Volume: 3 Issues: 9 [September, 2018] pp.39-49]
Journal of Information System and Technology Management
eISSN: 0128-6666
Journal website: www.jistm.com

ICT USE OF TEACHERS IN TEACHING ENGLISH IN VIETNAM

Huynh Ngoc Mai Kha[1]
Pham Thi To Nhu[2]
Tan Choon Keong[3]

[1]Huynh Ngoc Mai Kha, Academic Department, University of Foreign Language Studies, the University of Danang, Vietnam (Email: hnmkha@ufl.udn.vn)
[2]Pham Thi To Nhu, Faculty of Psychology and Education, Universiti Malaysia Sabah, Kota Kinabalu, Malaysia (Email: tonhup@gmail.com)
[3]Tan ChoonKeong, Faculty of Psychology and Education, Universiti Malaysia Sabah, Kota Kinabalu, Malaysia (Email: cktanums@gmail.com)

Accepted date: 05 August 2018 **Published date**: 25 September 2018

To cite this document:

Huynh, N.M.K., Pham, T.T.N. & Tan, C.K. (2018). ICT Use of Teachers in Teaching English in Vietnam. *Journal of Information and Technology Management, 3(9),*39-49.

Abstract: *The purpose of this case study was to understand the real use of ICT of teachers in teaching English in Vietnam. A total of 200 primary school teachers of English from 5 provinces in Vietnam took part in this study. These teachers were interviewed and asked to write reflection journals on the ICT use they had in their teaching context. The results indicated that in spite of the fact that using ICT in teaching English in Vietnam has become much more popular than before, the majority of them were still at low level users (levels 2-3) according to Lin, Wang and Lin's pedagogy * technology model (2012) for ICT integration in education. The study also mentioned factors that influenced the use of ICT and pointed out recommendations to push up the use of ICT among teachers of English in Vietnam.*

Keywords: *ICT, Use Of ICT, Teaching English, Primary School, Recommendations*

Introduction

In the modern time of science and technology, ICT has an important role in life in general and in education in particular (Hepp et al., 2004). Indeed, ICT can help to provide dynamic and proactive teaching-learning environment (Arnseth&Hatlevik, 2010). This is because modern technology offers many tools that can be used in classrooms to improve teaching and learning quality (Bruniges, 2003; Bingimlas, 2009). Furthermore, ICT has the potential in preparing students for life in the 21st century (Ghavifekr, Ahmad Zabidi Abd Razak Muhammad Faizal A. Ghani, Ng Yan Ran, Yao Meixi, & Zhang Tengyue, 2014). Rathnasena et al (2013) even claim that the traditional teaching and learning methods, which dismiss the practice of communication and application skills, are considered to be obsolete. However, studies have consistently shown that technology integration shows disappointing levels of penetration and success (Cuban, Kirkpatric& Peck, 2001; Bauer & Kenton, 2005; Dang, 2013). Recently, it has

been pointed out that there are crucial teacher attributes including perceptions, beliefs and attitudes which play an important part in the acceptance or rejection of ICT (Veen, 1993; Mumtaz, 2000; Jimoyiannis & Komis, 2006; Vandelinde, 2011). Moreover, according to Loveless (2006), teachers do be aware of the ubiquitous presence of ICT in their teaching environment, but may not perceive the link to their teaching practices. In reality, teacher perceptions on ICT use is important as it forms a tendency that helps them to be favourable or unfavorable towards the usage of the most modern technology in the field of education (Qasem et al, 2016). In Vietnam, this situation is not different with poor penetration of ICT in teaching (Hong, 2014).

Literature Review

Definition of ICT

The term 'ICT' is defined as "forms of technology used for creating, displaying, storing, manipulating, and exchanging information" (Donnelly, McGarr, & O'Reilly, 2011). However, in the scope of this paper, ICT is defined as computer, and the internet-based technologies which can be categorised into two types: i) generic software applications, e.g., word processors, presentation software, email packages, and web browsers; and ii) CALL software applications and useful websites with a focus on purposeful language teaching and learning(Sarkar, 2012).

Different uses of ICT in foreign language teaching

In terms of ICT applications in English learning, on one hand, Collis and Moonen (2001) divide the applications of ICT into three groups, namely 'learning resources' including educational software, online resources, and video resources, 'instructional organization of learning' referring to software and technology tools for lecturing in the classroom, and 'communication' consisting of email system, and websites offering communication options. On the other hand, the New Medium Consortium (2005) claims that the technological areas contribute to the field of education as follows. The first one is Extended Learning, in which traditional teaching and learning is enhanced through new communication tools which means that the process of teaching and learning is not confined to the classroom setting but to a communicative platform that facilitates collaborative discussion, exchange of opinions, and critical thinking (Cheng, 2012). The second area is called Ubiquitous Wireless where there is the rapid penetration of wireless network (Jung, 2006) which can foster students' flexibility in learning via the use of their portable or mobile devices. The third one is Intelligent Searching which allows learners to search, organize and retrieve data in a more effective way (Dang and Nguyen, 2014). And the last one is Educational Gaming, which is made up of games and simulations, which are supposed to have beneficial effects on motivation, communication, critical thinking, and problem-solving skills (Jung, 2006).

Thanks to its various and extensive applications, ICT can be an effective medium of language teachers (Dang, 2013). More specifically, in language teaching and learning, there are many different ways of ICT use including location and retrieval tool (Davies &Hewer, 2012), interaction tool (Newhouse, 2002), teaching tool (Peeraer& Van Petegem, 2012) and material creation tool (Rendall & Davies, 2012).

Location and retrieval tool. Srimshaw (2004) suggests that teachers should search the internet for available learning materials to support their perparation and teaching. With the help of internet, teachers can access different types of digital resources such as e-books, photos, audios and videos, etc (Kirkwood & Price, 2013).

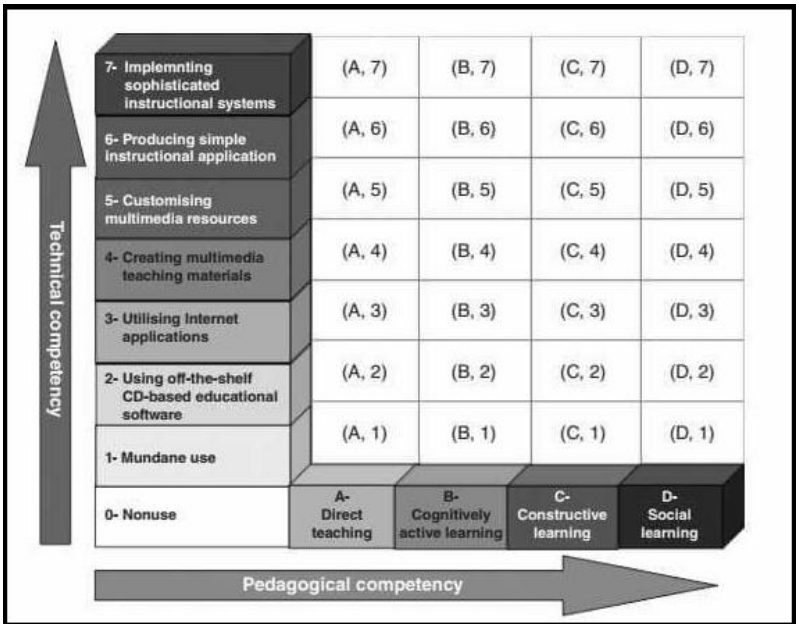
Material creation tool. ICT tools help teachers create customised learning materials from digital resources accessible on the internet (Lewis &Goodison, 2004). According to Aydin (2013), word processing and presentation applications are popular tools as word processors can help teachers design different types of activities for language practice and presentation software helps making attractive resources for the whole class to focus on (Rendall & Davies, 2012). Besides, other authoring programs such as Hot Potatoes and TaskMagic provide templates for teachers to create activities involving gap-filling, re-ordering, matching exercise and interactive games (Half-baked Software, 2017, TaskMagic,2017). In addition, audio and video editing tools (e.g. MP3 Shine Soft Cutter and Joiner, JetAudio and Cyberlink) help teachers to record to makes changes to audio and video files such as splitting audio and video files into smaller pieces or merging them into a larger file, adjusting voice speed and creating sound/video effects (Dang, 2013).

Interaction tools. Sarmento (2005) holds the viewpoint that ICT supports human-computer interaction which refers to the relationship between technologies, their uses and users' purposes. With the help of ICT, students can choose their own time and place of study as well as their desired pace of learning (Griffin, Mitchell & Thompson, 2009).

Teaching tools. With the presence of a computer connected to a data projector to show materials that teachers have prepared in advance, classroom teaching can be facilitated (Peeraer& Van Petegem, 2012). These kinds of facilities can support teacher-student interaction or student-student interaction (Newhouse, 2002).

In another aspect, in order to measure the use of ICT in teaching context of Vietnam, Lin, Wang and Lin's pedagogy * technology model (2012) for ICT integration in education was used which is aimed at measuring individual teachers' progression in ICT integration suggests 8 levels of technological use, namely level 0 (non-use), level 1 (mundane use), level 2 (using off-the-shelf CD-based educational software), level 3 (utilizing internet applications), level 4 (creating multimedia teaching materials), level 5 (customizing multimedia resources), level 6 (producing simple instructional application), level 7 (implementing sophisticated instructional systems); and 4 levels of pedagogical use, ranging from level A to level D, referring to direct teaching, cognitively active learning, constructive learning and social learning respectively (Dang, 2013).

Figure 1. The pedagogy * technology model for information and communications technology integration in education



*Source: Adapted from Pedagogy *technology: A Two-dimensional Model for Teachers' ICT Integration (Lin et al, 2012)*

Purpose of the study

The purpose of this study was to understand the real use of ICT of teachers in teaching English in Vietnam at primary school level. Also, this study suggests the recommendations to push up the use of ICT in the teaching context of Vietnam.

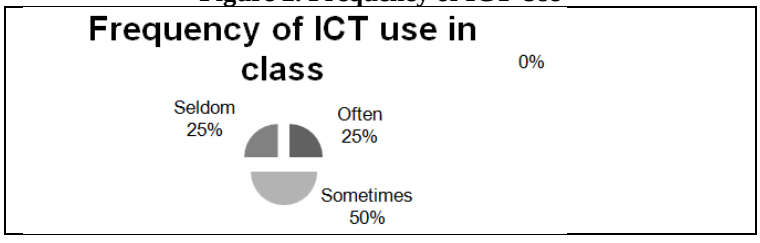
Design and methodology

The methodology chosen for this study is case study which refers to en empirical inquiry developing an in-depth understanding of a real-life phenomenon (Yin,2009). In case study, the researcher seeks to develop an in-depth understanding of the case by collecting multiple forms of data (Cresswell, 2012). In the scope of the study, the data were collected through reflection notes and focus group interviews. The target participants were 200 teachers of English from different primary schools in Danang City, Quang Ngai Province, Gia Lai Province and Phu Yen Province. These provinces are in the middle areas and highland of Vietnam. These participants are chosen as they have demographics that match the demographics of the surrounding regions as well as most of other primary schools in Vietnam.

Analysis and findings

Frequency of ICT use

Figure 2. Frequency of ICT Use

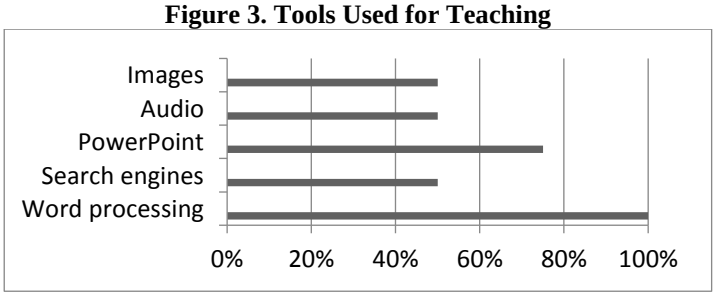


As can be seen in Figure 2, only 25% of the teacher participants seldom used ICT in their teaching, and the same percentage of the teacher participants often used ICT in their teaching and the rest 50% sometimes used ICT in class.

Tools used for teaching

The teacher participants mainly used word processing to prepare the lessons, PowerPoint to make slides to show their lessons in class, search engines to find information. For example, one teacher revealed in the reflection note, '*I used it in lots for preparing lessons and my teaching in class using word and PPT. I looked for pictures, sounds, video clips, games from google to my lesson. I also used dictionaries in teaching contexts*.'
Besides, they sometimes used audio and images in their teaching as another teacher mentioned in the reflection note: '*In teaching speaking skill I showed the students the sample conservations or let them hear the conversation so that students based on that to present their own ideas or conversation.'*

Figure 3. Tools Used for Teaching



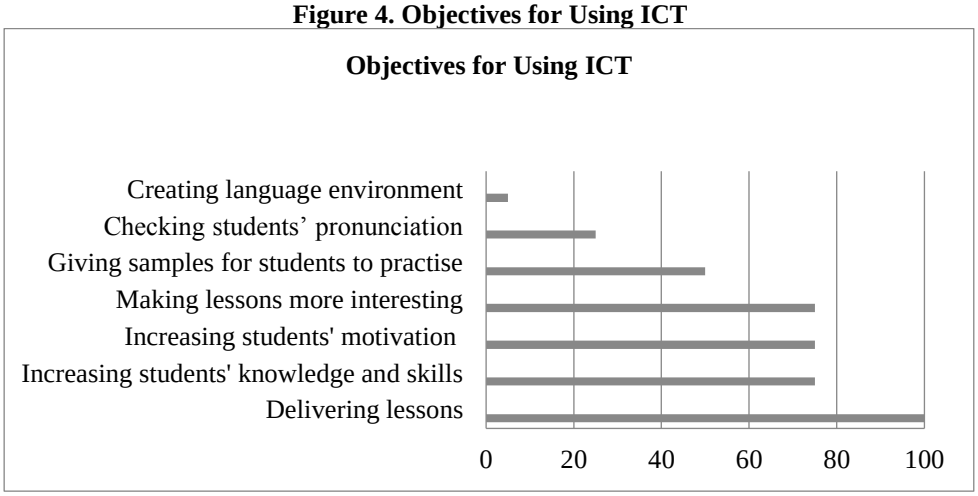
As can be seen in Figure 3, all teachers participants used word processing for their working and the percentages of teachers who used PowerPoint, search engines, audio and images are 75%, 50% and 50% respectively. It can be easily recognized that their use of ICT is limited some simple and popular use of ICT only.

Objectives for using ICT

Of the participants, 100% indicated that they used ICT for preparing lessons for teaching speaking skills and delivering lessons to students. Next, 75% agreed that ICT helped to increase students' knowledge and skills as well increase students' motivation and the same percentage of teacher participants agreed that using ICT made their lessons more interesting. Furthermore, 50% used audio to give samples for students to listen and then, practice speaking. Some more benefits that 25% claimed are ICT helped to check pronunciation of students via audio and the same percentage used ICT to create language environment for students to practice as one revealed in the reflection note, '*So I usually use ICT to teach English skills especially listening and speaking skill. It helps students can watch videos or listen the voice of native speaker clearly***.'** Some more illustrations are what the teachers' participants said in the focus group interview as *'Students are eager to listen to audio. They are quite excited to see vivid images'*

Figure 4 describes the objectives for using ICT in details.

Figure 4. Objectives for Using ICT

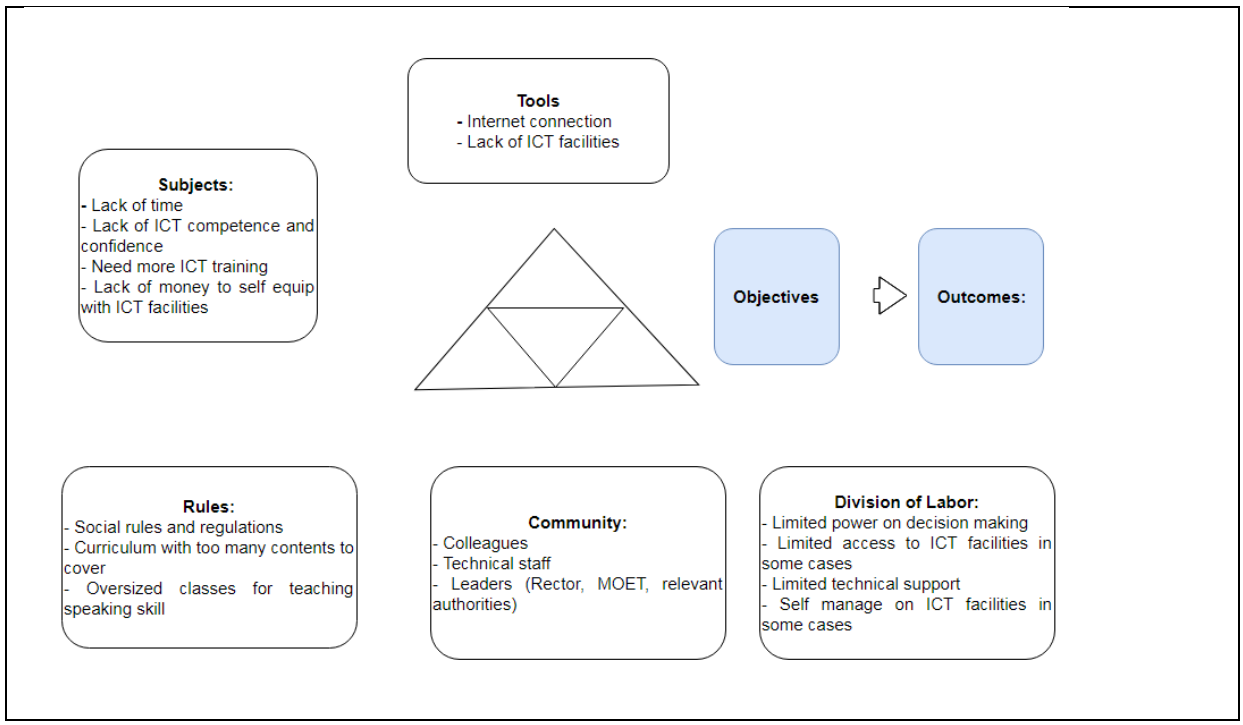


Factors affecting ICT use

It can be seen from the data analysis that the teachers had to encounter a lot of issues and challenges in developing technology-based materials for their teaching of speaking skills in terms of other factors in broader context like Subjects, Tools, Rule, Community and Division of Labor (according to the Activity Theory Framework by Engestrom (1987**).** From the data analysis, it can be seen that with regard to the teacher participants as the Subjects of the Activity system, there were a lot of issues and challenges. 60% of the teacher participants confessed that they did not have enough self-confidence for ICT use in their teaching and they did need more ICT training. Besides, 70% of them needed more financial support to equip with ICT facilities such as computers/laptops. Last but not least, most of the teachers were reported not to have enough time for their use of ICT via all 3 sources of data. In terms of Tools of the Activity System, the key issues were relevant to internet connection and ICT facilities. As a matter of fact, a very high percentages of the teachers complained about the unstable internet connection and poor Internet facilities available at their schools. They did experience how the interruption of the Internet connection affected the teaching at classes in different schools. Moreover, due to the lack of ICT facilities, the teacher participants have to manage within what facilities were available for use as mentioned in all sources of data. Next, in respect to Rules of the Activity system, 50% did not feel pleased with the rule that they had to share the multimedia room at their schools with too many teachers of other subjects or even of the same subjects. Next, most of the teachers saw that the curriculum contained too many contents and they found it hard to cover all of those contents within their teaching hour. Finally, oversized classes were really a problem for 30% of the teachers as for them, they could hardly give enough chances for their students to practice speaking skills in such crowded classes. As regards Community of the Activity system, again, 40% of the teacher participants were dissatisfied when they had to share the limited facilities with other teachers at schools. Moreover, 60% of them needed more assistance from technical staff who should be well qualified for ICT as they usually had problems when they used ICT in class. Additionally, 30% of them needed more specific support from the Leaders of the Schools as well as the MOET and other relevant authorities in ICT integration like a teacher said, '*Thirdly, we do not receive specific support from the Rector or other relevant leaders as every time there is training workshop for us, we have to cover both the workshop and the teaching load, it is a burden for*

us' (T4's reflection note). Lastly, concerning Division of Labor of the Activity system, 50% of the teachers revealed that they had limited power on decision making such as, '*In fact, there are 23 periods for teachers at primary schools and it is compulsory for teachers to have their own lesson plans on the paper. Therefore, I use most of the time to prepare for my lesson plans and I only has less time for ICT. Besides, I wish I could choose what to teach in a lesson as I can't be flexible in my teaching contents.' (*T16's reflection notes 3). Besides, 60% of them complained that they had limited access to ICT facilities and the same percentage needed more technical support. All these could be summarized in Figure 5.

Figure 5: Factors Affecting ICT Use



Discussion

According to Lin, Wang and Lin's pedagogy * technology model, no teachers were at level 0 (ICT non-users), 72% of them were at low level users (levels 1-2), 25% at medium level users (levels 3-4) and only 3% were at medium-high level users (level 5). In terms of pedagogical competency, 75% of the teachers had direct teaching style (level A), 20% used ICT to gather materials before coming to class and then, actively used them in class. Hence, these teachers had cognitive active learning of level B. Lastly, 5% used ICT to create language environment, which meant that they were at level C- constructive learning.

Regards to the factors affecting ICT use, there are some including lack of ICT confidence and competence to use ICT in class, low access to ICT, overload teaching work and oversized classes, insufficient supports from leaders at different levels, lack of power in decision making. To cope with these difficulties, there are a variety of suggestions from the teachers. First of all, 80% of the teachers wish to have more effective ICT training. Secondly, there should be financial support to teachers for ICT facilities. Thirdly, Furthermore, as 40% of the teacher participants desired to have more flexible curriculum and 30% of them hope to

have a reduction in the size of their classes, these kinds of suggestions are connected with teaching load and oversize class, which is supported by Monks J. & Schdmidt (2010). Next, there is also a suggestion from 20% of the teacher participants which requires a policy encouraging the use of ICT in their teaching, which is in line with the study of Dang (2013). With reference to the Community of the Activity System, the suggestions suggested by the teacher participants are mostly related to technical support and leader support. On one hand, 50% of the teacher participants required more qualified technical staff because ICT support is quite essential for ICT use in teaching (Ertmer, Ottenbreit-Leftwich, & York, 2013). On the other hand, all of the remaining suggestions are connected with leadership support which include those for ICT facilities and sharing network and encouraging policy. Besides, similar to the suggestions related to the Community of the Activity System, those of the Division of Labor are also linked with technical support and leadership support as 40% of the teachers wished to have more power on decision making and the percentages of them for technical support and ICT facilities.

Conclusion

This study gave the description of ICT use of teachers of English at primary schools in Vietnam through the lens of Lin, Wang and Lin's pedagogy * technology model. It could be concluded the ICT use of these teachers were quite limited. In order to promote ICT use, there should be cooperation and support from the teachers themselves, the schools and other relevant authorities as Papert (1993) claims, as ICT enters the sociocultural setting of the school, it will weave itself into the learning in many more ways than its original promoters could possibly have anticipated.

References

Arnseth, H. C., & Hatlevik, O. E. (2010). Challenges in Aligning Pedagogical Practices and Pupils' Competencies with the Information Society's Demands: The Case of Norway. In S.

Aydin, S. (2013). Teachers' Perceptions about the Use of Computers in EFL Teaching and Learning: The case of Turkey. *Computer Assisted Language Learning, 26*(3), 214-233. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/09588221.2012.654495

Bingimlas, K. A. (2009). Barriers to the Successful Integration of ICT in Teaching and Learning Environments: A Review of the Literature. Eurasia Journal of Mathematics, *Science and Technology Education*, 5(3), 235-245.

Bauer, J., & Kenton, K. (2005). Toward Technology Integration in the Schools: Why It Isn't Happening. *Journal of Technology and Teacher Education*, 13(4), 519-546.

Bruniges, M. (2003). *Developing Performance Indicators for ICT Use in Education: Australia's experience.* Retrieved from: http://www2.unescobkk.org/education/ict/v2/info.asp?id=13249

Cheng, H.Y. (2012). Applying Twitter to EFL Reading and Writing in a Taiwanese College Setting. *Doctoral dissertation.* Indiana State University, the USA.

Collis, B., & Moonen, J. (2001). *Flexible Learning in a Digital World: Experiences and Expectations.* London: Kogan Page.

Creswell, J. (2012). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research.* Pearson.

Dang, H.T. & Nguyen, T.H.N. (2014). An Exploratory Study of ICT Use in English Language Learning among EFL University Students. *Teaching English with Technology, 14*(4). Retrieved from http://files.eric.ed.gov/fulltext/EJ1143398.pdf

Cuban, L., Kirkpatrick, H., & Peck, C. (2001). High Access and Low Use of Technologies in High School Classrooms: Explaining an Apparent Paradox. *American Educational Research Journal,* 38, 813-834. doi:10.3102/00028312038004813

Dang, X. T. (2013). ICT in Foreign Language Teaching in an Innovative University in Vietnam: Current Practices and Factors Affecting ICT Use. *La Trobe University: Australia*.

Davies, G., & Hewer, S. (2012). *Introduction to New Technologies and How They Can Contribute to Language Learning and Teaching.* Slough: Thames Valley University.

Davis, B. & Bloom, G. (1998). Support for New Teachers. *Trust for Educational Leadership,* 28 (2), 16-18.

Donnelly, D., McGarr, O., & O'Reilly, J. (2011). A Framework for Teachers' Integration of ICT into Their Classroom Practice. *Computers and Education, 57*(2), 1469–1483. https://doi.org/10.1016/j.compedu.2011.02.014

Engestrom, Y. (1987). Learning by Expanding: An Activity-Theoretical Approach to Developmental Research. *Helsinki, Finland: Orienta-Konsultit.*

Ertmer, P.A., Ottenbreit-Leftwich, A., & York, C.S. (2013). Exemplary Technology-using Teachers: Perceptions of Factors Influencing Success. *Journal of Computing in Teacher Education, 23(*2), 55-61. Retrieved from https://files.eric.ed.gov/fulltext/EJ876918.pdf

Ghavifekr, S., Ahmad Zabidi Abd Razak Muhammad Faizal A. Ghani, Ng Yan Ran, Yao Meixi, & Zhang Tengyue. (2014). ICT Integration In Education: Incorporation for Teaching & Learning Improvement. *Malaysian Online Journal of Educational Technology*, *2*(2), 24–54. Retrieved from http://www.mojet.net/article.php?volume=2&issue=2&vid=34&article=80

Griffin, D.K., Mitchell, D. & Thompson, S.J. (2009). Podcasting by Synchronizing PowerPoint and Voice: What are the Pedagogical Benefits? *Computers & Education, 53* (2), 532-539. Retrieved from: http://www.sciencedirect.com/science/article/pii/S0360131509000803

Half Baked Softward (2017). *Hot Potatoes.* Retrieved from https://hotpot.uvic.ca/

Hepp, K.E.; Ernesto, H.S., & Rehbein, L.M. (2004). *Technology in Schools: Education, ICT and the Knowledge Society.* Retrieved from http://documents.worldbank.org/curated/en/546761468765300173/pdf/311940PAPER0Ed110ICT0oct0401public1.pdf

Hong, V. K. (2014). Factors Affecting Secondary-School English Teachers Adoption of Technologies in Southwest Vietnam, *CamTESOL Regional ELT Research Grant Paper5*(2004), 198–215.

Jimoyiannis, A., & Komis, V. (2006). Exploring Secondary Education Teachers' Attitudes and Beliefs towards ICT Adoption in Education, *Themes in Education, 7(2), 181-2014.*

Jung, S.H. (2006). The Use of ICT in Learning English as an International Language. *Doctoral Dissertation.* The University of Maryland, College Park, the USA.

Kirkwood, A. & Price, L. (2013). Technology-enhanced Learning and Teaching in Higher Education: What is 'Enhanced' and How Do We Know? A Critial Literature Review: *Learning Media and Technology,* 1-31. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/17439884.2013.770404

Lin, J.M.C., Wang, P.Y., & Lin, I.C. (2012). Pedagoy* Technology: A Two Dimensional Model for Teachers' ICT Integration. *British Journal of Educational Technology, 43* (1), 97-108. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.928.723&rep=rep1&type=pdf

Monks, J. & Schmidt, R. (2010). *The impact of class size and number of students on outcomes in higher education* [Electronic version]. Retrieved [insert date], from Cornell University, School of Industrial and Labor

Mumtaz, S. (2000). Factors Affecting Teachers' Use of Information and Communications Technology: A Review of the Literature. *Journal of Information Technology for Teacher Education*, 9 (3), 319-341.

Newhouse, P. (2002). *Literature Review: The Impact of ICT on Learning and Teaching.* Perth: Specialist Educational Services. Retrived from https://www.google.com.vn/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjWoael5OrWAhXJT7wKHa16AzEQFggqMAA&url=http%3A%2F%2Fwww.researchpublish.com%2Fdownload.php%3Ffile%3DImpact%2520of%2520ICT%2520on%2520Teaching-3068.pdf%26act%3Dbook&usg=AOvVaw3xTwdzSnDWI2FyMIilvRvB

New Media Consortium (2005). *A Global Imperative: The Report of the 21st Century Literacy Summit.* Retrieved from https://www.immagic.com/eLibrary/ARCHIVES/GENERAL/NMC_US/N050805G.pdf

Papert, S. (1993). The Children's Machine: Rethinking School in the Age of the Computer. *New York: BasicBooks*.

Peeraer, J., & Van Petegem, P. (2012). Measuring Integration of Information and Communication Technology in Education: An Item Response Modeling Approach. *Computers & Education*, *58*(4), 1247–1259.

Qasem. A.A.A., & Viswasnanthapa, G. (2016). Teacher Perception towards ICT Integration: Professional Development through Blended Learning. *Journal of Information Technology Education: Research. 15.* 561-575. Retrieved from http://www.jite.org/documents/Vol15/JITEv15ResearchP561-575Qasem2879.pdf

Rathnesean, U., Dodatenna, I., Jayakody, A. & Hettiaratchy, A. (2013). How ICT Can Be Used Effectively to Enhance English Language Learning in Tertiary Education: A Study Focusing on Speaking and Listening Sills. *SAITM Research Symposium on Engineering Advancements 2013.* Retrieved from https://www.researchgate.net/profile/Chaminda_Jayakody/publication/264742270_HOICT_CAN_BE_USED_EFFECTIVELY_TO_ENHANCE_ENGLISH_LANGUAGE_LEARNING_IN_TERTIARY_EDUCATION_A_STUDY_FOCUSING_ON_SPEAKING AND_LISTENING_SKILLS/links/53ed646a0cf26b9b7dc5ebc6/HOW-ICT-CAN-BE USED-EFFECTIVELY-TO-ENHANCE-ENGLISH-LANGUAGE-LEARNING-IN TERTIARY-EDUCATION-A-STUDY-FOCUSING-ON-SPEAKING-AND LISTENING-SKILLS.pdf

Rendall, H., & Davies, G. (2012). Using Word-processing and Presentation Software in the Modern Foreign Languages Classroom. Module 1.3. In G. Davies (Ed.), *Information and Communications Technology for Language Teachers (ICT4LT).* Slough: Thames Valley

Sarkar, S. (2012). The Role of Information and Communication Technology (ICT) in Higher Education for the 21st Century. *The Science Probe*, *1*(1), 30–41.

Sarmento, A. (2005). *Issues of Human Computer Interaction.* Hershey: IGI Global.

Scrimshaw, P. (2004)). Enabling*Teachers to Make Successful Use of ICT.*Coventry, Becta. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.476.4313&rep=rep1&type=pdf

TaskMagic (2017). *TaskMagic.* Retrieved from http://www.mdlsoft.co.uk/index.php

Vanderlilnde, R. (2011). *School-based ICT Policy Planning in a Context of Curriculum*

Reform (Doctoral Disseratation, Faculty of Psychology & Pedagogic Sciences, University of Gent)

Veen, W. (1993). The Roles of Beliefs in the Use of Information Technology: Implications for Teacher Educaiton, or Teaching the Right Thing at the Right Time, *Journal of Information Technology for Teacher Education*, 2: 2, 139-153.

Yin, R. K. (Ed.). (2009). *Case Study Research: Design and Methods* (4 ed.): Thousand Oaks: Sage.