

## A Critical Review and Analysis: What Role of ICT Plays in Improving Professional Teachers' English Instruction?

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### ABSTRACT

This article reviews the Information and Communications Technology (ICT) in improving College English Language Teaching (ELT) of China. Drawing upon evidence and theories in the preliminary literature, the study reveals that it could be seen that in the long run of history, the application and adoption of ICT on English intrusion has many merits in Chinese Colleges environment; And insufficient teachers' development needs to improve during the Implementation of specific ICT. It reflects the literature and provides useful evidence in the field; Also, gaps in the current knowledge in question and the possible future exploration are shown. It summarises some new directions for future explorations, particularly regarding Digital-assisted teaching research in China.

### INTRODUCTION

Intensive research concerning harnessing technologies in education, or to be exact, in English language teaching has been explored by many researchers in the field of Second Language Acquisition (SLA). Building from what has come before, this paper principally reviews the Information and Communication and Technology or new technology regarding improving English Language Teaching at the tertiary level of China. In an attempt to explore the role that ICT plays in English language learning and teachers' professional development at Chinese college level up to date, or rather, from 1980s to 2017, relevant literature and data in the world with reference to ICT integration in enhancing English Language Teaching have been presented and reviewed in a chronological order as the following sections.

In what follows, the article tries to answer the following research question: What role of ICT plays in ELT of China and how teachers employ it to improve their teaching? Drawing upon evidence and theories in the preliminary literature, the current literature review consists of five sections. At the very beginning, the Introduction

section is given, including the aim, research question and the article's structure in question. The second section gives the historical account of ICT and its relevance in general, which incorporates the types of technologies that are popularly used, the evidence of the increasing use of technologies, and specifically, its use in English language teaching in the context of global development. With respect to the domain of English language teaching, the third section highlights the importance of teachers and introduces the relationship between ICT and teachers, keys terms in relation to English teachers' development such as the definition of Expertise, Continuing Professional Development, 'Digi-teachers' and so forth. As the main body of the review, the fourth section provides a growing body of literature review on ICT implementation in college English instruction in the context of China, which begins with background knowledge of ELT relating ICT in Chinese universities and then synthesizes seminal findings from the prior research. Finally, a conclusion is given to identify the gap in the current knowledge in question and the possible future exploration is shown as well to address the gaps in today's China.

## THE HISTORICAL OVERVIEW OF ICT

### Born of The Term--ICT in Education

“The use of ICT in education has a relatively short history” (Wellington, 2005, p. 25). At the very beginning of the early 1980s, societies made a start with paying more attention to the development of technology and its good impacts in education (Gudmund, cited in Pelgrum & Law, 2000). During this period, computers had been introduced by many education systems (T.Neville, cited in Pelgrum & Law, 2000). Subsequently, it was near the end of the 1980s that the terminology of ‘information technology (IT)’ occurred in the research field and was used for describing the “store and retrieve information” technics (Pelgrum & Law, 2000, p.19). Later, approximately in 1992, the term of “information and communication technologies” as ICT appeared with the utilization of e-mail (Pelgrum & Law, 2000, 19). It was until the end of the twentieth century that ICT was not only as a “school subject” that needed to be learned by students but also a “facilitator for major education reforms” (Pelgrum & Law, 2000, p.21).

### Types of ICT in Language Education

The ubiquity of technology is generally recognized. In terms of the types of ICT, first and foremost, literature about ICT-related language learning was in line with the Computer-assisted Language Learning (CALL)’s history (Levy, 1997, cited in Hu, 2009). As the principal representative of ICT use in the past, specifically speaking, Computer-assisted Language Learning (CALL) commenced at the early 1970s (Levy, 1997). Nowadays, great shifts have been met too. With the development of science in the world, in contrast, new technologies are expanded to several types these days, as introduced by Goodwyn, Protopsaltis and Fuller’s report in 2009, technologies such as “Interactive whiteboard”, “Cameras, Laptops”, “VLE (Virtual Learning Environment)”, “Blogs”, “PCs”, “Internet”, “Emails”, “Lasers”, “Facebook”, “YouTube”, “Intranet”, “Cat-cams”, “Projectors”, “Microscopes”, “Podcasts”, “Various software” and so on, are all in the range (pp.8-9), which could be found in many places or classes in some educational systems. Typically, aside from these forms introduced above, in some specific educational contexts, there is some proposed ICT-related model being employed in language education as well, such as ICT-based audio-video speaking class (EAVSC), MOOC-based (Massive Open Online Course) micro lesson system, etc..

### ICT in English Language Education Internationally

Numerous studies done by researchers have once delineated whether computer technology was effective to the classrooms and students or not (Gilakjani, 2014). Historically, certain advantages have already been confirmed by those instructions and courses based on technologies (Li & Ni, 2012). Specifically, in accordance with what has been summarised by some academics, previous research has also affirmed that ICT could bring some benefits in Foreign Language

Education. Apple Education Inc. illustrated this point clearly by saying that the contributions of Computer-integrated in teaching and learning were numerous (Gilakjani, 2014). In a literature review conducted by Golonka, Bowles, Frank, Richardson, and Freynik (2014), the review concluded the evidence that a variety of technologies provided “some measure of efficacy” in foreign language learning processes (p.92). More specifically, it was said that technology innovation could “increase learner interest and motivation”, “provide students with increased access to target language input”, “interaction opportunities”, “feedback”, “provide instructors with an efficient means for organizing course content and interacting with multiple students” (Golonka et al, 2014, pp.70-71).

In the case of ELT, “the integration of technology in the ELT has undergone a dramatic shift in the past 25 years” (Dudeny & Hockly, 2012, p.533). It could be seen that the new ICTs that were applied to ELT were developed and advocated not only in developing but also developed countries in history. This was exemplified by the Conectar Igualdad programme in Argentina, which combined with the netbooks into all secondary schools invested by Ministry of Education and the content of English language learning co-funded by British Council (Dudeny & Hockly, 2012). It was such a representative of the combination between language learning and the application of new technologies. Nowadays, it is obvious that teachers use ICT frequently in English language classes. For example, one teacher asked the students to share their pictures about language knowledge on the Chinese Application programme—Wechat (One mobile chatting application in China) group, which made it into blended learning. Correspondingly, some similar explorations like it in China will be discussed in detail.

## ICT-RELATED TEACHER DEVELOPMENT

### Relevant Terms of Teachers’ Development

“Teachers are at the heart of the educational process” (OECD, 1989, cited in Day, 1999, p.1). Similarly, from Hargreaves and Fullan’s point of view, the educational innovation must put the teacher quality in the spot otherwise the failure would be encountered (1998, cited in Hu & McGrath, 2011, p. 44). As has been identified, the current review will be mainly restricted to teachers’ development as follows.

### ICT-Related Expert Teachers

With respect to teacher development, according to Day (1999), “the meaning of teachers’ development is located in their personal and professional lives and in the policy and school settings in which they work” (Day, 1999, p.1). Regarding “personal and professional lives”, it was revealed that the “individual expertise” is very important other than the external factors. Goodwyn (2011) states that “Expertise is associated with knowledge and skill, but also with value” (p. 9). In Hattie’s words, “Expert teachers are passionate about teaching and learning” (Goodwyn, 2011, p.154). As to ICT-related instructions in question in expert teachers prin-

cipally means that “teachers consider the use of technology as an integral part of their teaching” (Goodwyn, Protopsaltis & Fuller, 2009, p.8). Briefly, teachers' value and skills mentioned above would be easily found in past research as below.

### ICT-Related Teachers' CPD

Professional Development refers to “skills and knowledge attained for personal as well as career development” (Ahuja, 2015, p.11). Teaching per se requires teachers to be in a state of “Continuing career-long Professional Development” (Day, 1999, p.1). As Watson (2001) conveys, teachers' capability and wish to use ICT into teaching could be strongly related to their professional development (Hu, 2009). Teachers' competences of ICT have become “an important index of the teacher professional development”.

(Wu & Ling, 2011, p. 33). In Chinese higher education, “Continuing profession Development (CPD) for in-service teachers” has recently been emphasised by both “government policy” and “academic research” (Hu, 2007, p.278). Additionally, in those programmes concerning CPD training, it was pointed out that teachers' feedback about their input CPD opportunities should also be taken into consideration in that they would be in turn good for the training providers (Karagiorgi & Charalambous, 2006, cited in Hu, 2009).

## ICT IMPLEMENTATION AND DIGI-TEACHERS

### Teachers Change ICT Implementation

Factors influence on the successful integration of ICT has been discussed by investigators. The success of technology implementation could result from “necessary equipment”, “competent staff”, “technical support”, “teaching of others to use it correctly” (Gudmund, cited in Pelgrum & Law, 2000, p. 7). Among the above factors, teachers' role in employing new technologies on their instructions has been generally addressed by researchers throughout the world. “Having the infrastructure in schools seemed to be the most important factor that has enabled teachers to use technology” (Goodwyn, Protopsaltis & Fuller, 2009, p. 57), which of cause makes the ICT integration happened. However, it could be verified that “the software itself was not responsible for higher or lower achievement” (Gilakjani, 2014, p.147), it was the “stable instructional understanding”, “main technical support” and “teachers' cooperation” who could be the milestone to achieve the good outcomes (p.147). Teachers have met great changes in the “fast-paced technological change” environment and they are directly changing the classroom as well. (Goodwyn, 2000, cited in Goodwyn, 2011, p.111).

As such, the influences on ICT by teachers are discussed by many investigators in the changing global world. During the implementation of ICT in education, teachers' role in computer technology use could be classified into five categories including “planner, manager, facilitator, guide and participant” (Ryba & Anderson, 1990, cited in Gilakjani, 2014, p.149). It is widely agreed that “teacher

professional development (TPD)” is such a fundamental element in the development of education, in particular, in the “application of technology to enhance learning” (Tondeur, Forkosh-Baruch, Prestridge, Albion, & Edirisinghe, 2016, p.110). Similarly, in the light of the literature review by Mumtaz (2000), it was shown that “teachers' beliefs about teaching and learning with ICT are central to integration” as well (p.319).

### Better ICT Integration Needs Digi-Teachers

In terms of ICT, Gilakjani (2014) claims that computer integration needs the “teacher who learns the computer technology and use it in teaching and learning so that students learning is increased” (pp. 147-148). Regarding successful teachers, the term of Digi-teachers could be the best answer to describe the successful ICT-related teachers. Firstly, “Digi-teachers' have normalised the use of digital and other technologies in the classroom and they use every kind of technology” (Goodwyn, 2011, p.123); Secondly, Digi-teachers “'adapt' the technology to fit the needs of the lesson and of the students” (Goodwyn, 2011, p.123). In short, they could “make the best use of digital and other technologies, using technology is in harmony with their fundamental teaching approach” (Goodwyn, Protopsaltis & Fuller, 2009, p. 6).

## ICT-RELATED ELT IN CHINESE CONTEXT

### ELT in Chinese Colleges

With the largest population on the earth, correspondingly, China has the largest numbers of English learners as well (Hu, 2009). It is generally recognized that ELT is such a hot topic in China that is explored and studied by many educators and scholars. Campbell and Yong (1993) described the traditional images of ELT in China as “textbooks and classrooms exercises are often tedious”, “no other way to learn a foreign language”, “grammar analysis is crucial to foreign language learning”, “teacher should dominate the classroom while students listen passively and engage in exercises on command” (Hu, 2009, p.102).

College English teaching went through three periods of time to develop since the foundation of China: first, being neglected from 1949 to 1977; second, being restored from 1978 to 1985; and last, having met great development and being guided by National College English Curriculum (NCEC) from 1986 to date (Han, 2008). As is known to all, English as a Second Language (ESL) is so popular with many language learners of Chinese universities. After the National Tertiary Education Entrance Examination (Gaokao in Chinese), college freshmen generally have already had at least six years of learning experiences of English (Xiong, 2008). During their college time, the English course is mandatory (Hu, 2009). As for the language learners' population, there are millions of English as a Foreign Language (EFL) learners attended English classes and in September 2000, it has up to 2 million enrolled university students (Wu, 2001); As to teachers, there are more than 50000 in-service En-

glish teachers in Chinese universities (Wu, 2004, cited in Xiong, 2008).

### Policy Documents Concerning ICT

In the past of Chinese English learning classes, as is known to most of the researchers in the field of SLA, traditional Chinese English learning classes emphasised teacher-centred learning. Nonetheless, in 2002, by contrast, computer-based college English teaching was becoming pervasive by the advocating of the Ministry of Education (Ren & He, 2014), which was an encouragement for student-centred learning. With the development of globalization, the “introduction of digital technologies into teaching and learning” often exhibits on the “curriculum mandates” (Gao, 2012, p.162). In 2003, the Ministry of Education of China initiated an innovation about the College English Curriculum, as a result, College English Curriculum Requirements (CECR), published in 2004 (Xiong, 2008). CECR (2004) was one of those examples that illustrating the English-teaching at the tertiary level’s education of China (Gao, 2012). According to CECR (2004), the student-centred learning with the usage of new computer-based multimedia teaching model was focused, which reflected on the policies that the Ministry of Education advocated. Later, College English Curriculum Requirements (Department of Higher Education, 2007) also emphasised the importance of students’ communication skills, which also clarified that teaching should be underpinned by “computer- and classroom-based teaching models” as well as “practice and shift from teacher-centred pattern to a student-centred pattern” (pp. 25-26; Lu, Li & Du, 2009, p.49).

More recently, in the light of the proposal of National Medium and Long-term Educational Reform and Development Plan (2010-2020), it was said that “enhance the construction of web teaching resource system, explore the web learning curriculum, and innovate the web teaching mode” are required to accelerate the “educational informatization process” (Zhang & Zhang, 2017, p.155).

### ICT in Tertiary ELT of China

In the Chinese context, similar to the international development, briefly speaking, it was after the end of Cultural Revolution, during the period of the 1980s in China that the educational technology started to develop such as the using of many audio and video materials in schools’ labs (Li & Ni, 2012). Generally speaking, “eastern China has more technology resources than the western part of China, and urban schools have more technology resources than rural ones” (Li & Ni, 2012, p. 147).

As introduced, in colleges of China, because of a large number of students, insufficient English teachers, and infrastructure, teacher-centred methodology and problems as such (Hu, 2009), the ICT-related ELT, could be a good choice to replace the old teaching ways (Meng, 2005). In addition, the technological infrastructure and technological integration policies developed by the Chinese educational system at the same time make it more applicable for English learning and teaching in China (Li & Ni, 2012).

### Outcomes of ICT Implementation at the College Level

Overall, in the context of China, from 1988 to 2011, researchers have provided a comprehensive review of research on the ICT as an assisted tool in college English learning, accompanied by published 22 scholarly monographs, including Modern educational technology and foreign language teaching, Computer Assisted Second Language Research Method and Application, Computer Assisted Language Teaching: Theory and Practice and so on (Ren & He, 2014). The relevant research has discussed more on the establishment of College English teaching (Ren & He, 2014), which proved that a beneficial outcome could be produced by ICT integration.

Specifically, a series of carefully documented studies have demonstrated the advantages of ICT integration in English language learning of Chinese colleges. In order to optimize the effectiveness of language learning, not only as some popular new technologies mentioned in the above section, but there are also many special technologies used in the teaching of Chinese higher education. For instance, by having compared the differences between the traditional English and computer-based college English teaching, or rather, one group was given instructions of CALL, whereas others in the traditional way, Feng and Zhang (2005) found the affordance of Computer-based English teaching. Likewise, more specifically, under the direction of College English Curriculum requirements in 2004, Li (2007) proved that the college English teaching based on computer work could be good for improving the students’ ability of “self-directed learning” (p.32). Typically, in the context of audio-video speaking class, based on a student-centred teaching model, Lu, Hou, and Huang (2010) found that in an “English audio-video speaking class(EAVSC)”, with the help of computer-assisted language learning(CALL), it was very applicable to improve the students’ communicative language abilities of the researcher’s university, in particular, their abilities of speaking (p.101), which was a good model of ICT integration on English language teaching. More recently, in terms of college English teaching, Zhang and Zhang (2017) introduced the application of MOOC-based (Massive Open Online Course) micro lesson system, which could “enrich the teaching contents”, “enlarge the multiple interactions”, “improve the learning efficiency” and “realize the ubiquitous teaching” (p. 155). According to the researcher, not only it could help student’s mastery language knowledge multi-interactionally, but also build a bridge with teachers and students for making communication easier (Zhang & Zhang, 2017), which is also one new technology as a model that could promote the English language learning.

By contrast, this point does not elide that, not every ICT implementation is always good for language learning in the context of China universities. There is some practical problem such as “...school have been made hugely anxious about the ‘bad effects’ of the new technologies, viewing the internet as a giant source of cheating.” (Goodwyn, 2011, p. 121). However, as the current review based on the benefits, therefore, the critical reflection would mostly base on the benefits instead. That is, it is not going to be discussed in detail under the present framework.

### Relevant Research on ICT at the College Level

As has been discussed above, there remain many challenges for teachers' development to further success of ICT integration in a variety of different contexts. Particularly, in China, on the one hand, ICT brings great impact on English teaching as well as learning. On the other hand, it is proved that teachers' competence is associated with the outcome of ICT-related learning. Hence, the new technologies integration in English language learning and the role of English teacher are two important variables which are often discussed together by many educators in China. As Lang (2013) summarised at the International Conference on Information, Business and Education Technology (ICIBET), the use of ICT could optimize the teachers' teaching as well as improving the students' self-learning, but "a better outcome depends on teachers' ability to use technology to support pedagogical learning objectives" (p.1222). Many researchers shared the same perspectives towards the relationship between the two variables as follows:

According to the research from Hu (2007), as one of those branches of English, English for Business Purposes (EBP) became one of those subject courses at the end of 2006 (Hu, 2007). From the perspectives of English for Business Purposes (EBP), Hu conducted a qualitative case study to understand the uptake of ICT in EBP teaching. The results showed that influenced by the higher educational teachers' attitudes and beliefs towards ICT, ICT pedagogy could make sense during the process. It was also suggested that the ICT pedagogy model that could help to improve teachers' application in teaching practice with ICT should be developed. As the researcher concluded, the findings provided evidence that connecting the teachers' professional change with the better adoption of ICT pedagogy.

Under the context of using the Computer Assisted Language Learning (CALL), similar to Hu's survey, Xiong (2008) investigated the teachers' attitude in one Normal University of China via questionnaires and interviews. As the teachers said in the interview, the main problems coming out during their use of CALL consisted of "technical support", "workload", "pedagogy", "professional development" (p.126). In particular, the findings disclosed that teachers' professional development of CALL, including "techniques and pedagogies" of technology, was not enough either (p. iii). Even if there was an overall introduction of CALL, most teachers still could not use them properly and they did not know CALL in-depth. In addition, the researcher presented a model which could try to overcome the predicament that teachers faced.

By having observed the researcher's own audio-video speaking classes, from the correlated data and questionnaires analysis, Lu, Huang, and Sun (2008) found that the teacher's role in a computer-based teaching context was multidimensional. According to the researchers, the roles of teachers incorporated an "activity designer", "organizer", "coordinator", "the source of background information", and "assessor" (p.78). The findings of Lu et al.'s study also indicated that these competencies would obviously affect both the students' listening, speaking skills and language proficiency.

From their research, likewise, it could be revealed that the development of teachers' knowledge is essential for the development of ICT-related language learning.

After having examined both the use of ICT pedagogy of higher education and again, the factors influencing seven instructors' English for Business Purpose (EBP), Hu and Webb (2009) worked out that there was a conflict between the teacher-centred pedagogy and the student-centred pedagogy which was directly influencing ICT implementation's outcome. From the research results, it could be seen that to some extent, even if the student-centred is advocated, the traditional pedagogy is stand still. Hu and Webb also recommended that curriculum developers and policymakers should focus on the shift on ICT related stipulation. That is, teachers' professional skills should be paid more attention and strengthened in that the teaching pedagogy is indeed concerning teachers' expertise or continuing professional development.

From the teachers' point of view, Qiao and Wang (2009) did an analysis for teachers' need when using ICT in one Normal University, incorporating 128 questionnaires results. The survey indicated that most of the teachers required to mastery the capabilities on "web design software", "Learning Management System", "electronic resources for teaching", additionally, only a few teachers on fundamental knowledge like e-mail. Teachers also expressed that they needed to know how to integrate the new technologies successfully in classes. The research done by Qiao and Wang again demonstrated that professional training was called for by teachers as well, which also illustrated that in-service teachers CPD is necessary in the changeable world context and more successful Digi-teachers are required.

In the context of a national reform whose emphasis was the ICT use for college English teaching, Hu and McGrath (2011) investigated the ICT-related teacher development in college China. They did an investigation about the teachers' opinions on the ICT use which found that it was the 'limited ICT skills' and "pedagogic expertise" impeded the ICT use in English language teaching. Furthermore, it could also be found that those teachers' positive attitude on ICT was waning as the "inadequate support" and "training" (Hu & McGrath, 2011, p. 41). Sincerely, the researchers additionally put forward an "ICT-based CPD model for language teachers" (p.41).

In Gao (2012)'s research, the researcher compared the ICT integration policy and the real operation on college English learning by interviewing the teachers' attitude towards the ICT in pedagogy and found that the technology-supported English teaching was not that complied with the policy. Obviously, it was found that there was a lack of specialist knowledge in the pedagogy of teachers in that there was insufficient pedagogic training in teachers' pre-service and in-service training. According to the researcher, a "national professional development program" was proposed (p.173), which proves that an emergency of CPD is needed for teachers who should be improved to make good use of the ICT implementation in the future.

Taken together, this part presented the finding during the year from 2007 to 2017. Based on the research in one de-

cade, it could be seen that information and communication technologies play an important role in college English language education of China. By primarily using the questionnaires and interviews, much research shared similar ideas and enriched others' results which altogether demonstrated that ICT integration is beneficial in English language teaching. Nevertheless, to maximize the good of ICT in English instruction, that one crucial variable is what the teachers need to do during the implementation should not be ignored. The literature indicated that even in the latest studies, the CPD related problem did not be solved either. As Goodwyn, Protopsaltis, and Fuller said, "Training and ongoing support is required for teachers to appropriately use new technologies and to support their selection of appropriate media and software" (2009, p. 68). Training of Teachers' utilization of ICT is becoming an important issue involved in the higher education institutions (Qiao & Wang, 2009). Researchers were able to see the same problems from different technological context. What they emphasised is that the teachers' development is so crucial for the harnessing of technologies in English teaching at the universities and the universities are urgently needing Digi-teachers to make ELT more effective and valuable in the future education.

In a word, in the view of the preliminary studies, it could be seen that teacher development was focused and discussed by many researchers and some solutions to improve the ICT language teaching expertise were given by the giants before as well.

### CONCLUSION AND FUTURE RESEARCH

To conclude, ELT of Higher Education is such an important variable in today's education of China. In the light of what has been presented in the above sections, it could be seen that in the long run of history, the application and adoption of ICT on English instruction has many merits in Chinese Colleges environment. During the ICT integration in English language teaching, insufficient teacher's development, which includes the teachers' role, expertise, career CPD and so on, could be one of the most important factors that became the barriers to improve the ICT-related English teaching. That is, teachers professional development is mostly restricted. In order to overcome the difficulties, many ways or models to improve the teacher expertise and enhance the teachers' CPDs were put forward by many educational researchers as well. Additionally, as to methodology, the questionnaires and interviews were popular and well used in previous research.

From a neutral perspective, there are many factors which could decide the successful outcomes for implementing the technologies use in English language instruction of Chinese universities. Nevertheless, what does the college learners' feedback on ICT integration in today's China would be? While internationally, studies about students' perceptions have been explored, and in China, some researchers have paid attention to this aspect as well, the research is not that much. Limited research was conducted to focus on students' perspectives and learning conditions. Though it could be imagined that most of the students would embrace the use of technologies as they are intriguing, different ICT forms may

be applicable for different students from different level and contexts. For instance, some students would experience anxiety before a Computer-based spoken test. As Yang (2017) pointed out, "inadaptability with computer-based spoken English test format" could be one of those affecting factors as well (p.63). Factors such as students' background, gender, vision and so forth could be considered instead. Students' needs and wants in relation to ICT such as in what forms of ICT they like the best needs to be investigated. This issue is worth to gain more attention in depth. Thus, by incorporating more interviewees, research on what the ideas are in college students' mind and how they learn English in the ICT context in Chinese rural areas, will be a starting point in the future. It needs more research with reference to the developing college's students' ICT-related English learning in the years to come. Consequently, ICT-related English learning may become more attractive and plausible among today's college language learners.

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