should also be given opportunities to practice using educational software that makes learning more meaningful and supports students' critical thinking (Mehlinger & Powers, 2002).

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## **Appendix A. Questions for the Interview**

1. Did you use IT in your teaching previously (before taking the IT course)? If yes, what applications did you use? / If not, why?
2. Do you use IT in your English language teaching more frequently after taking the IT course of your BA/BED programme? Why/Why not?
3. What computer application(s) do you usually use in your English language teaching?
4. Do you think the IT course of the BA/BED programme is effective in giving you more confidence in using computers? Why/Why not?
5. Do you think the IT course of the BA/BED programme is effective in giving you more confidence to integrate IT into English language teaching? Why/Why not?
6. Do you think the IT course of the BA/BED programme is effective in giving you more ideas of integrating IT into English language teaching? Why/Why not?
7. After finishing the IT course of the BA/BED programme, how much do you know about the rationale behind using IT in English language teaching? (i.e. What are the reasons for integrating IT in English language teaching?)
8. Do you think you can achieve these in your English language teaching? Tell me one or two instances to illustrate that.

### Appendix B. Summary of the Findings of the Post-IT Course Questionnaire

Questionnaire Items	SA	A	D	SD	M	*SD
Teachers' views of the effectiveness of the IT courses						
1. I have developed an understanding of the principles, concepts and roles underpinning the integration of IT into English language teaching and learning.						
Pre-service teachers	3 (15%)	17 (85%)	0 (0%)	0 (0%)	3.15	0.37
In-service teachers	2 (29%)	5 (71%)	0 (0%)	0 (0%)	3.29	0.49
2. I have developed an understanding of how IT can be used to support and enhance the teaching and learning of English.						
Pre-service teachers	2 (10%)	18 (90%)	0 (0%)	0 (0%)	3.10	0.31
In-service teachers	3 (43%)	4 (57%)	0 (0%)	0 (0%)	3.43	0.53
3. I feel more confident using IT.						
Pre-service teachers	1 (5%)	12 (63%)	4 (21%)	2 (11%)	2.65	0.75
In-service teachers	2 (29%)	5 (71%)	0 (0%)	0 (0%)	3.29	0.49
4. I feel more confident to integrate IT into English language teaching.						
Pre-service teachers	2 (10%)	14 (70%)	4 (20%)	0 (0%)	2.90	0.55
In-service teachers	2 (29%)	4 (57%)	1 (14%)	0 (0%)	3.14	0.69
5. The IT course is effective in giving me more confidence to integrate IT into English language teaching.						
Pre-service teachers	3 (15%)	16 (80%)	1 (5%)	0 (0%)	3.10	0.45
In-service teachers	6 (86%)	1 (14%)	0 (0%)	0 (0%)	3.86	0.38
6. The IT course is effective in giving me more ideas of integrating IT into English language teaching.						
Pre-service teachers	12 (60%)	7 (35%)	1 (5%)	0 (0%)	3.55	0.60
In-service teachers	6 (86%)	1 (14%)	0 (0%)	0 (0%)	3.86	0.38
7. I am capable of downloading some listening materials from the Internet or other audio resources.						
Pre-service teachers	5 (25%)	14 (70%)	0 (0%)	1 (5%)	3.15	0.67
In-service teachers	1 (14%)	5 (72%)	1 (14%)	0 (0%)	3.00	0.58
8. I am capable of downloading some video clips from VCDs or DVDs.						
Pre-service teachers	5 (25%)	13 (65%)	1 (5%)	1 (5%)	3.10	0.72
In-service teachers	1 (14%)	5 (72%)	1 (14%)	0 (0%)	3.00	0.58

9. I am capable of downloading some video clips from YouTube.						
Pre-service teachers	8 (40%)	12 (60%)	0 (0%)	0 (0%)	3.40	0.50
In-service teachers	1 (14%)	5 (72%)	1 (14%)	0 (0%)	3.00	0.58
10. I am capable of creating some interactive exercises by using Hot Potatoes.						
Pre-service teachers	8 (40%)	11 (55%)	0 (0%)	1 (5%)	3.30	0.73
In-service teachers	3 (43%)	4 (57%)	0 (0%)	0 (0%)	3.43	0.53
11. I understand that the word processor is a good tool to develop students' writing skills.						
Pre-service teachers	2 (10%)	14 (70%)	4 (20%)	0 (0%)	2.90	0.55
In-service teachers	2 (29%)	5 (71%)	0 (0%)	0 (0%)	3.29	0.49
12. I am able to use movie trailers as a kind of English teaching resources.						
Pre-service teachers	6 (30%)	14 (70%)	0 (0%)	0 (0%)	3.30	0.47
In-service teachers	2 (29%)	5 (71%)	0 (0%)	0 (0%)	3.29	0.49
13. I am able to choose suitable Internet resources for English language teaching.						
Pre-service teachers	4 (20%)	15 (75%)	1 (5%)	0 (0%)	3.21	0.42
In-service teachers	5 (71%)	2 (29%)	0 (0%)	0 (0%)	3.71	0.49
14. I am able to use IT to develop students' higher-order thinking skills.						
Pre-service teachers	2 (10%)	16 (80%)	2 (10%)	0 (0%)	2.95	0.51
In-service teachers	5 (71%)	2 (29%)	0 (0%)	0 (0%)	3.71	0.49
15. I am able to use IT to facilitate students' self-learning capabilities.						
Pre-service teachers	2 (11%)	16 (84%)	1 (5%)	0 (0%)	3.05	0.39
In-service teachers	5 (71%)	2 (29%)	0 (0%)	0 (0%)	3.71	0.49

Notes: 1. The numbers in the mean column are scores on a 4-point Likert scale.

SA = Strongly agree; A = Agree; D = Disagree; SD = Strongly disagree; M = Mean; \*SD = Standard deviation