

## **Using Technology in English Teaching of Pre-Service Teachers in 4.0 Industrial Revolution Era**

**Maria Yosephin Widarti Lestari<sup>1</sup>, Siti Musarokah<sup>2</sup>, Asyifa Dinar Prashanty<sup>3</sup>**

<sup>1, 2, 3</sup> Universitas PGRI Semarang

[maria\\_utama92@yahoo.com](mailto:maria_utama92@yahoo.com)

**Abstract.** The study aims at knowing the use of technology in teaching learning process of pre-service teachers of English Study Program of Universitas PGRI Semarang. The subjects of the study are the eight semester students which are Pre-service teachers of the English Study Program of Universitas PGRI Semarang in the academic year 2018/2019. The instrument used in the study is questionnaire. The techniques used in the study are sharing the questionnaire to the eight semester students through WhatsApp to know what kinds of technology used by them are and interview to know how their perception of the use of technology in teaching learning process is. The qualitative data are analyzed by reducing the data, classifying the data and drawing conclusion. The result of the study shows that Pre-service teachers tend to use same kinds of technology in teaching learning process, and they have an opinion that technology is really important for the teachers and for students.

**Key words:** technology, teaching English, pre-service teachers, 4.0 industrial revolution era

### **INTRODUCTION**

Using technology plays an important role in a learning process both in the classroom and out of it since it can improve the process of learning any subject. In learning language, using suitable technological materials is useful to help learners improve their skill including language (Clements & Sarama, 2003). Some researches about using technology in English language teaching showed significant improvements of language skills gained by language learners. It can be a helpful way for learners to find activities through using computer technology in order to be successful in language learning. In modern time education system is blind without the use of internet because internet helps learners to make the education more purposeful and more interesting. In the learner-centered method, learners become more independent and cooperative guided by teachers as facilitators. Additionally, it is said that using technology in the classroom makes the learning process enjoyable and interactive (Baytak, Ahmet, Tarman, Bülent; Ayas, Cemalettin, 2011; Ahmadi, 2008; Barton, & Haydn, 2006; Chen, 2010).

A teacher is not just someone who likes to teach, nor just a profession but a teacher is a role model for the students. Therefore, teachers must have spirit and character to improve their knowledge before they transfer it to their students. Professional teachers, especially nowadays

with a very rapid development of technology, must be creative and innovative (Lee & Lee, 2004). They face students of internet generation, which everything can be found and browsed in internet easily and quickly. Moreover, it is said that to maintain the professionalism in industrial revolution 4.0 era, teachers can apply technology in teaching learning process (Afrianto, 2018). Teachers also have to be aware and adapt technology to become professional teachers (Suherdi, 2019) so that they can pass the challenge of Indonesian Curriculum in this era. Unfortunately, not all teachers have enough capability in using technology. They are hard to reach the pace of information and technology development compared with their students who are familiar with technological developments. The result is they become boring teachers. That is why, Universitas PGRI Semarang provides some courses of preservice teachers or teachers candidates called Magang. In the courses, students are equipped by knowledge of teaching methods and how to use them interactively. This study focuses on the use of technology in teaching learning process of Pre-service teachers and their perception of the use of technology in teaching learning process.

#### ***4.0 industrial revolution era***

In her study, Anealka (2018) quotes Shwab (2016) who illustrates that in the industrial revolution 4.0, the advancement of new technologies blurs the lines between the physical, digital and biological worlds. Furthermore, she reveals that the new technologies are emerging at an unprecedented rate, and there is no historical precedent that marked the beginning of evolution, which is thus considered disruptive technologies. Such developments are driven by the advent of artificial intelligence, robotics, the Internet of Things, autonomous vehicles, bio and nanotechnology, 3-D printing, material science, quantum computing, and energy storage. Based on Anealka (2018), Dunwill (2016) predicted how an average classroom will look like in the next 5 to 7 years. a) A huge change in the layout of the classroom, b) Virtual and augmented reality will change the educational landscape, c) Flexible assignments will accommodate multiple learning styles, d) MOOC and other online learning options will impact secondary education.

Malaysia is one of the countries in Southeast Asia which already apply the said system. There, the classroom layout has slowly evolved from tidy rows and chairs to versatile seating configurations allowing for individual as well as collaborative workspaces. Student assignments are no longer merely in the form of constructed or selected responses. Alternative methods for meeting different learning styles were introduced. Portfolio, project papers, presentation, and rating scales are among the alternative tests that are currently being performed. In addition to improvements in the classroom layout and evaluation styles, tertiary education has begun to use Large Open Online Courses (MOOCs) and other teaching and learning tools on-line.

Education 4.0 is a response to the needs of IR4.0 where human and technology are aligned to enable new possibilities (Anealka, 2018). Meanwhile, the present tertiary students aged between the ages of 18 and 23, and they belong to the technologically revolutionized Generation -Z (Gen Z). The Gen Z students' learning preference is different from the previous generation,

as they are more practical and directly involved in the learning process. To be able to catch up and cope with their students, teachers need to relearn and equip themselves with the digital tools to meet the learning preference of the Gen Z students (Anealka, 2018).

### *Technology Used in Teaching*

Although IT-based media requires special expertise, it does not mean that the media shall be avoided and abandoned (Muhson, 2010). According to Nurdiansyah & Andiek (2015), this change in paradigm must be accompanied by a change in mindset (mindset) of all parties involved in managing education starting with education policy holders, practitioners, and students in terms of interpreting learning to know, learning to do, learning to be, learning to live together (Sudyana, et al., 2007: 1089).

Based on media categories, Paul and David (1999) through Rishe (2007) argue that there are six categories, namely unprojected media, projected media, audio media, film and video media, multimedia, and communication-based media. Meanwhile, Briggs identified thirteen types of learning media, namely objects, models, direct sound, audio recordings, print media, programmed learning, blackboards, transparency media, chain films, frame films, film films, and picture films. Technology, in line with media, does not only offer ease on the teaching-learning process alone—it has become a demand in the education field itself.

Nurdiansyah & Andiek (2015), in their study, reveal that educational technology is the development, application and evaluation of systems, techniques and tools to improve and enhance the process of human learning. Some of the advantages of utilizing computer networks, as an example of the use of technology in distance education systems, are: it can enrich tutorial models, it can solve learning problems faced by students in a shorter time and can overcome the obstacles of space and time in obtaining information (Muhson, 2010).

Given all the conveniences offered by technology, it is suggested for educators to open themselves to all opportunities. This idea is in line with Nurdiansyah & Andiek (2015), who describe information technology as a medium that supports the learning process and is the fastest way to study the different sciences.

### **METHOD**

The study is qualitative descriptive research which was conducted to know how technology used by Pre-service teachers. The subjects of the study are the eight semester students which are Pre-service teachers of the English Study Program of Universitas PGRI Semarang in the academic year 2018/2019. The instrument used in the study was a questionnaire adapted from a survey done by Schmidt, Baran, Thompson, Koehler, Shin, and Mishra (2009). There were fifteen statements in the questionnaire which students should give responses that was by selecting the criteria “Strongly agree, agree, strongly disagree or neither agree or disagree”. In addition, the questionnaire also included two questions which they could answer briefly. The technique used to collect the data was by sharing the questionnaire to fifteen students of the semester eight through WhatsApp application. This was done to know what kinds of technology used by them are and to know how their perception of the use of technology in teaching learning process is. The qualitative data which were the Pre-service teachers’ responses were analyzed by reducing the data, classifying the data and drawing conclusion.

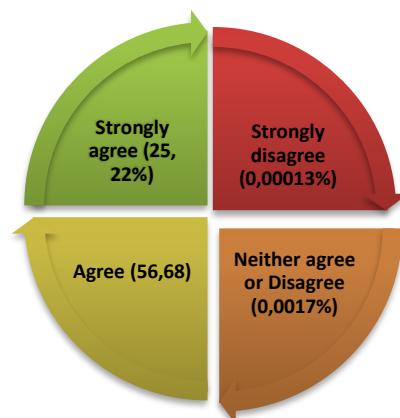
## RESEARCH FINDINGS AND DISCUSSION

The result of the study is explained in the form of the description of the use of technology in teaching learning process done by Pre-service teachers of English Study Program of Universitas PGRI Semarang.

### *Technology Used by Pre-Service Teachers in Teaching Practice*

To know the use of technology the writers identified the questionnaire which had been shared to the Pre-service teachers. There were fifteen positive statements given in the questionnaire. The Pre-service teachers should select four criteria in the questionnaire, namely “Strongly disagree”, “neither agree or Disagree”, “Strongly agree”, and “Agree”. The result of the questionnaire shows that most Pre-service teachers strongly agree and agree that they are accustoming with the use of technology in teaching practice. From 15 respondents, 25% respondents state that they are strongly agree with the statements and 56,68% respondents agree with it. On the other hand, there were 0,00013% respondents strongly disagree with the statements prepared, and 0,0017% disagree with it. It means that Pre-service teachers had implemented technology when they were practicing teaching. Figure 1 shows the percentage of respondents’ answers in using technology in teaching learning process.

*Figure 1 Percentage of the use of technology by Pre-service teachers*



The fifteen positive statements are divided into some parts. The first part of the statement is to know the previous knowledge of technology they got from their lecturer before they implemented the technology in teaching practice. The second part is to know the capability of the Pre-service teachers in solving the technical problem in using technology. The next part is to know whether or not the Pre-service teachers use technology in preparing materials in teaching practice. The next is to know their will in updating their knowledge of technology, and the last part is to know their capability in using technology in teaching practice.

In the first part questionnaire, the previous knowledge of technology got by Pre-service teachers, the result shows that most students, in this case, Pre-service teachers got some previous knowledge of technology from their lecturer before they implemented technology in teaching learning process. From fifteen respondents, only two who disagree that they know how to use technology in teaching learning process from their lecturers before they practiced teaching in schools. They think that their lecturers give them enough knowledge of using

technology in teaching English as well. The modules from their lecturers also help them to understand how to use technology in teaching English. It can be said that the previous knowledge which the Pre-service teachers got impacts on their performance in using technology.

The result of the second part, the capability of the Pre-service teachers in solving the technical problem in using technology, shows that most of respondents or thirteen respondents did not face difficulty in solving the technical problem in using technology, but two respondents faced it. It means that Pre-service teachers were able to solve the technical problem when they were using technology in teaching learning process.

In the third part, whether the Pre-service teachers used technology in preparing materials in teaching practice, most Pre-service teachers or fourteen respondents had used it although one of them had not applied it when he was preparing the materials in teaching practice. Therefore, technology becomes necessary for Pre-service teachers in preparing the materials before they were practicing teaching.

The next part of questionnaire contains of Pre-service teachers' opportunities to work with different technologies and their will in updating their knowledge of technology. In this case, although ten of Pre-service teachers have had sufficient opportunities to work with different technologies, and they can work with them well; unfortunately, five respondents did not have opportunities to work with different technologies when they were practicing teaching in schools. Four respondents also did not frequently play around the technology, and even their knowledge about a lot of different technologies was limited. It means that some Pre-service teachers' opportunities and will in working and updating their knowledge of technology still need to be developed.

The last part of questionnaire is Pre-service teachers' capability in using technology in teaching practice. In this case, most Pre-service teachers also had capability in using technology in teaching practice. It is proved with the respondents' response of the questionnaire. For example, most Pre-service teachers could choose technologies that enhance students' learning for a lesson. Even they could adapt the use of the technologies that they were learning about to different teaching activities. Most Pre-service teachers could teach lessons that appropriately combine English and technology as well. It can be concluded that they are able to use technology in teaching learning process.

#### *Kinds of technology used by candidate teachers*

The writers found some kinds of technology used by the candidate teachers in teaching learning process. They are as follows:

Table 1 Kinds of technology and materials used by candidate teachers

<b>Num.</b>	<b>Kinds of technology</b>	<b>Materials</b>
<b>1</b>	Grammar applications	Grammar/tenses
<b>2</b>	Websites or blogs	Texts
<b>3</b>	An audio or video of two people having conversation	Listening skill
<b>4</b>	Internet	Teaching material

5	Power point presentation	Text
6	Vocabulary.com	meaning, synonym, antonym, and also doing the exercises
7	digital learning material combined with game	Some materials
8	LCD, Projector, Laptop, PC	Some materials

From Table 1, it shows that the students had used various kinds of technology in teaching learning process. The kinds of technology are Grammar applications, Websites or blogs, An audio or video of two people having conversation, Internet, Vocabulary.com, Power point presentation, digital learning material combined with game, and LCD, Projector, Laptop, and PC. The kinds of technology were implemented for teaching various kinds of material. For example, when they taught tenses, they used Grammar application as the teaching media to make the material easier and interesting.

#### *Advantages of technology in teaching learning process*

Based on Pre-service teachers' perception, there are some advantages of technology they used in teaching learning process.

*For teachers.* Pre-service teachers think that through internet, teachers can get the materials from different sources, and they can combine those materials got from internet with their own materials so that their materials become more complex. The technology can also support their teaching materials. In addition, by using Power Point presentation, they are esier and clearer to explain the material to the students. The learning process will also be more effective and fun. From Pre-service teachers' perspective, by using technology, teachers can be more confident as well.

*For students.* It will engage students in the learning process which increases their attention and focus. It can also build students creativity and make the students easy to understand the material. It increases knowledge retention, and they can get the skills they need to succeed in the future, and students are more interested in the subjects they are studying. Technology also helps the students to stay motivated during the learning process.

## CONCLUSION

This paper has presented the kinds of technology used by Pre-service teachers who have taken Preservice teacher courses in Universitas PGRI Semarang. The research revealed that most of the students were prepared well during that took lecturers to equip them in teaching at partner schools. Most of them adapt the use of the technologies that they are learning about to different teaching activities. They also find any teaching material from internet so that they can get various and interesting classroom activities. Some of them create new material by combining their own material with the material taken from the internet. In addition, they view that by using technology in teaching learning process, it gives many benefits for both teacher and students. Therefore, the use of technology of pre-service teachers of English study program in teaching learning process becomes one of the efforts to answer the challenge of Indonesian Curriculum implemented in the 4.0 industrial revolution era.

## REFERENCES

- Afrianto. 2018. Being a professional teacher in the era of industrial revolution 4.0: Opportunities, challenges and strategies for innovative classroom practices, *English Lang. Teach. Res.*, 2018.
- Ahmadi. (2008). The use of Technology in English Language Learning: A Literature Review. *International Journal of Research in English Education* 3:2
- Barton, R., & Haydn, T. (2006). Trainee Teachers' views on what helps them to use information and communication technology effectively in their subject teaching. *Journal of computer assisted learning*, 22(4), 257-272.
- Baytak, Ahmet; Tarman, Bülent; Ayas, Cemalettin. (2011). Experiencing Technology Integration in Education: Children's Perceptions. *International Electronic Journal of Elementary Education*, v3 n2 p139-151 Mar 2011
- Chen, R.J. (2010). Investigating models for preservice teachers' use of technology to support student-centered learning. *Computers & Education*, 55(1), 32-42. Elsevier Ltd. Retrieved July 5, 2019 from <https://www.learntechlib.org/p/66600/>.
- Clements, D.H., & Sarama, J. (2003). Strip Mining for Gold: Research and Policy in Educational Technology-A Response to "Fool's Gold." *Educational Technology Review*, v 11 n. 1
- Hussin, A. 2018, "Education 4.0 Made Simple: Ideas for Teaching," in *International Journal of Education and Literacy Studies*, 2018
- Lee, Y. & Lee, J. 2004. Enhancing pre-service teachers' self-efficacy beliefs for technology integration through lesson planning practice. *Computers & Education* 73, 121-128.
- Muhson, A. (2010). Pengembangan media pembelajaran berbasis teknologi informasi. *Jurnal Pendidikan Akuntansi Indonesia*, 8(2).
- Nurdyasnyah, N., & Andiek, W. 2015. *Inovasi teknologi pembelajaran*.
- Schmidt, D., Baran, E., Thompson, A., Koehler, M.J., Shin, T., & Mishra, P. (2009). Examining preservice teachers' development of technological pedagogical content knowledge in an introductory instructional technology course, in *Proceedings of Society for Information Technology Teacher Education International Conference 2009*