

# INVESTIGATING THE STUDENT-TEACHER TECHNOLOGY COMPETENCY FOR ENGLISH LANGUAGE TEACHING: DOES IT MATTER?

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**ABSTRACT** , The availability of technological tools, the Student and Teacher Technology Competency (STTC) are the essential considerations for the effective use of technology integration in ELT. However, these three aspects are closely interrelated as the key indicators of successful teaching English with technology. This paper reports on the result of an investigation on STTC involving 6 English lecturers and 80 students across the multidisciplinary courses at a vocational higher education setting. The survey is concerned with four domains of technology competencies, they are 1) basic technology operation, 2) personal/ professional use of technology tools, 3) social, ethical, and human issues, and 4) application of technology in instruction (classroom and web-based technology in instruction). This study's implications call for an inclusion of technological literacy skills in pre-service and in-service EFL teacher professional development programs and education.

**Keywords:** STTC, teacher-student readiness, ELT, technology in instruction, teacher professional development

## A. INTRODUCTION

The advances in technology have brought significant changes to the way people interact and learn. Technology education in language teaching and learning should be taken into account to make them effective and efficient. Today, the Student-Teachers Technology Competency (STTC) is an essential skill that allows both teacher and student to use technology in the teaching and learning process (ITCC, 1998). The importance of TTC has become essential in the field of education worldwide and has been standardized by UNESCO (Unesco, 2008, 2011). More specifically, the TESOL organization has also given an immediate response to the use of technology in ELT by releasing a technology standard framework for EFL teachers (Healey et al., 2008). However, in Indonesia's context, the incorporation of technology into the field of ELT seems to be far beyond the curriculum expectation.

This article aims at shedding light on the condition of STTC in an Indonesian vocational higher education (polytechnic). Mapping the competency is simply necessary for both teacher and student to identify how they can teach and learn better with the technology-assisted tools. Teacher-student readiness to incorporate and transform technology into teaching and learning activity is now becoming essential and pivotal in a technologically-rich environment. Given the importance of STTC, advanced research in the area of educational technology is necessarily needed. What one of the issues that should come into the investigation is the learner and teacher readiness (Cotterall, 1995).

Teacher and computer in today's English teaching seem to be two sides of a coin in which the use of ICT was mainly used in the language classroom in most Asian countries (Choi & Lee, 2008). However, adopting CALL in ELT has become a daunting task for most EFL teachers in which they lack the required competence to transform technology into instructions. This condition brought impact to the teacher attitude towards ICT use (Yusuf & Balogun, 2011). The rise of the teacher's reluctance to use technology will increase over time to time that every teacher should be able to make an immediate adjustment and adaptation to the rapidly changing and development of educational technology. In fact, most of the in-service EFL teachers/lecturers are non-digital natives, so they are likely to be difficult to accept new technology and follow the current trend of educational technology. On the other hand, students are digital natives who were born in the digital era and engaged with technology in early ages. Students are likely to spend much time on their hand-held devices, portable computers, and access to the internet, so they are currently living and learning in a digitally-rich environment. An empirical gap between these two generations brings impact on teacher-student learning interaction both inside and outside the classroom.

## **B. REVIEW OF LITERATURE**

### ***The importance of EFL teacher cognition about educational technology***

EFL teacher Technological Pedagogical Content Knowledge (TPCK) (Mishra & Koehler, 2006, 2008), student's acceptance of technology, and the availability of educational technology are the key areas of further research and investigation. Given the importance of EFL teacher TPCK, it is necessary to accelerate intensive training in this area and thereby shapes the teacher's cognition and knowledge on how they make use of technology and transform it into instructions. This is probably a daunting task for most of the EFL teachers and course developers. Moreover, they will need to continue to study and follow the current trends of

educational technology. However, the existing in-service EFL teachers in Indonesian higher educations are mostly non-digital natives who were not previously exposed to the use of technology in teaching the English language. Consequently, most of them must struggle to learn new technology to meet their student's needs and expectations. This is simply not an easy task to re-train to make them ready to make use of the technology and transform it into instructions.

An EFL teacher should be expected to be able to have a good knowledge of technology and he/she is also expected to make use of it in teaching and learning context. Knowing how to use hand-held devices, a portable computer (laptop), tablet, iPad, and web-based technology as well as the internet is not adequate, but more importantly, they must be able to use those tools in the teaching practices. Therefore, the teacher's technological knowledge (TK) will not work properly without having a good pedagogical understanding, so-called pedagogical knowledge (PK). It is a skill that fosters the teacher's ability to conduct and facilitate learning (Compton, 2009). In the context of language teaching, technology should be considered as a tool rather than a goal (Guikema & Williams, 2014). Last but not least, the EFL teachers are also expected to have a good understanding of content, so-called content knowledge (CK). For instance, teaching specific content like speaking, writing, reading, and listening requires the teacher's knowledge. In the context of teaching speaking, firstly, a teacher should be able to select the appropriate technology for teaching that skill such as using digital language lab, recording tools, video conference (technological knowledge). Secondly, he/she will need to know how to organize those tools to teach speaking such as classroom settings, procedures of using the tools, and the instructional technology design. In short, how the teacher uses technology to address the student's cognition and comprehension, so they will feel helped with the use of technology. Thirdly, they should have good content knowledge about how to teach speaking as well as understand the principles of teaching speaking (see Richards, 2008).

## **C. METHOD**

### ***Participants***

This study involved 6 English lecturers and 80 students in a micro-reality context of English language learning. The research was situated in an Indonesian vocational higher education, so-called Polytechnic. Most English lecturers are non-digital natives who have taught in the school for more than 20 years. They mostly learn and use new technology auto-didactically meaning they were not exposed to the use of technology for teaching purposes both in pre-service teacher education and in-service teacher training. They are likely to struggle to accept and follow the current trends in educational technology. On the other hand, the students are digital natives

born in the digital era, so they are likely to be familiar with the current trends in technology such as hand-held devices, smartphones, tablets, iPad, and the ease of access the internet. They are familiar with Facebook, Twitter, Path, LINE, Whatsapp, and many other micro-blogging platforms.

Regarding access to the English lecturers, they all agreed to participate in the survey. The initial messages were also typed and sent using WhatsApp containing information about the survey and a statement of agreement to participate in the survey. The same way also applied to the students who were invited to participate in the survey. Ethically, it is necessary to build communication with respondents to know whether they are willing to participate in the survey to avoid bias data.

### ***Instruments***

The survey was conducted by administering online surveys via Google form (<https://goo.gl/forms/XyIopDnGydnrO3eI2> and <https://goo.gl/forms/tiIJUK4smbiTnSVz2>) to both teacher and student concerning their perceived technology competency. The teacher's survey consists of four sections asking their existing knowledge and technological competence while the survey for the students only consists of three sections. The four sections of the survey include 1) basic technology operation, 2) personal/professional use of technology tools, 3) application of technology in instruction (teachers only), and 4) social, ethical, and human issues. The investigation involved 6 English lecturers and 80 students across the multidisciplinary courses at one of the vocational higher educations in Indonesia. The results of the survey are automatically stored in the Google Drive database which allows the research to export the data for further analysis. The trends were illustrated in bar graphs and pie charts, so it enabled the researchers to find out the emerging themes and patterns about the student-teacher technology competency.

### ***Data analysis***

Since the data was collected online via Google form, we exported the data from the Google drive storage including all the tables for analysis. We then studied and interpret the exported data to find out the major finding of the survey. The findings are displayed through the tables and discuss the important issues that emerged in the data.

## **D. FINDINGS AND DISCUSSION**

The teacher's readiness to transform new technology into instruction requires both teacher and student technology competency. Based on the survey, most EFL teachers were already familiar with the use of new technology such as a desktop computer, portable computer,

smartphone, internet modem, and home Wi-Fi connection. They have good ease of access to technological tools and use them in their daily life. At this point, they are likely to use the tools for work rather than for teaching purposes. With this initial finding, it is too early to claim that the more they are exposed to technological tools, the more they will use them in teaching and learning instructions. It is not merely the technological competence underpinning the successful teaching language with technology, but the teachers should also have pedagogical knowledge as the foundation of teaching that shapes better learning (Jia, 2015).

In this section, the findings are categorized into two main domains; they are 1) EFL teacher technology competency, and 2) student technology competency. The survey covered four domains of investigation; they are 1) basic technology operation, 2) personal/professional use of technology tools, 3) application of technology in instruction, and 4) social, ethical, and human issues.

***Student-teacher basic technology operation***

Basic technology operation refers to the teacher’s and student’s ability to operate basic computer operating system i.e. on/off/reboot a computer, mouse maneuver, Windows operation systems (8,10), install and uninstall new software, creating directories, saving as and retrieving files, install and uninstall printing tools, network navigation, and use of Microsoft office. Overall, the existing in-service EFL teacher’s basic technology operation informed by the survey result is likely to be adequate. Interestingly, 93.8% of the total average score belongs to the teacher’s network navigation meaning that they are familiar with the internet. However, this percentage doesn’t give any guarantee to make use of technology in ELT instructions. They might be able to use the internet for their personal use, but not for teaching purposes. Further research and investigation in this area may be necessary to find out how the internet is used in ELT practices.

In this technologically-rich environment, student-teacher basic technology operation becomes a crucial skill that allows both teacher and student to be able to operate the basic skills of technological tools. This survey also informed a little practical gap between the in-service EFL teachers and the student.

Table 1. Student-teacher perceived competency of basic technology operation

Basic technology operation	Respondent perceived competency (%)	
	In-Service EFL Teachers	Students

On/off/reboot a computer	81.3	100
Mouse maneuvers (abilities to use a mouse, left/right-click functionalities)	87.5	100
Using Windows (7,8,& 10)	81.3	68.4
Install & uninstall new software	81.3	57.9
Creating directories	93.8	84.2
Saving, retrieving, renaming, copying, deleting, finding, organizing, and backing up files	100	94.7
Install & uninstall printer/scanner/copier	93.8	31.6
Network navigation	93.8	73.7
Using Microsoft Office	100	100

Table 1 illustrates the student-teacher perceived competency about the basic technology operation. The in-service EFL teachers perceived competencies are higher than the students particularly the ability to use Windows (7,8, and 10), install/uninstall new software, creating directories, install/uninstall printer/scanner/copier, and network navigation. Interestingly, these results place the in-service EFL teachers as more knowledgeable users than the students regarding the basic operation of technology. Further research might need to investigate the student's access to technology and factors affecting their exposure to technology such as technology tools affordances, possessions, and facilities in schools.

#### ***Student-teacher personal/professional use of technology tools***

Regarding the personal and professional use of technology tools, the EFL teachers are expected to demonstrate their abilities to use the technology tools both in their daily work and instructions. This competency allows them to explore the practical use of technology tools to use them in their teaching environment. Informed by the survey results, both teacher and student perceived competency in some different areas of technology tools. For instance, the teacher and student professional use of word processing using Microsoft Word might bring a practical gap in its implementation. Neither the EFL teachers nor the students are the experts and able to use word processing software professionally, so it might bring impact to teaching and learning interaction when they are exposed to the use of word processing software. In most universities in Indonesia, lecturers are given autonomy to develop and design the materials for use in their classroom. Therefore, they will need to have word processing competency to write a teaching module, book, and worksheet. The same condition can also be found when the

students are assigned to complete tasks such as writing a project report, an essay, or other narrative papers.

Table 2. Student-teacher perceived competency of personal/professional use of technology tools (Word processing)

<i>Word Processing</i>	Respondent perceived competency (%)	
	In-Service EFL Teachers	Students
Identifying and using available menus, toolbars, and palettes	81.3	80.4
Entering the text (typing on word r chat)	100	91.1
Formatting/editing text	100	87.5
Saving and retrieving documents	100	92.9
Using header, footer, insert a comment, footnote	100	78.6
Inserting page number as well as styles	100	80.4
Inserting graphics (image, diagram, table, and chart)	100	87.5
Importing and exporting documents	81.3	80.4

Table 2 shows student-teacher perceived competency of personal/professional use of technology tools regarding word processing skills. Informed by the perceived competence (in %), the in-service EFL teachers are likely to be more familiar with word processing skills than the surveyed students. Interestingly, 78.6 % of the total surveyed students perceived that they could use header, footer, insert a comment, and footnote while the rest 21.4% were not.

Table 3. Student-teacher perceived competency of personal/professional use of technology tools (Graphics)

<i>Using graphics</i>	Respondent perceived competency (%)	
	In-Service EFL Teachers	Students
using clip-arts	75	76.8
using graphic tools (image editing tools, photo editors, android	87.5	76.8
creating a table, chart, flow chart, graphs, etc	87.5	75

resizing images (increasing/decreasing pixels, size, and quality)	87.5	66.1
mixing, modifying, combining, styling, cropping images/photos/picture/graphs/charts, etc	93.8	75
formatting, converting graphics files (JPG, PNG, etc.)	81.3	69.6
using multimedia software (Photoshop, Corel-Draw, Macromedia, etc.)	25	60.7
enhancing the graphics quality	37.5	41.1
mixing graphics with text	68.8	50

Teaching and learning with graphics are simply necessary for the L2 classroom in which the operational skills (content creation) may be needed by the EFL teacher to create a multimedia presentation (European Commission, 2014). There are many tools that can be used to create interactive and interesting multimedia contents such as FOSS, video-editing software, Photoshop, etc. Given the importance of graphics in L2 teaching and learning, the EFL teachers should have adequate skills and competencies to use the graphics processing tool for their teaching purposes. Informed by the result of the survey, the EFL teachers and students are familiar with the use of graphics, but there are some skills that they will need to improve such as using multimedia software and enhancing the graphics quality (see Table 3). Interestingly, some of the competency areas show a high percentage on mixing, modifying, combining, styling, and cropping images while they might need multimedia software to do so.

Table 4. Student-teacher perceived competency of the use of the internet and web-based technology

the internet and web-based technology	Respondent perceived competency (%)	
	In-Service EFL Teachers	Students
Setting up internet connection both Wi-Fi and Mobile tethering connectivity	87.5	91.1
Surfing and navigating throughout the internet	93.8	71.4
Troubleshooting frequently connection dis-connectivity	56.3	48.2
Securing my internet connection (Windows firewall, internet security antivirus, password, etc.	68.8	69.6



Using web browsers (Internet Explorer, Mozilla Firefox, Google chrome, safari, opera, etc.)	87.5	92.9
Going online using smartphones, tablet, iPad, etc.	93.8	82.1
Sending and receiving files or documents via smartphones, tablet, iPad, etc.	93.8	80.4
Using search engines (Google, yahoo, etc.)	93.8	86.5
Uploading and downloading files from the streaming-based video websites (ex. Youtube, Metacafe, other web-based resources)	87.5	85.7
Creating, managing, and using weblogs (BlogSpot, WordPress, or personal web)	56.3	39.3
Downloading files or document from multi-directed links	87.5	75
Downloading images, photos, pictures, graphs, charts from the internet	87.5	94.6
Downloading mp3, mp4, MPEG files from the internet	87.5	87.5
Embedding web-links into a web page, blog or other web-based contents or social media (Facebook, twitter, etc.)	62.5	66.1
Creating a virtual account on the internet such as email, social media, e-learning, system information, etc.	75	66.1
Sending web-links or other web-based contents to someone else via email	68.8	57.1
Using a cloud storage system (drop box, Google drive, Microsoft, Apple, etc.	81.3	64.3
Using e-learning as a student or a teacher (Moodle, dokeos, chamilo, voxy, bluejeans, and other e-learning platforms	43.8	44.6
Using online web-based video conference platforms (Skype, blue jeans, Facebook, etc.	68.8	58.9
Creating, editing multimedia files and uploading them to the internet (video uploads to YouTube, social media, etc.)	56.3	71.4

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The use of web-based technology in L2 teaching-learning is considered to be an effective platform in a technologically-rich learning environment although the users might face some difficulties and problems in its implementation (Lyashenko, 2016). Familiarity with web-based technology has become a crucial point in L2 teaching and learning in which some obstacles or

barriers might hamper the users from the actual use of it (see Pajo & Wallace, 2007). On the other hand, internet skill is also pivotal to access web-based resources for use in language learning (Gallo-craill & Zerwekh, 2002; Guan, 2014). Table 4 illustrates the respondent's perceived competency of the use of web-based technology and the internet. Overall, the perceived competency of both in-service EFL teachers and the students is familiar with the use of web-based technology and the internet although some points or indicators were noticed to be their weaknesses. They found difficulties in performing troubleshooting and securing the internet connection, but these will not probably hamper them to make use of the platforms. As the advances in technology are now developing very rapidly, they will need to upgrade their skills in some crucial points such as using e-learning (43.8% and 44.6%), Android-based platforms (68.8% and 58.9%), and iOS (56.3% and 60.7%). Informed by these results, it neither the in-service EFL teachers nor the students can make use of the platforms. Moreover, this phenomenon will continue to take effect in the L2 teaching and learning process due to some reasons such as teacher technological skills and student acceptance of the technology.

***Teacher application of technology in instruction***

The key success of the application of technology in instruction is the teachers' belief in the technology itself that they must believe it will make the teaching and learning effective, not hamper them from its actual use, and make them confident to use such technology (Zhao & Cziko, 2001). A teacher might want to use technology for his/her teaching, but he/she is not confident to use the tool due to the lack of skill and familiarity with the tool.

Table 5. Student-teacher perceived competency of application of technology in instruction

Application of technology in instruction	Respondent perceived of use (%)				
	Always	Usually	Sometimes	Rarely	Never
I teach English with technology	18.8	50	31.3	-	-
I use an LCD projector and screen banner as a visual display in my classroom teaching	37.5	43.8	18.8	-	-
I deliver the materials using Microsoft Powerpoint, Prezi, or others as my presentation tools	37.5	43.8	18.8	-	-
I use authentic videos in my classroom	25	31.3	37.5	6.3	-
I use authentic sound recording in my classroom	31.3	31.3	31.3	6.3	-

I use authentic images/photos/pictures in my classroom	18.8	43.8	37.5	-	-
I use authentic text, articles, reading materials in my classroom	18.8	50	31.3	-	-
I use my laptop and a loudspeaker for the listening practice	56.3	37.5	6.3	-	-
I use the language lab mostly in teaching sessions.	6.3	25	37.5	12.5	18.8

Table 5 illustrates the perceived competency of application of technology in ELT instructions and how often they use the technology tools and graphics in instruction. In general, the surveyed EFL teachers are likely to be familiar with technology in their classrooms although they will need to improve their skills on some points (authentic video, sound recording, and language lab utilization). Authentic visual materials such as videos, films, tv programs, and many others will bring clear benefits regarding student's learning autonomy (Pegrum, 2009). Autonomous learning is important in encouraging learners to explore their learning utilizing the authentic materials which are hugely available on the internet. On the other hand, most of the institutions have provided the teachers and students a digital language lab which can help them explore web-based technology in teaching and learning context. In fact, they are likely to be reluctant to use the language lab which may be caused by technical troubleshooting, interactivity, unstable internet connection, teacher competency, and student acceptance of the tools.

### ***Student-teacher social, ethical, and human issues***

Social, ethical, and human issues have become never-ending problems regarding the legal use of technological tools both hardware and software. This issue becomes critical and even more chronic in most developing countries like Indonesia. The purchase and distribution of technological tools are legally protected by copyright and valid license from the company, but it seems to be a clear ignorance in their distributions. The following results of the survey illustrate the user's social and ethical behaviours towards the use and distribution of technological tools.

Table 6. Student-teacher perceived competency of application of technology in instruction

Application of technology in instruction	Respondent perceived of use (%)				
	Always	Usually	Sometimes	Rarely	Never

the copyright and legal ramifications of using electronic information	18.8	50	31.3	-	-
use the original package of the Windows operating system (Windows 7, 8, 10)	37.5	43.8	18.8	-	-
use the original package of Microsoft office (word, excel, powerpoint)	37.5	43.8	18.8	-	-
bought and used the original anti-virus and internet security software	25	31.3	37.5	6.3	-
use the original version of copyrighted software (Photoshop, CorelDraw, SPSS, video editing, sound editors, and image processing tools)	31.3	31.3	31.3	6.3	-
use the cracked version of copyrighted software (Photoshop, CorelDraw, SPSS, video editing, sound editors, and image processing tools)	18.8	43.8	37.5	-	-
cite sources that I got from the internet, so I always give credit to the author/s whose original work I quoted by inserting appropriate quotation	18.8	50	31.3	-	-
distribute and share the information I got from the internet without giving credit to whom provided the information	56.3	37.5	6.3	-	-
downloaded digital information and resources such as using reports, journals, scholarly works, books, worksheets, multimedia files (videos, images, sounds) without giving credit to whom own the copyright	6.3	25	37.5	12.5	18.8

More than 50% of the teachers and students know that the tools they are currently using are legally protected by copyright and license, but unfortunately, it is not by what they know and what they do. Most of them know that they violate the copyright, but they keep using the cracked version of the tools. Interestingly, this kind of illegal behaviour continues to bring impact on the use of scholarly articles, works, books, and multimedia files for use in their academic activities. The high percentage rate of copyright violation will potentially lead the teacher and student to commit plagiarism. This situation is obviously dangerous for the professional development of teachers as scientists and scholars.

## E. CONCLUSION

Incorporating technology into language learning instructions is not an easy task due to four perennial factors arising during the study; they are technology tools, contents, teachers, and students. The utilization of technology in ELT, teaching, and learning in the digital world offers some possibilities and challenges (Butler-Kisber, 2013). Student-teacher technology competency has become a key skill to consider to use technology in learning instruction. The in-service EFL teachers should know how to use, integrate, incorporate, and transform the technology into ELT instructions. Therefore, they will need to continue to participate in the professional development programs as it is highly demanding for being a digital teacher. Concluded from the discussion above regarding the student-teacher readiness to use technology in ELT, most EFL teachers are likely to be the users rather than be a course and materials developer. They will need to learn a new skill as the advances in educational technology are changing very rapidly in the last few years. The teachers will need to adapt to the technologically-rich learning environment to explore and develop authentic resources for use in the classrooms. Given the students are known as digital natives, they are highly familiar with technology in their daily lives (Li, 2016) although they still need to learn again when exposed to new technology. It is important to ensure that the teachers are ready to transform the technology into instruction and the students are ready to accept the technology. In addition to this, both in-service EFL teachers will need to stop violating the copyright applications and tools as it will lead to the academic masturbation and critical plagiarism.

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