

## CHAPTER II

### REVIEW RELATED LITERATURE

This chapter discusses about review related literature that describe about pre-service English teacher, ICT (Information and Communication Technology), ICT in education, TPACK (Technological Pedagogical Content Knowledge), technostress, and previous studies.

#### **A. Pre-Service English Teacher**

Pre-service is the basis of the curriculum for teachers that is useful for providing training on learning content, pedagogical skills, and attitudes when teaching students in the classroom. In this sense, it cannot be separated from teaching practice activities that play a role as training in the teaching skills of prospective teachers in order to achieve success in teaching. There are several factors that supporting the effectiveness of teachers when teaching namely the teaching environment, the ability and creativity of teachers, as well as time and class management<sup>20</sup>. Meanwhile, pre-service English teachers are students who are preparing themselves for training as prospective English teachers by paying attention to learning content, pedagogical skills, and attitudes when teaching English lessons in class.

In practice, pre-service English teachers still need to always learn as a form of self-development in teaching and learning. One form of self-development is to form self-confidence in teaching later. The self-confidence of the pre-service English teacher will affect teaching and learning activities, especially in teaching English. Influences such as how to deal with different kinds of students with different intelligences, how to solve problems in class, and how to make class interesting.<sup>21</sup> In addition, the pre-service English teachers' speaking habits also

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<sup>20</sup> Astuti, Yuliani Dwi, Nur Arifah Drajadi. "Teaching Practicum Experiences: Pre-service English Teachers' Self-Reflections of Their Professional Growth". *Journal of Innovation in Educational and Cultural Research*. Vol. 3. No. 3. (2022). Pp. 382-389. E-ISSN 2722-9696.

<sup>21</sup> Keten, Ulviye. "Pre-service English teachers' sense of efficacy with regard to gender and academic GPA". *International Journal of Learning and Teaching*. Vol. 14. No. 2. (2020). Pp. 86-94. <https://doi.org/10.18844/ijlt.v14i2.6653>

affect learning activities. Sometimes there are still pre-service English teachers who are weak in speaking English. This is influenced by the following factors.<sup>22</sup>

1. Social factors

The social factor referred to here is how the pre-service English teacher communicates with their friends when practicing English speaking. In addition, self-confidence when communicating with fellow pre-service English teachers or the community also affects the ease with which they respond to something. Conversational habits using English will make it easier for pre-service English teachers to socialize.

2. Linguistic factors

Linguistic factors that influence pre-service English teachers' speaking are lack of English proficiency, lack of understanding of proper grammar, lexical and pronunciation. Linguistics in language is very important so that the language used when communicating can be neatly arranged and easily understood by listeners. Pre-service English teachers who have weaknesses in linguistic factors must often study linguistics in order to have good English speaking skills.

3. Individual factors

Individual factors owned by pre-service English teachers can influence interactions when speaking in English. Personal pre-service English teachers' problem that affect interest in speaking will have an impact on fluency in interacting with others.

## **B. ICT (Information and Communication Technology)**

Information and communication technologies (ICT) is a broad umbrella term that includes all technical tools that can convey important information. ICT is a set of technologies and technological resources used to communicate, create, disseminate, store, and manage information<sup>23</sup>. ICT has an important role in the

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<sup>22</sup> Daud, Afrianto, Fakhri Ras. Novitri, Clara Putri Audia. "Factors Contributing to Speaking Anxiety: A Case Study of Pre-Service English Teachers". *Journal of Educational Sciences*. Vol. 3. No. 3. (2019). Pp. 412-422. E ISSN 2581-2203.

<sup>23</sup> Alkamel, Mohammed Abdulkareem M., Santosh S. Chouthaiwale. "The Use of ICT Tools in English Language Teaching And Learning: A Literature Review". *Journal of English Language and Literature (JOELL)*. Vol 5. No. 2. (2021). Pp. 29-33. ISSN: 2349-9753.

world of education, both formal and non-formal. The development of ICT is faster than other technology fields. ICT media such as computers are used for data processing. This is also not far from the internet as online telecommunication which makes it easier for people to access information and find sources used in conveying material. Since the emergence of ICT, the government has tried to integrate ICT into education and made ICT facilities so that learning becomes more effective. ICT has become a part of human life to improve the quality of life because its use has increased over the last few years. In its use, language differences are also found, but it can be used to build communication because it is in accordance with the function of ICT itself which conveys information and effective communication learning so that it can be achieved by almost all circles of society. Following are the characteristics of information technology<sup>24</sup>.

1. Obtaining, storing, falsifying, managing, sending or receiving data or information.
2. Timely accessible information.
3. Ability to upload data easily.
4. Can connect geographically dispersed areas.
5. Wider communication range

The rapid development of technology to enter the field of education makes the latest developments in creating media for learning. ICT for education implies the development of information and communication technology for learning and teacher goals. Meanwhile, ICT in education is implemented in teaching and learning activities that can be accessed by teachers and students. One of the most modern ICT teleconferencing facilities currently widely used is as follows.<sup>25</sup>

1. Audio conferencing

Audio-conferencing involves exchanging voice messages directly over the telephone network. In an audio conference, all participants in the conference

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<sup>24</sup> Nnaekwe, Uchenna Kingsley, Patience Ugwu. "The Concept and Application of ICT to Teaching/Learning Process". *International Research Journal of Mathematics, Engineering and IT*. Vol. 6. No. 2. (2019). Pp. 10-22.

<sup>25</sup> Ratheeswari, K. "Information Communication Technology in Education", *Journal of Applied and Advanced Research*, vol. 3, no. 1, (2018), pp. 45-47. <https://dx.doi.org/10.21839/jaar.2018.v3S1.169>.

can send their voice messages. They can also reply to voice messages from any of the other participants. In addition, conference participants can add additional text messages.

## 2. Video conferencing

Video-conference is an ICT network that can exchange sound and moving video images. In a video conference, participants can turn the microphone and video on or off. Video conferencing is conducted online. It is like television but can be carried by many people on the same screen. Video conferencing is usually done for meetings or teaching classes online.

## 3. Web-based conferencing

Web-based conferencing involves the transfer of text or images, audio, and displays via the internet in order to communicate simultaneously or asynchronously.

## 4. Open and distance learning

Open and distance learning is usually implemented for education. In this case the role of the teacher is included as an important role in the implementation of open and distance learning. This involves more participants. The quality and educational facilities need to be improved here so that learning is more directed, independent, be able to solve problems, seek information, think critically, and have the ability for better communication and learning collaboration.

## **C. ICT in Education**

Traditional teacher learning, such as the lecture method and interspersed with presentations, has gone through many years designed to unify the content. Along with the very rapid development of ICT, ICT has entered the education sector. The impact of ICT has made promotions in settings that state that curriculum and performance competencies are supported by the settings used to date. Technology has an important role in education, especially for teaching and learning activities. With the existence of technology, it can make it easier for teachers to find

material via the internet and provide varied learning for students<sup>26</sup>. If the teacher uses online learning device technology and the teacher gives permission to students to access it via mobile phone, then the teacher and students have integrated technology into learning together<sup>27</sup>. This can also make learning activities more active because teachers and students both access the same learning tools. ICT can enter the education sector by balancing curriculum and teacher performance competencies and can be well integrated, so there is a role or impact of ICT in education<sup>28</sup>.

1. ICT has the ability to transform educational settings.
2. ICT allows students to demonstrate achievement in a modern way.
3. ICT can help students to collect data and compose their curiosity.
4. ICT as a facility that provides learning media for teachers and students in order to create more interesting learning activities.
5. ICT adds quality and curriculum systems by implementing competency and performance based approaches.
6. Programs from ICT that can be accessed anytime and anywhere convenient for students.
7. ICT can assist teachers in providing additional material via the internet.
8. Add a variety of services and media for education.
9. Advancing learning procedures by providing more interactive materials that can motivate students to increase their learning skills.
10. ICT can provide benefits by enabling distance learning.
11. ICT can improve the efficiency of education administration and management.

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<sup>26</sup> Ryn, A. S., Sandaran SC. "Teachers' Practices and Perceptions of the Use of ICT in ELT Classroom in the Pre-Covid Pandemic Era and Suggestion for the 'New Normal'". *LSP International Journal*. Vol. 7. No. 1. (2020). Pp. 99-119. E-ISSN 2601-002X. DOI: <https://doi.org/10.11113/lspi.v7n1.100>

<sup>27</sup> Maru, Mister Gidion, Chris Caesar Pikirang, Donal M. Ratu, Jim Ronny Tuna. "The Integration of ICT in ELT Practices: The Study on Perspective in New Normal Era". *iJIM*. Vol. 15. No. 22. (2021). Pp. 44-67.

<sup>28</sup> Das, Khousik. "The Role and Impact of ICT in Improving the Quality of Education: An Overview", *International Journal of Innovative Studies in Sociology and Humanities (IJISSH)*, vol. 4, no. 6, (2019), pp. 97-103.

The use of ICT which has seen more benefits makes its integration in the field of education increasingly required for the advancement of education. Integrating ICT in the classroom has changed learning methods to a more modern one because students are the center of learning there<sup>29</sup>. This makes it easy for teachers to teach using technology which is supported by students who can operate technological media<sup>30</sup>. Following are some of the benefits of ICT in its integration in the classroom:

1. Provide a more student-centred learning offering.
2. Communication cooperation between students and teachers is getting better.
3. Provides a greater foundation on student expertise.
4. The technology conveyed by the teacher is wider.
5. Creating student motivation to learn by using technology.
6. Teachers can access knowledge with more sources of information.
7. Students can prepare for the world of work.
8. Provide many sources of knowledge for student learning materials.

ICT in education are some of the hardware and software that contribute to the process of information in education. In the context of the current era, ICT devices in education use more hardware as a means of storage and software as a driving medium for the implementation of ICT by teachers and students. The following are the characteristics of ICT in education.<sup>31</sup>

1. ICT in education are several information technologies that focus on receiving, manipulating, managing, sending data for educational purposes.
2. ICT in education is technology that offers a change from information to communication language in teaching and learning activities. For example,

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<sup>29</sup> Dianti, R., Atmanegara, Y., "The Implementation of ICT-Integrated ELT Across Curriculum 2013 in Senior High School in Palembang", *English Community Journal*, vol. 2, no. 2, (2018), 217-226. ISSN 2579-7378.

<sup>30</sup> Shabbir, N., Khan, N., "Integrating ICT as A Teaching Tool in the ELT Classroom at Higher Education Level: A Descriptive Study", *Journal of Social Sciences and Media Studies*, vol. 3, no. 1, (2019), pp. 37-46.

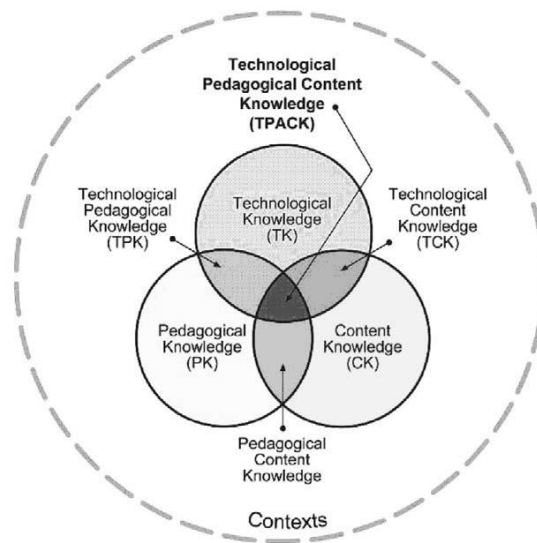
<sup>31</sup> Nnaekwe, Uchenna Kingsley, Patience Ugwu. "The Concept and Application of ICT to Teaching/Learning Process". *International Research Journal of Mathematics, Engineering and IT*. Vol. 6. No. 2. (2019). Pp. 10-22.

presentations that use power points, CD ROMs, and online meetings that can be done by more than two people.

3. ICT in education is educational technology that is applied in the educational process.
4. ICT in education supports learning materials that can become a source of new knowledge for teaching and learning activities in order to improve the quality of education.
5. ICT in education includes fully online activities such as teleconferences and offline activities involving media technology in the learning process.

#### **D. TPACK (Technological Pedagogical Content Knowledge)**

Technological pedagogical content knowledge is knowledge about the importance of integrating technology with learning content in education. The integration of ICT in ELT is one of the teacher competencies that must be mastered, especially for pre-service English teachers. Here's the TPACK framework<sup>32</sup>.



Picture. TPACK Framework

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<sup>32</sup> Schmidt, D.A., Baran, E., Thompson, A.D., Mishra, P., Koehler, M.J., Shin, T.S., “Technological Pedagogical Content Knowledge (TPACK): The Development and Validation of an Assessment Instrument for Preservice Teacher”, *JRTE*, vol. 42, no. 2, (2009), pp. 123-149.

As for the TPACK component, there are 7 components, they are presented as bellow<sup>33</sup>:

1. Content Knowledge (CK)

Content knowledge is the teacher's knowledge of the material to be studied or taught to students. The learning content that will be discussed is different from the content intended for school students and college students. This is important for teachers. Knowledge here includes knowledge of concepts, theories, ideas, organizational frameworks, and sources to complement this knowledge.

2. Pedagogical Knowledge (PK)

Pedagogical knowledge is the teacher's knowledge of the practical process or methods used in teaching and learning activities. In this knowledge includes the goals, values, and goals of education. It is used to understand how students learn, class management, and lesson plans. Pedagogical knowledge requires understanding the cognitive, social, and developmental theories of student learning in the classroom.

3. Pedagogical Content Knowledge (PCK)

Pedagogical content knowledge is a combination of pedagogical knowledge and content knowledge. PCK covers the core of teaching, learning, curriculum, assessment, and reporting as well as conditions that promote learning. Teachers who have competence in pedagogical content knowledge (PCK) usually learn from previous experiences when they were still students, namely by paying attention to practice when the teacher taught first. So that in practice there are many variations in the way teachers teach. This makes the definition of PCK quite flexible in a variety of settings and contexts where teachers teach and work<sup>34</sup>.

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<sup>33</sup> Koehler, Matthew J., Punya Mishra. "What is technological pedagogical content knowledge?". *Contemporary Issues in Technology and Teacher Education*. Vol. 9. No. 1. (2009). Pp. 60-70.

<sup>34</sup> Kind, V. and Chan, K.K.H. "Resolving the amalgam : connecting pedagogical content knowledge, content knowledge and pedagogical knowledge", *International journal of science education*, vol. 41, no. 7, (2019), pp. 964-978 .



4. Technological Knowledge (TK)

Technology knowledge is teacher knowledge about technology and how teachers use digital technology.

5. Technological Content Knowledge (TCK)

Technological content knowledge is knowledge about how learning can be accessed, organized, and presented using technology. Teachers who understand the impact of technology on education provide disciplined knowledge of using technology as an appropriate tool for educational purposes. By using technology, teachers can provide certain content and can limit the type of technology used.

6. Technological Pedagogical Knowledge (TPK)

Technological pedagogical knowledge is knowledge about digital technology and knowledge about learning processes and strategies. It is more towards understanding how learning and teaching change when using technology in certain ways.

7. Technological Pedagogical Content Knowledge (TPACK).

Technological pedagogical content knowledge is an emerging form of knowledge that goes beyond the three core components, namely content, pedagogy, and technology. TPACK is the foundation of effective teaching using technology, using pedagogical techniques that use technology in a constructive way to teach learning content. By integrating knowledge of technology, pedagogy, and content together, teachers automatically carry a TPACK every time they teach.

**E. Technostress**

Technostress is stress caused by someone trying to adapt to new technology or using technology excessively, causing physical or psychological discomfort. Technostress arises due to several factors such as the workplace, one's personality, relationship arrangements, and the role of supporting technology that receives an

endless flow of information. These things can trigger technostress which causes discomfort for technology users. The risks posed by technostress as follows<sup>35</sup>:

1. Continuous use of smartphones even during social gatherings.
2. Smartphone users never turn off the phone.
3. Smartphone users often wake up at night and are addicted to social media.
4. Smartphone users make frequent calls to places such as cinemas and libraries.
5. Smartphone users do prohibited things such as writing messages while traveling.
6. Television that can be used like a tablet or mobile phone.

In addition to the above risks, a person can be exposed to the characteristics of technostress syndrome due to a lack of information. The identified symptoms include:

1. Increased heart rate.
2. Cardiovascular disorders such as high blood pressure and coronary heart disease.
3. Pain and muscle tension.
4. Tingling in the limbs.
5. Insomnia and disturbed sleep patterns.
6. Headaches.
7. Fatigue.
8. Sweating.
9. Hormonal disorders in women.
10. Skin disorders due to stress.
11. Depression.
12. Changes in behavior.
13. Easy to cry.
14. Apathy.

However, not everyone experiences technostress to the extreme of the things above and everyone experiences different technostress. The things above are

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<sup>35</sup> Chiappetta, Marta. "The Technostress: definition, symptoms and risk prevention". *Senses Sciences*. Vol. 4. No. 1. (2017). Pp. 358-361. Doi: 10.14616/sands-2017-1-358-361

generally reactions caused by stress. Stress can occur depending on how individuals interact with technology. But sometimes the above symptoms can be caused due to technostress after being exposed to excessive radiation from electronic objects such as tablets, smartphones, Wi-Fi, and computers.

#### **F. Previous Studies**

Competence in mastering ICT knowledge must be trained since the time of study (college), especially for prospective teachers. In this very modern era of globalization, everyone is required to be able to operate technological media. This is also important for pre-service English teachers who are preparing to become educators. Therefore, several studies have conducted research on the TPACK pre-service English teacher. In some of these studies found various factors that support the ability of the TPACK pre-service English teacher.

The first research was conducted by Mariette that aimed to investigate the pre-service English teachers' perception and understanding of technological pedagogical content and knowledge during their microteaching in EFL context. This study uses a descriptive qualitative method by providing a questionnaire and an interview guide. This study involved 100 participants and researchers used a survey for descriptive analysis. The findings show that pre-service English teachers have a positive perception of their TPACK abilities. Apart from that, they also agree with the use of technology for the learning process because it is important in learning and can provide many benefits for them.<sup>36</sup>

Ringotama conducted research with the purpose is to investigate how the pre-service teacher's understanding of the TPACK principle and how they will apply TPACK in their classroom. This study used a mixed method using questionnaires and interviews as an instrument. There are 68 samples of pre-service teachers from the English Education Department. The findings from this study are

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<sup>36</sup> Mariette, Komang Sinta. "Pre-Service English Teacher's Perception and Understanding Toward TPACK Framework During Microteaching Course". *Journal of Educational Study*. Vol. 2. No. 2. (2022). Pp. 151-158. DOI: 10.36663/joes.v2i2.272..

the need for mastery to integrate TPACK into teaching practice in apprenticeship programs.<sup>37</sup>

Kusuma was conducting TPACK related program for pre-service English teachers. This research aims to investigate the efforts made by universities and lecturers and issues faced by lecturers during the integration process. This study used a mixed method with questionnaires and interviews as instruments. There are 79 lecturers and 25 teachers as participants. The results of this study reveal that all necessary facilities for ICT implementation efforts have been issued. However, there are still obstacles in its implementation, such as internet connection and technology updates.<sup>38</sup>

Ciptaningrum, Putro, Sari, and Hasanuddin were conducting research which investigated the knowledge of ICT integration among students of the English Language Education Study Program. This study uses a quantitative method with ex-post facto design. The instrument used was a questionnaire with 70 respondents. The results of this study indicate that pre-service English teachers have confidence in applying ICT in learning. Another result also adds that male students are more experienced than female students.<sup>39</sup>

Alharbi was conducted research aimed at exploring the degree of EFL teacher perception regarding the TPACK framework. This study used a descriptive survey method involving 100 male and 91 female participants. The results indicate that there are differences in teaching knowledge between male and female participants. Female participants are better at content knowledge (CK), while male

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<sup>37</sup> Ringotama, Arizalu Arsa. "Pre-Service Teachers' Perception and Vision about TPACK and Its Implementation". *A Journal of Culture, English Language, Teaching & Literature*. Vo. 20. No. 1. (2020). 143-165. ISSN: 2502-4914.

<sup>38</sup> Kusuma, I Putu Indra. "TPACK-Related Programs for Pre-Service English Teachers: An In-Depth Analysis on Efforts and Issues of ICT Integration". *Cakrawala Pendidikan*. Vol. 40. No. 1. (2021). Pp. 183-195. Doi: 10.2183/cp.v40i1.28820.

<sup>39</sup> Ciptaningrum, Dyah, Nur Hidayanto Putro, Nila Kurnia Sari, Nurqadriyanti Hasanuddin. "Evaluation of learning process: Knowledge of ICT integration among pre-service English language teacher". *REID (Research and Evaluation on Education)*. Vol. 7. No. 1. (2021). Pp. 46-56. Doi: <https://doi.org/10.21831/reidv7i1.30521>.

participants are better at technological knowledge (TK). Another finding also stated that there was no difference between the female and male participants in TPACK.<sup>40</sup>

Loi was conducted research to examine Vietnamese teachers' perceptions of TPACK in an EFL context. This research uses quantitative analysis with 34 survey items. This study involved 120 English teacher participants. The findings in this study are that trainers must pay more attention to supporting pre-service and in-service teachers in TPACK development so they can have the ability to integrate them. In addition, it is necessary to increase the use of technology in order to increase their TPACK self-efficacy.<sup>41</sup>

Sarıçoban, Tosuncuoğlu, Kırmızı were conducted research with the title "A technological pedagogical content knowledge (TPACK) assessment of pre-service EFL teachers learning to teach English as a foreign language". This research used a quantitative method involving 77 pre-service EFL teachers. The result of this study is that pre-service EFL teachers have a level of satisfaction with their TPACK competencies. But they still need development in some TPACK areas.<sup>42</sup>

Muslimin, Nukminatien, Ivone were conducted research TPACK-SAMR digital literacy competence, technostress, and teaching performance: correlational study among EFL lecturers. This research use correlational design with a descriptive explanation model. The participants were six EFL lecturers from six different universities in various cities. The result showed that most participants were more confident with their pedagogical knowledge and content knowledge. Their DLC had a negative 'very high' correlation with technostress, shown by  $-.824$  Pearson correlation coefficient.<sup>43</sup>

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<sup>40</sup> Alharbi, Abdullah Abdul Muhsen. "The Degree of Teaching Knowledge for Saudi EFL Teachers: An Investigation for Madinah EFL Teachers' Perceptions Regarding TPACK Framework". *English Language Teaching*. Vol 13. No. 20. (2020). Pp. 99-110. Doi: 10.5539/elt.v13n10p99.

<sup>41</sup> Loi, Nguyen Van. "Vietnamese High-School Teachers' Perceptions of TPACK in Teaching English as a Foreign Language". *European Journal of Education Studies*. Vol. 8. No. 4. (2021). Pp. 183-198. DOI: 10.46827/EJES.V8I4.3693.

<sup>42</sup> Saricoban Arif., Irfan Tosuncuoğlu, Ozkan Kirmizi. "A technological pedagogical content knowledge (TPACK) assessment of pre-service EFL teachers learning to teach English as a foreign language". *JOURNAL OF LANGUAGE AND LINGUISTIC STUDIES*. Vol. 15. No. 3. (2019). Pp. 1122-1138. ISSN: 1305-578X.

<sup>43</sup> Muslimin, Afif Ikhwanul, Nur Mukminatien, Francisca Maria Ivone, "TPACK-SAMR digital literacy competence, technostress, and teaching performance: Correlational study among EFL