EFL PRE-SERVICE TEACHERS' READINESS FOR THE USE OF DIGITAL-BASED INFOGRAPHICS AS TEACHING MEDIA

THESIS

Submitted in Partial Fulfilment of the Requirements for Gaining the Degree of Bachelor of Education in English Language Education

By:
MUHAMMAD HIRZA QUSUMA DANI
2103046191

ENGLISH EDUCATION DEPARTMENT
EDUCATION AND TEACHER TRAINING FACULTY
UNIVERSITAS ISLAM NEGERI WALISONGO
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THESIS STATEMENT

KEMENTRIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI WALISONGO SEMARANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Prof. Dr. Hamka (Kampus II) Ngaliyan, Semarang 50185 Indonesia
Telp. 024-7601295 Fax. 024-7615387 Semarang 50185

THESIS STATEMENT

I am student with the following identity:

Name of Students	:	Muhammad Hirza Qusuma Dani
Student Number	:	2103046191
Department	:	English Education
Title	:	**EFL PRE-SERVICE TEACHERS' READINESS FOR THE USE OF DIGITAL-BASED INFOGRAPHICS AS TEACHING MEDIA**

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Semarang, March 3, 2025
Researcher,

Muhammad Hirza Qusuma Dani
NIM. 2103046191

RATIFICATION

KEMENTRIAN AGAMA REPUBLIK INDONESIA
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FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Prof. Dr. Hamka (Kampus II) Ngaliyan, Semarang 50185 Indonesia
Telp. 024-7601295 Fax. 024-7615387 Semarang 50185

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Name of Students	:	Muhammad Hirza Qusuma Dani
Student Number	:	2103046191
Department	:	English Education

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NIP. 196507271992032002

Examiner II,

Dr. Muhammad Nafi Annury, M.Pd.
NIP. 197807192005011007

Advisor,

Lulut Widyaningrum, M.Pd.
NIP. 1980832009012010

ADVISOR NOTE

KEMENTRIAN AGAMA REPUBLIK INDONESIA
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FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Prof. Dr. Hamka (Kampus II) Ngaliyan, Semarang 50185 Indonesia
Telp. 024-7601295 Fax. 024-7615387 Semarang 50185

ADVISOR NOTE

To
The Dean of Education and Teacher Training Faculty
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Assalamu'alaikum Wr. Wb.
I inform you that I have given guidance, briefing, and correction to whether extent necessary for the following thesis:

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Student Number	:	2103046191
Department	:	English Education

I state that the thesis is ready to be submitted to the Education and Teacher Training Faculty of Walisongo State Islamic University to be examined at the Munaqosyah session.

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Semarang, March 3, 2024
Advisor

Lulut Widyaningrum, M.Pd.
NIP. 198008032009012010

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KEMENTRIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI WALISONGO SEMARANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Prof. Dr. Hamka (Kampus II) Ngaliyan, Semarang 50185 Indonesia
Telp. 024-7601295 Fax. 024-7615387 Semarang 50185

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Dekan Fakultas Ilmu Tarbiyah dan Keguruan
UIN Walisongo Semarang

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NIM	: 2103046191
Jurusan	: English Education
Judul	: **EFL PRE-SERVICE TEACHERS' READINESS FOR THE USE OF DIGITAL-BASED INFOGRAPHICS AS TEACHING MEDIA**

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Semarang, March 3, 2024
Advisor

Lulut Widyaningrum, M.Pd.
NIP. 198008032009012010

ABSTRACT

Title	: EFL Pre-Service Teachers' Readiness for The Use of Digital-Based Infographics as Teaching Media
Name	: Muhammad Hirza Qusuma Dani
Student Number	: 2103046191

The use of digital media in English as a Foreign Language (EFL) instruction has grown in popularity, with digital-based infographics emerging as a technique to improve student engagement and comprehension. This study investigates the readiness of EFL pre-service teachers to utilize digital-based infographics in their teaching practices. The research was a qualitative study comprised a qualitative survey research design to collect data from 15 pre-service teachers at English Education Department of UIN Walisongo Semarang in the 2023/2024 academic year assembled via open-ended questionnaires. The findings reported that participants gave a high positive response regarding the conception of infographics as teaching media. The findings also draw participants perceived readiness to utilize digital-based infographics as teaching media. However, the study finds important issues such as inadequate infographic design skills, a lack of technical expertise, and difficulty simplifying content. Furthermore, the limited participant breadth shows that additional study with a larger and more diverse sample is required for generalization. These findings highlight the need to include comprehensive digital literacy training into teacher education programs to ensure that pre-service teachers are familiar with current and evolving instructional tools.

***Keywords**: Digital-Based Infographics, Digital Teaching Media, EFL Pre-Service Teachers, Readiness*

MOTTO

"I'm not depending on someone else's dream. And I'm not going to live your dream either. I'm going to live for myself. It's my life." – Park Sae Ro Yi (Itaewon Class-2020)

"Do something perfectly, even though there is nothing perfect - that's okay, you'll be proud of what you have done" – M. Hirza Qusuma Dani

DEDICATION

Praise given to Allah SWT, the most Gracious and the most Merciful, who has blessed the researcher, so that the researcher could finish the thesis. Sholawat and Salam never stop to my prophet Muhammad SAW.

This thesis is dedicated to:

1. My best support system in the world, my Parents (Mr. Muhammad Ghufron and Mrs. Nur Ismawati) who always guide and pray the best for me every time and everywhere, who always never letting me down and reminding me that I can get through it. They always gave me prayer and encouraged love, spirit, motivation and patience while finishing this script. Thank you so much for everything. I love you so much more than anything.
2. My Dearest Ridwan's family and Khambali's family.
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4. Everyone who gives support, motivation, and endless love to the researcher in accomplishing the thesis.

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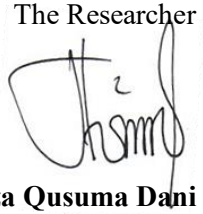
12. For me, myself, and I, Hirza, thank you for being strong and never surrendering. Thank you for all of your efforts, Hirza!

Finally, the researcher will gladly take constructive feedback in order to improve this thesis, and the researcher believes that this research will be beneficial to anyone who requires further information on the topic of this study.

Semarang, March 3, 2025

The Researcher



Muhammad Hirza Qusuma Dani
2103046191

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CHAPTER I
INTRODUCTION

This chapter discusses the research background, reason for choosing the topic, research questions, research objectives, significance of the study, and definition of key terms.

A. Background of the Study

Technology cannot be separated from everyday life in this modern era. The integration of technology, especially in education has increased in accordance with the transformation of teaching methods. Information and Communication Technology (ICT) is part of the technology which supports the development of education (Chowdhury & Haque, 2024), become a vital role during the modern education (Muchabaiwa et al., 2024). The existence of ICT in teaching process can be a tool to enhance the learning process, especially digital media. Digital media including animations and visual content, contribute to improved student engagement and comprehension (Pinto, 2017). In addition, the existence of ICT in teaching process is essential in accordance with the development of 21st-century skills, such as critical thinking, collaboration, creativity, and communication (Geisinger, 2016).

Digital-based infographics as the part of digital media which is the digital version of printed infographics (Jones et

al., 2019) appeared to be an effective medium to deliver a learning material. The combination of graphics, typography, colors, illustrations, and icons (Pinto, 2017) to simplify complex information, making learning more accessible for students. The digital-based infographics presented through an animation and interactive elements that engage students into learning and enhance their comprehension (Retnaningtyas et al., 2024). The use of digital-based infographics has so many benefits when integrated into teaching and learning process. They can be used to teach grammar (Nhan & Hoang Yen, 2021; Nhan & Yen, 2021; Wu & Kuwajima, 2022). Vocabulary (Alwadei & Mohsen, 2023; Tavanapour et al., 2024) and students' achievement (Alrwele, 2017) which stated that infographics are effective for improving students' achievement in learning course content. Infographics also have the potential to enhance students' intellectual, life skills, and affective development.

Digital-based infographics are proved to be effective to be used in EFL classrooms. It is effective to improve students' presentation skills, students can increase activity, motivation and innovation in learning English by using infographics (Fatmawati & Widiyati, 2024). Digital-based infographics also can be a medium for increasing students' ICT literacies, especially 21st-century skills. Infographics allows students being equipped with the ICT (Pazilah & Hashim, 2018). In

addition, digital-based infographics also effective for all types of skills related to visual literacy, such as visual reading and visual writing when learners are provided with the infographics created by someone, and visual thinking on the creation of infographics (Jaleniauskiene & Kasperiuniene, 2022).

According to Merriam Webster, visual literacy is an ability to recognize and understand ideas conveyed through visible actions or images (such as pictures). The support of visuals or graphics in teaching process will make the student understand the learning material more easily (Nuhoğlu Kibar, 2024). By combining the digital and visual in the learning process, the student will be more engaged to be part of the learning process. Since incorporating technology into any learning environment is a more engaging and dynamic way to enhance student interaction, this study is designed to utilize infographics in a classroom environment to improve the management of cognitive load, increase motivation, and autonomy in learning, and thus enhance learning achievements (Bicen & Beheshti, 2022).

In the scope of English as a Foreign Language (EFL), digital-based infographics have proved several pedagogical benefits. Research shows that infographics can be effectively used to teach grammar (Nhan & Hoang Yen, 2021; Nhan & Yen, 2021; Wu & Kuwajima, 2022). by visually representing

sentence structures and grammatical rules. They also support vocabulary acquisition (Alwadei & Mohsen, 2023; Tavanapour et al., 2024) by presenting new words with visual cues that enhance retention. Furthermore, infographics contribute to improved student achievement by fostering comprehension and encouraging active learning (Alrwele, 2017)

The ability to use technology, especially digital media are already equipped to the Pre-service teachers. It is integrated in the lecturing process. The goal is that pre-service teachers can teach learning materials to their students by integrating technology (Goldstein, 2016). Therefore, pre-service teachers must develop the ICT skills to effectively integrate technology into teaching process. Teacher education programs use digital resources to train future educators to negotiate the challenges of modern classrooms (Maghfiroh et al., 2024). The pre-service teachers might face the challenges when using infographics, such as limited access to technology, insufficient training, and various levels of digital literacy that can inhibit the use of digital-based infographics in teaching.

Teachers' ability to use ICT is needed to make students understand how to operate ICT media and make learning engaging by integrating the ICT media into the learning process. Besides, knowing the fact that in this 21st-century era, ICT gadgets should be available in each of the educational

levels. Hence, pre-service teachers should acquire the basic skills to operate the ICT gadget (Lausa et al., 2024). However, not all teachers have sufficient ability to use technology in the learning process although the use of technology in the education aspect will help the students to learn the material easily, especially in the scope of learning English (Rofiah et al., 2024).

The mastery of 21st-century skills are crucial for EFL pre-service teachers knowing that 21st-century era characterized by the highly visually related (Nuhoğlu Kibar, 2024). It is necessary for pre-service teachers to understand how to make a good infographics (Fragou & Papadopoulou, 2020). Images have power to simplify complex information and make students easy to understand (Dunlap & Lowenthal, 2016; Lankow et al., 2012; Provvidenza et al., 2019; Smiciklas, 2012).

While previous studies have explored the general use of ICT in education (Chirwa & Mubita, 2021; Park & Son, 2020) there is limited research specifically examining EFL pre-service teachers' readiness to design and implement digital-based infographics as teaching media. This study aims to address this gap by investigating the readiness of EFL pre-service teachers in utilizing digital-based infographics as teaching media, thus contributing to more effective teaching process.

B. Reason for Choosing the Topic

This study discusses EFL pre-service teachers' understanding of using infographics as a learning tool. The reasons for choosing the topic are as follows:

1. The researcher analyzes EFL Pre-Service Teachers' conception of infographics as a teaching media.
2. The researcher explains how EFL Pre-Service Teachers perceive readiness to utilize infographics as teaching media.
3. The researcher describes challenges EFL Pre-Service Teachers encounter toward the implementation of infographics as teaching media.

C. Research Question

This study focuses on answering the following research questions:

1. What is the EFL Pre-service teachers' conception of infographics as teaching media?
2. How do the EFL Pre-service teachers perceive their readiness to utilize infographics as teaching media?
3. What challenges do EFL Pre-Service Teachers encounter toward the implementation of infographics as teaching media?

D. Objectives of the Study

1. To analyzes EFL Pre-service teachers' conception of infographics as teaching media.
2. To explains how EFL Pre-Service Teachers perceive readiness to utilize infographics as teaching media.
3. To describes challenges, do EFL Pre-Service Teachers encounter toward the implementation of infographics as teaching media.

E. Limitation of the Study

The study is limited to the EFL pre-service teachers at 1st, 3rd, and 5th semester of English Education Department UIN Walisongo Semarang in the 2023/2024 academic year as the research participants. The limitation of the research participants might affect the variety of the research findings. The study investigates the EFL pre-service teachers' readiness for the use of digital-based infographics as teaching media, dealing with the participants' conception, participants perceived readiness to utilize, and challenges faced by the participants in using digital-based infographics as teaching media.

F. Significance of the Study

The present study is expected to be useful and provide benefits to several parties related to this research, including the following:

1. Theoretical Benefits

   Theoretically, the present study is expected to add knowledge and serve as a learning reference for EFL pre-service teachers regarding the use of digital-based infographics as teaching media.

2. Practical Benefits

   a. For students

      This study is expected to be useful as a reference for EFL pre-service teachers in developing their understanding of using digital-based infographics as learning media. Through this study, EFL pre-service teachers are expected to be able to explore and optimize their learning by using infographics.

   b. For lecturers

      This study is expected to be useful for lecturers, especially in conducting a class activity, instead of using a large textbook, lecturers are suggested to use digital-based infographics, this will make the teaching material easier to understand.

c. For the researcher

The result of this study will help the researcher to get some knowledge. This study will be helpful in the researcher's self-development process.

d. For the next researchers

This research is expected to be useful as a reference for future researchers who will conduct research in the same field.

G. Definition of Key Terms:

a. Infographics

According to (Cairo, 2008) infographics, in a definition that we see as all-inclusive and always up to date, is a diagrammatic representation of data; that is, any information presented in the form of a diagram is infographic. (Glombisky & Hagen, 2010) divided an infographic into five parts; headline, chatter, callout, source line, and byline.

(Valero Sancho, 2001) points out that press infographics are an informative contribution carried out utilizing iconic and typographic elements that allow or facilitate the understanding of events, actions, news, or some of their most significant aspects, and accompany or substitute for the information text. (Colle, 2004) showed that infographics is a media that symbolizes the

combination of iconic and verbal codes to convey complex and precise information. (Çifçi, 2016; Nuhoğlu Kibar & Akkoyunlu, 2017) added that infographics are visual messaging tools that are used to present information in the form of graphics and visuals.

(Nuhoğlu Kibar & Akkoyunlu, 2017) developed a rubric for designing an infographic, it is called Infographic Design Rubric (IDR). The model is comprised of three main components: content generation, visual generation, and digital design. The researcher also added that infographics are created using four stages of the infographics design process: content preparation, lectures on creating infographics, content and graphic generation, and design generation.

(Bicen & Beheshti, 2022) added that infographics are a media that is recently used by so many people in different areas of education because of its positive impacts on students' learning, memory retention, engagement, motivation, and participation. (Ozdal & Ozdamli, 2017) stated that the use of infographics can be a tool to simplify the complex information into easily and quickly understood the material.

b. Digital-based Infographics

Since the development of the term infographics, Digital infographics are a more modern media that can be used in teaching compared to traditional infographics that are created by drawing manually on a whiteboard. Digital-based infographics can be defined as media that developed from printed infographics into digital-based infographics.

Digital-based infographics are the "digital version" of the printed infographics (Jones et al., 2019). The output of designing a digital infographic is an image that can be shared on social media to reach a larger audience or presented to the teaching process with the integration of ICT media especially laptop and projector or smart TV.

Digital-based infographics can be differentiated into two types: static where there is no movement; or dynamic where there is a movement such as adding animation into the infographics due to today's technology (Pinto, 2017; Siricharoen, 2013). The use of animation in an infographic can add more visual value to engage students' motivation and engagement during the teaching and learning process.

c. EFL Pre-service Teachers' Technology Readiness

The stages of someone's readiness start from the preparedness stage. Readiness and preparedness of someone's to do or to use something related to each other. EFL Pre-service teachers' preparedness can be defined as someone's level of being prepared to do something, starting from the pedagogical to the technical aspect. The preparedness of EFL pre-service teachers becomes an important factor in integrating ICT in the classroom. Because the level of someone's preparedness will affect the process of teaching if it is not well-prepared. EFL pre-service teachers must be well-known for the subject they will explain to the students. Also, they must be able to use their ability to integrate the material that will be taught and the twenty-first-century skills and digital media (Mutmainna Bachtiar et al., 2022)

(Bachtiar et al., 2022 in (Al-Awidi & Alfadheeri, 2017) stated that there are two important components of teachers' preparedness: pedagogical readiness and technical readiness. The pedagogical readiness consists of teachers' understanding, proficiency, manner, and performance about the use of technology in learning. The technical readiness consists of teachers' understanding and skills for implementing digital learning, as well as the accessibility of the learning equipment.

Readiness is part of the preparedness characterized by the stability of someone's physical and mental to do or to use something, such as someone's knowledge to teach the material or the pedagogical readiness and the equipment and ability to operate the media or technical readiness.

In this context, EFL pre-service teachers need to be able to integrate the teaching process with the use of ICT media. The ability to use ICT media is affected by digital competence. According to (Maghfiroh et al., 2024), digital competence for teachers refers to the collection of knowledge, skills, and attitudes that teachers must possess to be able to integrate the use of technology appropriately and effectively.

CHAPTER II
REVIEW OF RELATED STUDY

This chapter provides theoretical reviews that are related to the research problems and a review of some previous studies that are done in the same field related to this research topic.

A. Previous Study

Regarding the research about EFL pre-service' teachers' readiness for the use of digital-based infographics as teaching media, the researcher made an infographics figure of the previous research for easier understanding which consist of seven previous research divided into two theme, ICT Readiness and Infographics in Teaching.

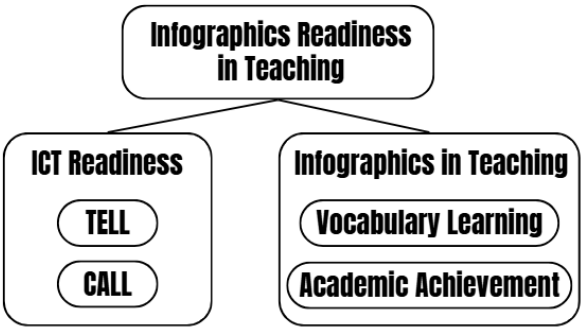

Figure 2.1 – Previous Study

The first previous study talked about the use of Information and Communication Technology (ICT). There is a recent study conducted by Muhsiyana Nurul Aisyiyah

in 2022 entitled “Pre-Service English Teachers’ Perceived Readiness for Technology-Enhanced Language Learning”. The purpose of this case study is to explore pre-service EFL teachers’ perceived readiness to use technology in language learning and gather in-depth information through multiple data collection techniques. The findings show that the pre-service teachers’ perception of their preparation for the integration of digital technology into English teaching and learning was positive based on the results on the four components: basic digital skills, didactic ICT competence, learning strategies, and digital Bildung. They perceived themselves as ready to use ICT in their instruction after graduating from the teacher training program.

The similarity between the previous and the current study is on the issue of the research. Both of the study discussed the EFL pre-service teachers’ readiness. The differences between the previous study and the current study are on the media discussed in the study. The previous study discussed the ICT media in general while the current study discussed the digital-based infographics as the specific ICT media and the use of digital-based infographics as teaching media.

The second study was conducted by Cosmas Chirwa and Kaiko Mubita in 2021 entitled “Preparedness of Teachers and Learners in the Integration of Information

Communication Technologies in the Teaching and Learning of Geography in selected schools of Petauke District of Eastern Province in Zambia". The purpose of this descriptive qualitative study is to establish the preparedness of teachers' and learners' integration of ICTs in the teaching and learning of geography in selected schools of the Petauke district to ensure the relevance of the geography subject to the current and ongoing technological developments that are shaping the country's social and economic growth. The study revealed a minimum integration of ICTs in Geography teaching, with teachers still stuck in outdated pedagogy. The value of ICTs for teaching was not aligned with the realities of the classroom.

The similarity between the previous and the current study is on the issue of the research. Both of the study discussed the EFL pre-service teachers' readiness. The differences between the previous study and the current study are on the media discussed in the study. The previous study discussed the ICT media in general while the current study discussed the digital-based infographics as the specific ICT media and the use of digital-based infographics as teaching media.

Third, the study conducted by Nurul Hidayati Rofiah, Restiana, and Rahmatikan Dewi in 2023 entitled

“Promoting Digital Literacy: Assessing Teachers' Readiness in Utilizing Information and Communication Technology for Learning in Rural Areas”. The purpose of this descriptive qualitative study is to evaluate and ascertain the readiness of teachers to utilize information and communication technology (ICT) in educational settings, with a particular focus on rural environments. The findings of the article indicate that teachers in Badau Village are proficient in operating laptops and computers, effectively plan and select resources, can use ICT tools, collaborate, utilize the Internet and latest applications, and understand their roles in preparing for ICT development. Additionally, the study highlights the need for teachers to comprehend their roles in adapting to ICT developments and align their readiness with professional competency standards.

The similarity between the previous and the current study is on the issue of the research. Both of the study discussed the readiness aspect. The differences between the previous study and the current study are on the subject of the study and the media discussed in the study. The previous study involved the teachers who taught English in Badau Village, while the current study involved the EFL Pre-service teacher of the English Education Department in UIN Walisongo Semarang. The previous

study discussed the ICT media in general while the current study discussed the digital-based infographics as the specific ICT media and the use of digital-based infographics as teaching media.

The Fourth study was conducted by Moonyoung Park and Jeong-Bae Son in 2020, entitled “Pre-Service EFL Teachers’ Readiness in Computer-Assisted Language Learning and Teaching”. This qualitative research aimed to investigate pre-service EFL teachers’ perception and preparedness for CALL in the context of Hong Kong. The findings reveal the significance of language teacher education in Computer-Assisted Language Learning (CALL) and suggest ways to enhance pre-service EFL teachers' knowledge and skills in implementing CALL. The study emphasizes the importance of effective teacher training for technology integration in EFL contexts, based on the attitudes, perceptions, and experiences of the pre-service teachers regarding technology use in their teaching practices.

The similarity between the previous and the current study is on the issue of the research. Both of the study discussed the readiness aspect. The differences between the previous study and the current study are on the media discussed in the study. The previous study discussed the ICT media in general, specifically in CALL (Computer

Assisted Language Learning), while the current study discussed the digital-based infographics as the specific ICT media and the use of digital-based infographics as teaching media.

There is a recent study related to the use of infographics in teaching, conducted by Adetunmbi L. Akinyemi, Owalabi P. Adelana, and Oluwakemi D. Olurinola entitled "Use of Infographics as Teaching and Learning Tools: Survey of Pre-Service Teachers' Knowledge and Readiness in a Nigerian University". The purpose of this descriptive (survey) study is to investigate pre-service teachers' knowledge and readiness to use infographics as teaching and learning tools. The findings showed that pre-service teachers do not have any knowledge of infographics as learning tools in the classroom and that across genders, there is no significant difference in their knowledge of infographics as learning tools as well. Based on readiness to use infographics, it was concluded that pre-service teachers are not ready to use infographics as learning tools, and across genders, there is no significant difference in their readiness to use infographics tools during teaching and learning.

The similarity between the previous and the current study is on the issue of the research. The previous study discussed the pre-service teachers' knowledge and

readiness to use infographics as teaching and learning tools. While the current study discussed the EFL pre-service teachers' readiness to utilize infographics as teaching media. The difference between the previous study is the subject of the study. The previous study involved pre-service teachers of Education at the University of Education in Nigeria, while the current research is an EFL Pre-service teacher of the English Education Department in UIN Walisongo Semarang.

The second study was conducted by Amjaad Mansour Alwadei and Mohammed Ali Mohsen in 2023 entitled "Investigation of the use of infographics to aid second language vocabulary learning". The purpose of this quasi-experimental study is to explore the potential of infographics in aiding vocabulary learning and retention among Arab English as a foreign language (EFL) learner. The findings showed a significant difference between the scores of the groups in favor of the experimental group in vocabulary recognition knowledge and vocabulary production knowledge over the immediate run and the long run. Moreover, the participants in the experimental group showed a high perceived usefulness of learning with infographics. Pedagogical implications and recommendations for future research were also proposed.

The similarity of the previous and the current study is both of the study discussed the infographics as teaching media in the scope of EFL learning. The differences between both study is on the role of infographics. The previous study discussed the role of infographics as the tool to aid second language vocabulary learning, while the current study focused on the EFL pre-service teachers' readiness for the use of infographics as teaching media.

The third study was conducted by Şenel Elaldı and Taner Çifçi in 2021 entitled "The effectiveness of using infographics on academic achievement: A meta-analysis and a meta-thematic analysis". The purpose of this mixed-method study is to reinterpret the findings of the studies investigating the effectiveness of using infographics on academic achievement. The findings showed that infographics have a positive effect on academic achievement and the effect is at a large level. In terms of moderator analyses, academic achievement changed according to the implementation periods of infographics.

The similarity between the previous and the current study is both studies discussed the infographics as teaching media. The difference between both studies is on the role of infographics. The previous study discussed the role of infographics on academic achievement, while the

current study focused on the EFL pre-service teachers' readiness for the use of infographics as teaching media.

B. Literature Review

I. The Concept of Infographics

a. Infographics

Infographics is a terminology that is formed by two words, Information and Graphics. It was first used in English language publications in 1960. Infographics are graphics and visual representations of information, data, or knowledge intended to present them quickly and clearly (Neyson & Haynes, 2004; Naparin & Saad, 2017, Parveen & Husain, 2021).

According to (Cairo, 2008) infographics, in a definition that we see as all-inclusive and always up to date, is a diagrammatic representation of data; that is, any information presented in the form of a diagram is infographic. (Valero Sancho, 2001) points out that press infographics are an informative contribution carried out utilizing iconic and typographic elements that allow or facilitate the understanding of events, actions, news, or some of their most significant aspects, and accompanies or substitutes for the information text. (Colle, 2004) showed that infographics is a

media that symbolizes the combination of iconic and verbal codes to convey complex and precise information.

(Siricharoen, 2013) mentioned that an infographic consists of three components, they are: visual elements including color, graphics, icons, maps, signs, etc., content elements including facts, references, statistics, texts, etc., knowledge elements including conclusions, messages, etc. According to (Krum, 2013), there are so many types of infographics.

(Çifçi, 2016; Nuhoğlu Kibar & Akkoyunlu, 2017) added that infographics are visual messaging tools that are used to present information in the form of graphics and visuals. (Bicen & Beheshti, 2022) stated that infographics are a media that has recently been used by so many people in different areas of education because of its positive impacts on students' learning, memory retention, engagement, motivation, and participation. (Ozdal & Ozdamli, 2017) stated that the use of infographics can be a tool to simplify the complex information into easily and quickly understood the material.

b. Digital-based Infographics

Digital-based infographics can be defined as media that developed from printed infographics into digital-based infographics. Digital infographics are the "digital version" of printed infographics (Jones et al., 2019). The output of designing infographics is an image that can be shared on social media to reach a larger audience or presented in the teaching process with the integration of ICT media especially laptop and projector or smart TV.

Digital-based infographics can be differentiated into two types: static where there is no movement; or dynamic where there is a movement such as adding animation into the infographics due to today's technology (Pinto, 2017; Siricharoen, 2013).

Additionally. (Krum, 2013) classified the types of infographics into 6: static, zooming, clickable, animated, video, and interactive. There are different types of infographics related to digital-based infographics: animated infographics, is an infographic that combines colors, pops, and sounds, a smooth transition when the user wants to

present out-of-the-box creative ideas and capture the attention of the audience.

Interactive infographics is an infographic that shows how Snap App charts and graphs allow users to interact with the actual infographics. Interactive infographics can be used if anyone wants to appeal to a specific type of audience. While visual infographic is an infographic that is used when users want to cut down the simplifies the information into precise and easy to understand.

The combination of animated, interactive, and visual infographics in the teaching process can add more visual value to engage students' motivation and engagement during the teaching and learning process. (Ismaeel et al., 2021).

II. EFL Pre-service Teachers' Readiness in Digital Technology

There are two terms related to EFL Pre-service teachers' readiness to use infographics as teaching media. First, EFL Pre-service teachers' preparedness, and second, EFL Pre-service teachers' readiness.

First, according to Merriam-Webster, preparedness comes from the word "prepare" which

means "ready beforehand for some purpose, use, or activity". So, EFL Pre-service teachers' preparedness can be defined as someone's level of being prepared to do something, starting from the pedagogical to the technical aspect. The preparedness of EFL pre-service teachers becomes an important factor in integrating ICT in the classroom. Because the level of someone's preparedness will affect the process of teaching if it is not well-prepared. EFL pre-service teachers must be well-known for the subject they will explain to the students. Also, they must be able to use their ability to integrate the material that will be taught and the twenty-first-century skills and digital media

In this context, EFL pre-service teachers need to be able to integrate the teaching process with the use of ICT media. The ability to use ICT media is affected by digital competence. According to (Maghfiroh et al., 2024), digital competence for teachers refers to the collection of knowledge, skills, and attitudes that teachers must possess to be able to integrate the use of technology appropriately and effectively.

(Parasuraman, 2000) developed a Technology Readiness Model (TRM) which conveys an understanding of how individuals react to new technologies. It visualizes the tendency of individuals

to adopt and utilize new technologies for achieving goals at home and work.

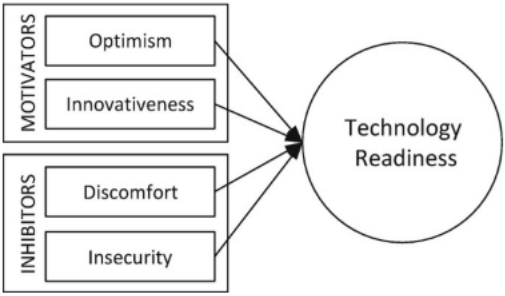

Figure 2.2 - Technology Readiness Model by Parasuraman, 2000

TRM has been used in education to investigate factors that drive teachers' and students' attitudes and behaviors toward using technology. It comprises four components: optimism, innovativeness, discomfort, and insecurity. From the TRM, researcher interpret the model into three stages, high readiness, moderate readiness and low readiness.

Additionally, (Al-Awidi & Alfadheeri, 2017) stated that there are two important components of teachers' preparedness: pedagogical readiness and technical readiness. The pedagogical readiness consists of teachers' understanding, proficiency, manner, and performance about using technology in learning. The technical readiness consists of teachers' understanding

and skills for implementing digital learning, as well as the accessibility of the learning equipment.

According to Merriam-Webster Dictionary, readiness can be defined as a state of preparation or prompt of willingness to do or to use something. The readiness will exist after the preparedness. It is because someone will be ready to do something if they are being prepared for something, such as the knowledge and equipment needed. Some factors affect teachers' readiness to adopt technology, such as teachers' characteristics, content knowledge, technological consideration, and organizational capability (Al-Awidi & Alfadheeri, 2017 in Ng, 2019).

C. Conceptual Framework

A conceptual framework is a network, or "plane", of interconnected concepts that collectively offer a thorough understanding of a phenomenon or phenomena. The concepts that make up a conceptual framework support each other, clarify their respective phenomena, and establish a framework-specific philosophy (Jabareen, 2009). The conceptual framework provides numerous advantages for research. For example, it helps the researcher in defining and developing their perspective on the phenomenon being studied (Grant & Osanloo, 2014).

The conceptual framework for this research was presented in the diagram on the following page.

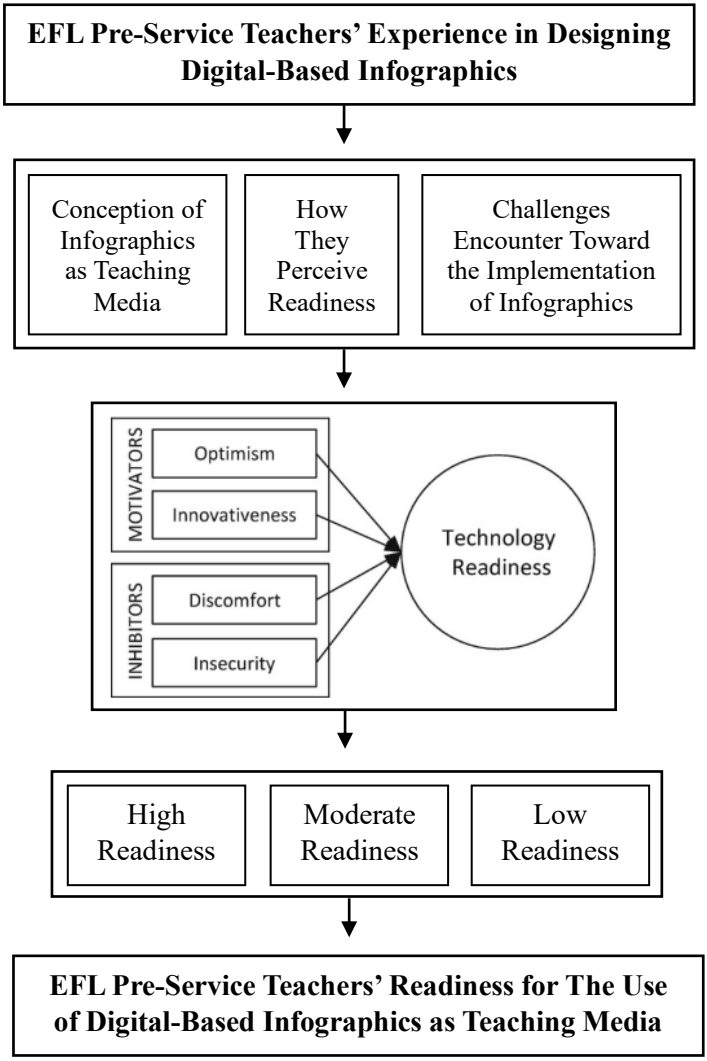

Figure 2.3 – Conceptual Framework

The figure shows the conceptual framework of the study based on the Technology Readiness Model (TRM) proposed by (Parasumaran, 2000).

In this research, the readiness to utilize digital-based infographics can be reflected through the TRM proposed by (Parasuraman, 2000). According to TRM, technology readiness comprises four components: optimism, innovativeness, discomfort, and insecurity. From the TRM, researcher interpret the model into three stages, high readiness, moderate readiness and low readiness.

In this context, the researcher gathered the findings from EFL pre-service teachers' experience in designing digital-based infographics. Then, the researcher finds the participants' conception of digital-based infographics, how participants perceive the readiness, and what challenges participants faced in implementing a digital-based infographics. The researcher connects the findings with the TRM proposed by (Parasuraman, 2000). Then, the researcher classified participants' readiness into high, moderate, and low readiness. By using this framework, the research question and research objective can be answered properly.

CHAPTER III
METHODOLOGY

This chapter shows the research method of the present study. It consists of a research design, type, data source, focus of the research, data collecting technique, instrument of the research, and data analysis technique.

A. Research Design

The type of this research is qualitative research. Qualitative research is an approach to investigating the meaning that individuals or groups assign to a social or human issue. According to Creswell, the process of qualitative research involves emerging questions and procedures, the data gained in the participants' context and the researcher interpreting the data's meaning (Creswell, 2018). This research is a qualitative survey comprising twelve questions. Qualitative surveys aim to utilize the potential that qualitative data can provide for complex, in-depth, and occasionally novel insights on social issues. Qualitative surveys consist of a series of open-ended questions, crafted by a researcher and centered on a particular topic which aims to answer the research questions particularly (Braun et al., 2021).

B. Research Setting and Participant

a. Research Setting

The data was collected from EFL students who studied at the English Education Department UIN Walisongo in the 2023/2024 academic year.

b. Research Participant

The participants for this study were 1st, 3rd, and 5th semesters at the English Education Department. The research took data from 15 participants through an open-ended questionnaire. The researcher used purposive sampling; purposive sampling is suitable for qualitative studies where the researcher is interested in informants who have the best knowledge concerning the research topic.

The researcher involved 5 students per semester and aimed to explore EFL Pre-service teachers' understanding and readiness to use infographics as teaching and participants' challenges in using infographics as teaching media according to their own.

The participants were selected according to the criteria:

1. Participants must a student of English Education Department of UIN Walisongo in the 2023/2024 academic year.

2. Participants must be a student on 1st, 3rd, and 5th semester of English Education Department of UIN Walisongo in the 2023/2024 academic year.
3. Participants have an experience in designing a digital-based infographics.

The participants were recruited based on the result of the willingness form that had been distributed directly to the participants by paying attention to the confidentiality of the participant's data and identity. The data that has been processed in this research will only be used for research purposes. Also, the questionnaire is paying attention to the ethics of the research participants.

C. Data Collection Technique

Many techniques can be applied to collect data, either primary or supporting data. According to Donald Ary, the most common data collection techniques applied in qualitative research are observation, interviewing, and document or artifact analysis (Donald, 2009). However, in this study, the researchers used an open-ended questionnaire as a data collection method.

The open-ended questionnaire is used to collect data from a small group of subjects on a broad range of topics. Open-ended questionnaires are used to allow

participants to provide their answers flexibly. Participants can express their opinions without being influenced by the researcher (Reja et al., 2003).

This study comprised twelve instruments to investigate the EFL Pre-service teachers' readiness to utilize infographics as teaching media. The researcher composed the research instruments according to the previous research (Akinyemi et al., 2022) then the researcher modified the instruments to answer the research questions.

The instruments of the study as follow:

1. What do you understand by the term "infographics"?
2. How would you compare infographics to other teaching aids you are familiar with (e.g., PowerPoint, videos, flashcards)?
3. How confident do you feel about your ability to design a digital-based infographic? Please explain why.
4. Do you believe infographics are suitable for all age groups in EFL teaching? Why or why not?
5. How comfortable are you with integrating technology, including infographics, into your teaching? Please explain.

6. What skills or competencies do you believe are effective to use infographics in teaching?
7. Do you think infographics can effectively enhance EFL teaching and learning? Why or why not?
8. Do you feel your teacher training program has prepared you to use digital-based infographics? Why or why not?
9. Do you face difficulties in aligning infographic designs with the needs and interests of your students? If yes, what are they?
10. Do you encounter any language-related challenges (e.g., simplifying complex concepts) when creating infographics for EFL students?
11. How do you overcome challenges when creating infographics? Please share specific strategies or practices.
12. What additional support or resources do you think would help reduce the challenges you face in making infographics for teaching?

The result of the questionnaire was used to investigate EFL Pre-service teachers' readiness for the use of digital-based infographics as teaching media. In this case, the participant tells as much as possible about the

experience felt in detail and thoroughly. In this research, the researcher translates the language into Bahasa to make the participants easily understand the question and make them easily answer.

The researcher used Google Forms to collect the data. The use of Google Forms is to make the participants easily convey their point of view according to the question and they feel flexible to answer it anywhere.

D. Data Analysis and Validations

1. Data Analysis

The researcher used a thematic technique of analysis. According to Gerald Holton, Thematic analysis is a flexible method that can be adapted to many different kinds of research. It is usually applied to a set of texts, such as an interview or transcripts. The purpose of using thematic analysis was to examine in detail the qualitative data that the researcher has to find the interrelation of patterns in a phenomenon and explain the extent to which a phenomenon occurs through the eyes of the researcher (Fereday & Muir-Cochrane, 2006). However, according to Holoway & Todres (2003), thematic analysis is the basis or foundation for analyzing purposes in qualitative research. The researcher closely examines the data to

identify common themes – topics, ideas, and patterns of meaning that come up repeatedly.

According to (Braun & Clarke, 2006), the process of thematic analysis consists of six phases, The first phase is familiarizing with the data, where the researcher reads and rereads the questionnaire data and transcribes the interview results to gain a deep understanding of the data. The second phase is generating initial codes, where the researcher determines codes based on the interesting points from the interviews. The third phase is searching for themes, the analysis is expanded from collected code-shaped points into formed themes. Visual representations can greatly assist in grouping different codes into themes. The fourth phase is reviewing themes, where the researcher checks back if the themes align with the predetermined codes. Then, in the fifth phase, defining and naming themes, the researcher refines the themes by filtering and identifying each theme. Finally, the sixth phase is producing the report, where the researcher presents a complex narrative about the data in a convincing manner, demonstrating the benefits and validity of the analysis.

2. Data Validation

In this research, the researcher validates the findings by doing a peer review of the participants to make sure that the participants are true to participants' experiences. The researcher done the data validation after the researcher read the participants' response gathered from Google Forms. Then, the researcher validates the participants' response whether participants' responses are in line with the researcher's understanding. This intended to keep participants' trustworthiness (Elo et al., 2014).

In this research, the researcher uses WhatsApp application to communicate with the participants. The use of WhatsApp application intended to make the participants flexible to give the validation anywhere and anytime. The participants gave the response by answering the researcher's question textually. In addition, WhatsApp also were used by most of the population of Indonesia, and it became the easiest application to connect with people in Indonesia.

CHAPTER IV
FINDINGS AND DISCUSSION

This chapter shows the research findings and discussion of the research gathered through the open-ended questionnaire with twelve instruments gathered through Google Forms.

A. Findings

1. EFL Pre-service teachers' conception of infographics as teaching media

The following are EFL pre-service teacher's conception of infographics as teaching media. The data were obtained from the open-ended questionnaire with twelve instruments gathered through Google Forms.

To simplify the data display, the names of participants will begin with P1 for participant 1, P2 for participant 2, P3 for participant 3, and so on. Following the researcher's classification of the EFL pre-service teachers' conception of infographics as teaching media according to participants' responses, the data were described below.

The researcher makes an infographic consists the theme of the findings to make the readers easier to understand the findings. The findings of the EFL pre-

service teacher's conception of infographics as teaching media as follows:

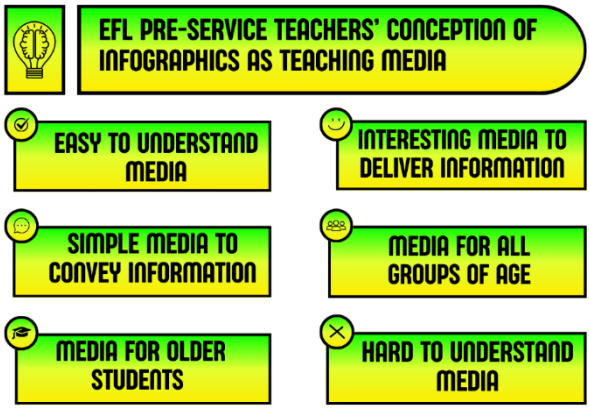

Figure 4.1 - *EFL Pre-Service Teachers' Conception of Infographics as Teaching Media*

1.1. Easy-to-Understand Media

There are 11 of 15 participants equal to 73% of the participants. The participants are P1, P2, P3, P4, P6, P7, P10, P11, P12, P14, and P15 give the similar response. Most participants give a positive conception of infographics as teaching media, infographics as easy-to-understand media because of the use of pictures, icons, illustrations, and other interesting and attractive ways.

P4 explained *"... infographics can be defined as an informational poster that has a cool look and easy-to-understand ... infographics are very easy to use to make learning materials more interesting and easier*

to understand Usually, the content is a combination of short text, pictures, graphics, or diagrams that make the information clearer". Similarly, P7 noted, *"Infographics are visual media that convey information or data in an attractive and easy-to-understand way ... it is shorter, concise, and easy to understand".* Overall, infographics became an effective medium for teaching English according to the positive perspective of most of the participants.

1.2 Interesting Media to Deliver Information

There are 3 of 15 participants equal to 20% of the participants. Participants P1, P2, and P4 defined infographics as interesting media to deliver information because of their attractiveness and excitement.

Participants P4 and P14 mentioned the content used on infographics, P4 explained *"... Infographic uses the combination of short text and pictures, graphics, or diagrams that make the information clearer ...".* Similarly, P14 noted, *"... it does not only consist of information; it is also displayed in the form of visuals or graphics that make it easier for us to understand the information"*. Overall, participants give a positive response regarding the conception of infographics as teaching media. Infographics became an effective medium for teaching English according to the positive perspective of most of the participants.

1.3 Simple Media to Convey Information

There are 10 of 15 participants equal to 67% of the participants. The participants are P2, P3, P4, P5, P6, P7, P8, P10, P12, and P13 defined infographics as simple media to convey information because of their conciseness and simple information.

Participants P2, P5, and P10 explained the conciseness of infographics. P2 stated *"... infographics are cool to show information in a visual, simple, and direct way. So, if there is complex information, infographics can explain it more clearly and easily understand ..."*. Similarly, P5 stated, *"... infographics are simpler, and accompanied by interactive images ..."*. Along with this, P10 explained, *"... Infographics are simpler but consist of an important point that can be directly visible to the reader"*. Overall, infographics became an effective medium for teaching English according to the positive perspective of the participants.

1.4 Media for All Groups of Age

There are 9 of 15 participants equal to 60% of the participants. The participants are P2, P3, P5, P8, P10, P11, P13, P14, and P15 participants defined infographics as media for all groups of age because of its flexibility. The material can be adjusted according to the student's needs.

Participants P5, P8, and P13 explained the infographics' flexibility. P5 explained, *"... from pre-kindergarten to higher education can be taught by using infographics because the design and images presented also adjust to the level taught."*. Similarly, P8 noted *"... It is suitable for all age groups, but must also be age-adjusted, children are suitable for being given information with many colors but adults are not suitable for it."*. Along with this, P13 stated *"Infographics are suitable for all groups of age by paying attention to the age level and language ability of students. For young students or beginners, use simpler infographics with a focus on images. For adult or advanced students, more complex infographics can be used to convey more detailed information"*. Overall infographics became an effective medium for teaching English according to the positive perspective of the participants.

1.5 Media for Older Students

There are 3 of 15 participants equal to 20% of the participant. Participants P1, P2, and P7 participants defined infographics as media for older students because of its material classification. The material is preferred for older students.

Participants P1, P4, and P7 explained the material classification of infographics. P1 explained, *"... Not for all ages, it is effective for older students because young learners can be distracted by the use of cute mages/icons in the infographic*". Similarly, P4 stated *"...*

infographics are very suitable for junior high and high school students because they can already understand the information presented visually and concisely. For example, for grammar or text materials, infographics can make the material easier to understand and interesting. But, for young learners, infographics are not suitable because they need a fun and interactive approach, such as playing games or flashcards …". Along with this, P7 noted, *"… It is for older learners because infographics are intended for young children such as kindergarten will not be optimal because they are less interactive than learning using video"*. Overall infographics became an effective medium for teaching English according to the positive perspective of the participants.

1.6 Hard to Understand Media

There are 4 of 15 participants equal to 27% of the participants. The participants P6, P10, P11, and P14 defined infographics as hard-to-understand media. This is because of the language used and its simplicity.

Participants P10, P11, and P14 explained the language used in infographics. P10 noted, *"… usually, infographics contain important points, but they become difficult to understand because they are usually only in the form of an outline, not explained in detail"*. Similarly, P11 stated that *"Infographics are like audio and graphics. Graphics might make students hard to understand if the lecturer used infographics …"*. Along with this, P14 noted, *"… the language used to convey the content in the infographic is a*

little difficult to understand while students usually prefer to use language that is easy to understand, and students tend to get bored more easily during the delivery process so it requires us to make the infographic as interesting as possible". Overall, the participants give a negative perspective regarding the conception of infographics as teaching media.

2. EFL Pre-Service Teachers' Readiness to Utilize Infographics as Teaching Media

The following are EFL pre-service teachers' readiness to utilize infographics as teaching media. The data were obtained from the open-ended questionnaire with twelve instruments gathered through Google Forms.

To simplify the data display, the names of participants will begin with P1 for participant 1, P2 for participant 2, P3 for participant 3, and so on. Following the researcher's classification of the EFL pre-service teachers' conception of infographics as teaching media according to participants' responses, the data were described below.

The researcher makes an infographic consists the theme of the findings to make the readers easier to understand the findings. The findings of the EFL pre-

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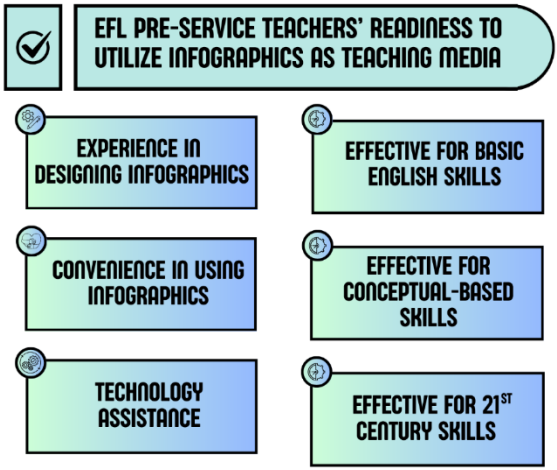

Figure 4.2 - *EFL Pre-Service Teachers' Readiness to Utilize Infographics as Teaching Media*

2.1 Experience in Designing Infographics

There are 15 of 15 participants equal to 100% of the participants who ever designed an infographic. The participants are P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, and P15 have experience in designing infographics. Participants designed infographics when they at the First, Third, and Fifth semesters.

P3 explained *"... I also got assignments to make infographics, posters, PowerPoint, etc. several times, like in the Sociopragmatics Course in the Fifth Semester. This helped me prepare myself to create digital-based*

infographics". Similarly, P4 noted *"... there was only one lecturer who gave me the task of creating information in the form of infographics, and that was my first experience using technology to make infographics, especially when I was in the Sociopragmatics course in the fifth semester"*. Along with, P9 stated *"... My lecturer often used PPT rather than infographics, then my lecturer ever gave me a task to make an infographic when I was in Vocabulary and Grammar in the 1st semester, Second Language Acquisition (SLA) in the 2nd semester, and Language Learning Evaluation (LLE) in the 3rd semester"*. Overall, their experiences can shape their understanding of how to make a digital-based infographic and shape their readiness to utilize infographics as teaching media.

2.2 Convenience of Using Infographics

There are 12 of 15 participants equal to 80% of the participants stated that they are comfortable in using infographics. The participants are P1, P2, P3, P4, P5, P7, P8, P9, P12, P13, P14, and P15. It is because of its easiness, attractiveness, and flexibility.

P1 explained *"I am very comfortable using it because it makes it easier to understand and deliver the material without lengthy notes. ..."* Similarly, P5 noted, *"I think it is very comfortable because I am interested in making an infographic and also challenged to design it interestingly so that students will be engaged ..."* Along with this, P9 also stated, *"I think it*

is quite comfortable because it is more flexible, the teacher can adjust the infographics in their style". Overall, most of the participants show a positive response regarding the convenience of using infographics. The convenience makes most of the participants easily grasp the effectiveness of infographics as teaching media.

2.3 Technology Assistance

There are 14 of 15 participants equal to 94% of the participants assisted by technology. The participants are P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, and P14. Most of the participants were assisted by technology, especially through applications, websites, and other ICT tools.

P2 explained *"... because currently many templates, like for example when using templates from Canva.com, it will make us easy to create infographics and are easy to use ... there is already AI technology to paraphrase or simplify what I want to summarize".* Similarly, P4 stated *"... I am also quite familiar with digital tools such as Canva or CorelDraw ... made templates will also be very helpful because sometimes design ideas can be stuck ... also, the templates provided in Canva makes me easier to create the infographic".* Overall, participants gave positive responses because of the assistance of technology, especially Canva.

2.4 Effective for Basic English Skills

There are 7 of 15 participants equal to 47% of the participants who believe infographics are effective for basic English skills. Participants P1, P2, P3, P4, P5, P6, and P7 believe that infographics will be effective for basic English skills, such as reading and writing skills because of the use of visual media.

P2 noted, *"Infographics are suitable for teaching reading skills. Because it can explain long and complicated information into easy-to-understand through images, graphics, or diagrams"*. Similarly, P3 stated, *"... I think infographics will be very beneficial to teach writing skills"*., P4 explained, *"Infographics are not only used to teach grammar and text, but they can also be used to teach vocabulary and tenses, and even to help students understand reading more easily ..."*.

2.5 Effective for Conceptual-based Skills

There are 5 of 15 participants equal to 34% of the participants who believe infographics are effective for conceptual-based skills. Participants P3, P9, P12, P13, and P15 believe that infographics are effective for conceptual-based skills, such as presentation skills, and analytic skills.

P9 noted that *"Presentation skill. Because to make students easily understand the material, presentation skill is needed to make them easily understand the material. Yet they will easily present material taught clearly and effectively"*. Similarly, P13 stated that *"... and conceptual-based skills like presentation. It helps students understand complex information in an engagingly and memorably"*. Along with this, P15 explained *"Classroom presentation skills"*. Overall, proved by participants P9, P13, and P15 who explained that infographics are effective for conceptual-based skills.

2.6 Effective for 21st-Century Skills

There are 8 of 15 participants equal to 54% of the participants who believe infographics are effective for 21st-century skills. The participants P3, P4, P8, P10, P11, P12, P13, and P14 believe that infographics are effective for 21st-century skills, such as visual literacy, digital literacy skills, creativity skills, and innovative skills.

P4 explained, *"... I believe that technology, including infographics, can help teaching to be more creative, effective, and relevant to the needs of today's students"*. Similarly, P10 noted *"Visual literacy and Digital Literacy. Because teaching requires appropriate skills, for example by providing interactive images so that the eyes of the listener and students do not get tired of looking at the available images, it will be easy to make them*

focus". P13 stated, *"... infographics can effectively improve EFL teaching and learning, as they can improve Visual Comprehension, facilitate self-paced learning, and motivate or attract attention".* Overall, participants gave a positive response regarding the use of infographics as teaching media.

3. Challenges EFL Pre-Service Teachers Encounter in Implementing of Infographics as Teaching Media

The following are Challenges EFL Pre-service teachers encounter toward the implementation of Infographics as Teaching Media. The data were obtained from the open-ended questionnaire with twelve instruments gathered through Google Forms.

To simplify the data display, the names of participants will begin with P1 for participant 1, P2 for participant 2, P3 for participant 3, and so on. Following the researcher's classification of the EFL pre-service teachers' conception of infographics as teaching media according to participants' responses, the data were described below.

The researcher makes an infographic consists the theme of the findings to make the readers easier to understand the findings. The findings of the EFL pre-

service teachers' readiness to utilize infographics as teaching media as follows:

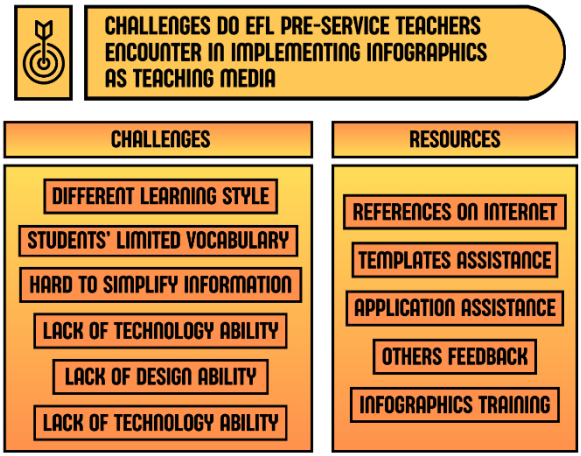

Figure 4.3 – *Challenges EFL Pre-Service Teachers Encounter in Implementing Infographics as Teaching Media*

3.1 Different Learning Style

There are 6 of 15 participants equal to 40% of the participants face different learning style challenges. There are P3, P4, P7, P8, P10, and P11 face challenges with the different learning styles of students. It is because not all students are visual learners, but also audiolingual and kinesthetic. Hence, teachers should be prepared for students' different learning styles.

P7 explained *"... not all students have the same ability to understand infographics or*

a text/material model at a glance, it can be easier for the child to understand using media that has a sound or some prefer it if it is explained through a story, so it should be like an infographic so that it can match all the abilities of students". Similarly, P10 added *"... we must know the differentiation of student learning, because not all students like visual learning, some are audiolingual and kinesthetic ... some students are not interested in reading the text alone, but rather they can be listened to with audio or visual audio".* The challenge indicates the diversity among students' learning styles, which teachers need to pay attention to facilitate the students.

3.2 Students' Limited Vocabulary

There are 4 of 15 participants equal to 27% of participants who face students' limited vocabulary. The participants P1, P3, P9, and P14 face challenges with students limited vocabulary. This is because not all students have a similar level of vocabulary mastery.

P1 explained "*Infographics need simple, concise, and clear words. Sometimes it is difficult to find sentence ideas/vocabularies that can briefly explain the meaning of a topic of discussion to all the students, because students have different levels of vocabulary understanding".* Similarly, P9 stated *"... students often have difficulty understanding technical terms or idioms used in infographics. In addition, the right selection of visuals is also very important so that students can easily*

connect images with text …". Therefore, as a prospective teacher, participants should be prepared for the limited vocabulary of students. A teacher needs to maintain the vocabulary used during the teaching process and improve students' vocabulary mastered.

3.3 Hard to Simplify Information

There are 4 of 15 participants equal to 27% of the participants who face difficulties in simplifying information. There are P4, P5, P13, and P14 face challenges with difficulties in simplifying information. Due to the complexity of the material, especially when it comes from the dictionary book.

P13 explained *"Yes, I did, I face language-related challenges, especially in simplifying complex concepts when creating infographics for EFL students. It is because, in my opinion, all material is important and needs to be presented"*.

3.4 Lack of Infographics Training

There are 15 of the 15 participants equal to 100% of participants who never had an infographic training. It means all of the participants never had an infographic-specific training. Participants only ever had the experience of making an infographic as an

assignment during the lecturing process. Participants mostly stated that infographic-specific training is needed to improve their understanding of how to make a good infographic and to utilize infographics as teaching media properly.

P2 explained *"However, I never had digital infographics training, especially on how to utilize infographics for teaching practices ... I need those to improve my teaching ..."*. This became the crucial challenge that needs to be resolved so that prospective teachers understand how to make a good infographic and to utilize infographics as teaching media properly.

3.5 Lack of Technology Ability

There are 3 of 15 participants equal to 20% have a lack of technology ability. There are P8, P10, and P11 participants who face the difficulty to use technology in teaching. Participants are not confident with their ability to operate the technology considering their initial ability is not the same. In addition, the participants who face the challenges are mostly from the first and third semesters and may not have received courses that teach the use of technology in education.

P8 explained, *"I feel less confident in using infographics in teaching because I feel less confident in using software"*. Along with this, P10 added, *"I feel less confident, because I had never used infographic media before, and still used traditional media such as PPT, cartons, etc."*. This remains that the participants who face technology difficulties need further improvement regarding their difficulty. So that they will easily grasp the benefits of using technology in teaching.

3.6 Lack of Design Ability

There are 4 of 15 participants equal to 27% have a lack of design ability. There are P10, P11, P12, and P13 face the challenges in designing an infographic. Participants were not confident with their ability to design an infographic because participants had never been taught how to design a good infographic.

Participant P11 explained *"I lack confidence in designing infographics because I don't feel like I am good at designing an infographic. Because it needs an interesting combination ... it makes it hard to customize the content that facilitates students' needs"*. Similarly, P13 added, *"I lack confidence in designing digital-based infographics because I feel that I confused about how to arrange the infographic layout"*. This remains that when the participants can develop their design ability, the infographics they have made will be more attractive.

3.7 References in the Internet

There are 10 of 15 participants equal to 67% initiated the resources. The participants, P1, P2, P3, P4, P5, P6, P9, P11, P12, and P15 try to overcome the challenges by finding References in the Internet. This can be a solution remembering that there are so many references regarding the design and layout of infographics, such as Pinterest, or by asking the references to AI, such as Gemini, Copilot, etc. This indicates that participants can overcome their challenges on their own, especially with the ease of existing technology as it is today.

P9 stated, *"by using Copilot from Microsoft (AI) as the reference"*. Along with this, P11 noted, *"... I think the online references will be helpful to look for good infographics, especially from Pinterest"*. This implied that the participants that they try to overcome their difficulties by seeking references on the internet.

3.8 Canva Application Assistance

There 12 of 15 participants equal to 80% initiated the resource. The participants P1, P2, P3 P4, P5, P6, P7, P8, P9, P10, P11, P12, and P14 try to overcome the challenge with the assistance of the Canva application.

Participants used Canva because of its easiness and its efficiency.

P8 stated that *"I make the infographic by utilizing templates from Canva"*. Similarly, P12 added *"utilizing several templates from Canva application as the easiest way to make a poster … using applications to support the process of designing.* Overall, the participants explained the benefits of Canva in helping their work to make infographics.

3.9 Others Feedback

There are 4 of 15 participants equal to 27% initiated to seek others' feedback regarding their infographics. The participants P3, P4, P10, and P13 try to overcome the challenges by seeking others' feedback regarding the infographics they have made.

P4 explained "*I often ask for feedback from friends, … feedback from fellow teachers or students can directly give a new perspective and help me check if the infographic I made is effective in conveying the material. … feedback may have a big impact in reducing the challenges in the making of infographics"*. In addition, P13 added *"Involving students … their feedback can also help produce more relevant and effective infographics"*. Participants seek feedback from the students and fellow teachers. Participants think that they will recognize others' perspectives after they seek others' feedback and get better.

3.10 Infographics Training

There are 15 of 15 participants equal to 100% believe that infographics-specific training is the way to overcome the challenge they faced. All participants needed infographics-specific training to overcome the challenges they faced.

P3 explained that *"I still need more infographic-specific training to improve my understanding in using infographics for teaching media because my understanding is still basic"*. Similarly, P4 added *"Additional support that I think can help reduce the challenge of creating infographics for teaching is training or design workshops. For example, training on how to use design tools such as Canva or Adobe Photoshop can help me better understand how to design infographics that are not only attractive but also effective in conveying information. In addition, training in visual design principles is also important so that the infographics I make can be more structured and easier to understand"*. Along with this, P13 stated, *"By getting support in the form of training I was able to reduce the challenges of creating infographics and create more engaging and effective learning materials for EFL students."* The infographics-specific training can improve their understanding of how to make a good infographic and how to utilize it as teaching media.

B. Discussion

The research findings will be discussed in several explanations related to the EFL Pre-service teacher's

conception of infographics as teaching media, readiness to utilize infographics as teaching media, and challenges and resources encountered to utilize infographics as teaching media associated with the Technology Readiness Model (TRM) proposed by (Parasuraman, 2000) which comprised to four dimensions; optimism, innovativeness, discomfort, and insecurity.

1. EFL Pre-Service Teachers' Conception of Infographics as Teaching Media

Based on the overall result, the data show that EFL Pre-service teachers defined infographics in several ways. There is a positive and negative response regarding their conception of infographics as teaching media. The positive response consists of easy-to-understand media, interesting media to deliver, simple media to convey information, media for all groups of age, and media for older students. Besides, there is also a negative response from the participants who think that infographics are hard-to-understand media.

The positive conception of infographics as teaching media, such as infographics as easy-to-understand media supported by research conducted by (Adi & Ariesta, 2019; Parveen & Husain, 2021)

which found that infographics are used to communicate or convey difficult and complex information in an appealing way to make the audience easier to understand so that the information will be remembered longer. This showed that infographics can easily grasp students' understanding because of their easiness of understanding. Participants also stated that infographics are easier rather than other types of ICT media, such as PowerPoint.

Participants also defined infographics as interesting media to deliver information. Participants will easily grasp the learning outcomes when they are enjoyed and feel interested. A study conducted by (Meialldy, 2021) reports that the exciting and interesting visual design of the infographic will attract the student's attention and increase their willingness to read instead of only giving the students reading material full of text or traditional materials which probably makes them feel bored. In addition, (Apriyanti et al., 2020) reported that infographics are very interesting learning media, learning becomes flexible and it has an enjoyable learning style. This conception can be a motivation for prospective teachers to develop their ability to

adapt to new teaching media for students' understanding.

In addition, participants who defined infographics as simple media to convey material addressed the benefits of infographics. Participants stated that infographics are simpler and more concise rather than other teaching aids. (Alwadei & Mohsen, 2023) reported that infographics help convey information succinctly and without the need for other sources. This remains that infographics can facilitate students' needs according to their advantages.

Infographics were also suitable for all groups of ages. The study conducted by (Apriyanti et al., 2020) reported that infographics are flexible media for learning. In addition, (Aldalalah, 2020) reported that infographic plays a level of flexibility in presentation and engagement. It mentions that interactive infographics allow viewers to control the content through various tools, suggesting a flexible approach to information delivery. This implies that an infographic can be a beneficial tool for prospective teachers to convey the material as it can be adjusted considering the needs of the teachers. For example, related to the content of the material or the level of

understanding of the students so that the teachers can freely adjust.

Besides, several students defined infographics as a medium for older students. This is due to that infographics contain visual things, such as images or illustrations. Several participants stated that it might be distracting the students because of the use of those visual things. A study conducted by (Dewantari et al., 2021) reported that infographics are considered a very good medium for teaching English for independent learning at the secondary level. Besides, (Satrio & Hakli, 2021) reported that animated infographic media is highly suitable for use as a teaching tool for tenth-grade students in high school.

In addition to the positive conception of the participants about infographics as a teaching medium, there is a perception of participants who consider infographics as a hard-to-understand media. The participants who defined infographics as hard-to-understand media because of the content, some stated that infographics consist of an outline of the material. However, no research reports that infographics are difficult to understand. Most of the research reports the difficulties faced by the students, not the hard-to-understand media conception. The participants who

defined infographics as a hard-to-understand media seem like they face difficulties regarding technology and design ability, or they are not convenient to use infographics.

The findings reflect two dimensions of the Technology Readiness Model (TRM) developed by Parasuraman, Optimism and Discomfort dimension. The Optimism dimension reflected from the positive perceptions are from the EFL Pre-service teachers in using infographics as teaching media, such as easy to understand, simple to convey information, interesting media to deliver information, media for all groups of age, and media for older students. The Discomfort dimension is from the negative perception of EFL Pre-service teachers in using infographics as teaching media, such as hard-to-understand media.

Considering the findings which indicate that EFL pre-service teachers tend to see the value of using infographics in teaching. Their perceptions mentioned that infographics are easy to understand and simple to use. It will suggest teachers who can facilitate the teaching-learning process and help students better visualize concepts. These results align with previous research, which has found that visual media can enhance understanding and retention of information.

This is consistent with previous research, which found that infographics are used to communicate or convey difficult and complex information in an appealing way to make the audience easier to understand so that the information will be remembered longer (Adi & Ariesta, 2019; Parveen & Husain, 2021; Provvidenza et al., 2019; Siricharoen, 2013).

The number of participants who gave a positive response regarding the conception of infographics as teaching media proves to be a critical issue. Teachers must consider the effectiveness of the use of infographics in the teaching process. The high percentage of positive responses indicates significant potential for integrating infographics into language education curricula. Furthermore, the findings provide insights for educational media developers to continue optimizing infographic design to make them more engaging and easier to understand.

However, there is also a negative response regarding the EFL Pre-service teachers' conception of infographics as teaching media. The participants who classified infographics as hard-to-understand media, which are P6, P10, P11, and P14, were facing other insecurities as reflected by TRM, such as lack of technology and design ability. They also found it hard

to simplify information. It might be the reason why the participants classified infographics as hard-to-understand media. Considering that infographics are a part of ICT media which needs a technology and design ability to be properly utilized as a teaching media that can facilitate students' learning process. This can be addressed by using the easy-to-use media, such as Canva (Parveen & Husain, 2021).

A study conducted by (Bin Dahmash et al., 2017), stated that infographics prove to significantly improve students' comprehension. (Hernandez-Fernandez et al., 2022) added that infographics are more effective than text in the learning process. (Alrwele, 2017; Elaldı & Çifçi, 2021) reported that infographics have a positive effect on students' academic achievement.

2. EFL Pre-Service Teachers' Readiness to Utilize Infographics as Teaching Media

The findings showed that all of the participants have experience in designing an infographic. The participants' experience in designing infographics fostered their ability to make a good infographic. Research conducted by (Dunlap & Lowenthal, 2016) discusses how experience in

designing infographics can shape understanding. In addition, (Abdulmajid, 2020) discussed how infographics can be used as a tool for transmitting complex information efficiently and precisely, and also how experience in designing infographics can enhance instructional performance and creativity in art education. So EFL pre-service teachers' experience in designing infographics can improve their understanding to utilize infographics as teaching media.

In addition, most of the participants also feel convenient in using infographics. Most of the participants were convenient because of the easiness, attractiveness, and flexibility of infographics. This is supported by the research conducted by (Elaldı & Çifçi, 2021) which reported that using infographics in education has a positive effect on academic performance, with the convenience of visual aids playing a significant role in improving learning outcomes. In addition, (Kates et al., 2023) reported that there was a significant percentage of students felt that creating infographics helped them better retain and analyze information.

Besides, the participants were also supported by the existence of technology, such as applications,

websites, and other ICT tools, especially Canva. The participants were supported by Canva because of its simplicity and easiness. (Abdulmajid, 2020; Alrwele, 2017; Kalaf-hughes, 2023; Meialldy, 2021; Scott et al., 2017) reported that the making of infographics can involve online platforms, such as Canva, Piktochart, Vengage, Visme, and other online platforms depending on their ability.

According to the Technology Readiness Model (TRM), developed by (Parasuraman, 2000), these findings reflect the Innovativeness dimension of TRM which proved that the high percentage of participants with experience in designing infographics indicates a willingness to innovate and incorporate new teaching tools. This innovation shows that pre-service teachers are willing to use new technologies in their classrooms. Designing infographics can help teachers create attractive teaching materials that engage students and make them more interested in the learning process. This can enhance students' comprehension of the material, ensuring it remains in their memory for a longer duration.

In addition, the findings also indicate that the participants find infographics effective for basic English skills, conceptual-based skills, and 21st-

century skills. These findings are supported by the study conducted by (Hameed & Jabeen, 2022) which reported that infographics can be a helpful technique to promote better writing skills. (Kalaf-hughes, 2023) added that the use of infographic assignments is highlighted as an effective method for enhancing students' understanding of scholarly literature, improving critical thinking and presentation skills, and boosting confidence in learning.

Furthermore, (Alwadei & Mohsen, 2023) reported that infographics are effective in improving students' vocabulary and increasing students' motivation to improve their vocabulary. (Tavanapour et al., 2024) Added that using animated infographics had a positive effect in helping EFL students improve their vocabulary gain and retention. This implied that infographics are effective tools for teaching vocabulary because of their illustrations.

According to the findings, the participants can be classified based on the three levels of readiness, such as high, moderate, and low readiness proposed by (Parasuraman, 2000). As illustrated in Figure 4.4, most of the participants (60%) classified into moderate readiness, considered by the balance of optimism and discomfort. Another group (27%)

classified as high readiness revealed by their strong optimism and innovativeness with minimal challenges. Whereas (20%) characterized low readiness, measured by their struggle with insecurity and discomfort due to limited design and technology ability.

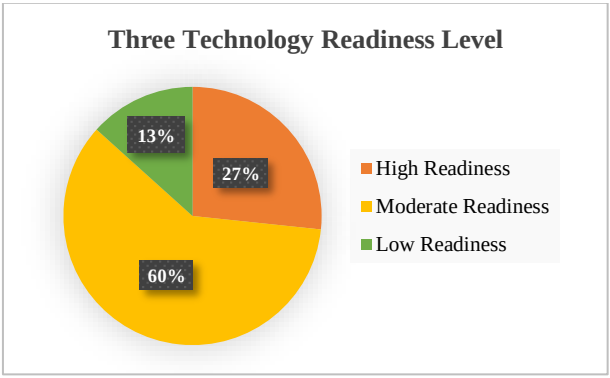

Figure 4.4. *Three Readiness Level by Parasuraman, 2000*

Readiness Level	Number of Participants	Participants
High Readiness	4	P1, P2, P6, P15
Moderate Readiness	9	P3, P4, P5, P7, P8, P9, P12, P13,14
Low Readiness	2	P9, P10, P11

Table 4 *Technology Readiness Level Classification*

Participants which 3 classified in the high readiness level, such as P1, P2, P6, and P15 established confidence and comfort in using an infographic. This was proven by P1 who stated that

infographics are easy-understand and interesting media. In this case, P1 is experienced in designing infographics and comfortable using infographics due to the assistance of technology. However, participants with high readiness stated that need further infographic training to achieve a better future.

The majority of the participants, such as P3, P4, P5, P7, P8, P9, P12, P13, and P14 categorized into moderate readiness, indicated by the balanced proportion of optimism, such as convenience and experience) with challenges such as difficulty with the infographics with the diversity of students' learning styles, and simplifying information. In this case, P4 classified infographics as an effective media for older students, which reflects the optimism dimension. However, P4 also faces challenges in simplifying information and students' different learning styles. This remains that there is a balanced dimension between optimism and challenges.

Participants which categorized as low readiness, such as P9, P10, and P11 faced significant challenges due to insecurity and discomfort. They struggled with limited technology skills, lack of design abilities, and difficulty simplifying content. In this case, P10 stated, *"I am not confident in creating*

effective infographics and prefer using PowerPoint." These responses highlight the need for specific interventions to boost both technical and teaching confidence.

The classification of participants into readiness levels highlights the differences in EFL pre-service teachers' readiness to use infographics as teaching media. Based on this classification, all participants should prepare for the innovation and develop optimism to overcome their insecurity and discomfort.

3. Challenges EFL Pre-Service Teachers Encounter in Using Infographics as Teaching Media

The challenges can be classified into external and internal factors, the internal factor comes from a person's mind (Cambride, 2025). In this research, the challenges which are the internal factors are hard to simplify information, and lack of technology ability, lack of design ability. While the external factor comes from the outer side of a person's mind (Merriam-Webster, 2025). In this research, the challenges that are the external factors are lack of infographics training, students' different learning styles, and students' limited vocabulary.

The findings showed the challenges faced by EFL pre-service teachers and the resources to overcome the challenges. The challenges reflect the discomfort and insecurity dimension. The challenges that reflect the discomfort dimension of TRM are different learning styles, and difficulty simplifying information. While, the challenges reflecting the insecurity dimension are limited vocabulary, lack of infographics training, lack of technology, and lack of design ability.

The difficulty in simplifying information and students' different learning styles reflects the discomfort dimension. The discomfort will create hesitation and resistance among the EFL Pre-service teachers. When EFL Pre-service teachers face hesitation and resistance it often indicates that they are struggling with their confidence, skills, or additional support in adopting new teaching aids such as infographics. Hence, building EFL pre-service teachers' resilience will help them overcome these barriers by developing their positive mindset, and willingness to be better. By being resilient, EFL pre-service teachers will grasp a new teaching method effectively.

Difficulty in simplifying information may occur regarding the material that will be conveyed. The more material that will be presented, the more infographics will be created. Usually, each infographic contains one material. For example, a teacher wanted to convey the Procedure Text, so the infographics contain a procedure text. Teachers have to prepare material, like the tools and materials needed and how to make them are equipped with illustrations. The complexity of the material will be conveyed sometimes makes the teacher difficult to simplify the information. This is because infographics should be presented to be concise and engaging at the same time (Nuhoğlu-Kibar et al., 2019). This becomes a challenge for prospective teachers knowing that there are so many learning materials that should be outcomes. Therefore, as a prospective teacher, participants should be prepared for the challenges so that students will find it easier to understand the complex information with simplified material.

Students' learning styles were very diverse. Prospective teachers tend to be adaptive to facilitate varied students' understanding. In addition, not all students have similar learning styles, especially visual learning. This aligned with the study conducted by

(Tahir, 2020) which reported that infographics can enhance learning, but their effectiveness may be limited for students whose learning styles do not align with visual representations. Additionally, the study points out challenges related to technological readiness and the need for both teachers and students to adapt to new pedagogical tools. This remains that teachers might be aware of students' learning styles, whether they are visual learning, auditory learning, etc. When the students are not fully visual learning, prospective teachers have to combine the media, such as by giving the accommodation for each learning style. For example, if the students are auditory learners, the teacher can combine the learning not only focused on the infographics but also involve students through group discussions or debates (Teachable, 2023).

The lack of technology ability, and lack of design ability, and lack of infographics training, which reflect the insecurity among the EFL pre-service teachers can be minimized by encouraging them with a positive mindset and willingness to be better in the future. Participants with insecurity might be feeling down when they face the challenges of dealing with their insecurity. It might be crucial to

ensure that participants who have insecurity can effectively overcome their challenges. Regarding the language used on infographics, teachers have to pay attention to the vocabulary used. As the students are not native, it might seem that when the teachers use an idiom or something that does not particularly imply the meaning of the material, EFL students will be difficult-to-understand the material.

Therefore, prospective teachers should be aware of the vocabulary used and adjust to the level of vocabulary mastery of the students. There were so many studies that reported that infographic is effective for teaching vocabulary. A study conducted by (Alwadei & Mohsen, 2023; Dewantari et al., 2021; Tavanapour et al., 2024) reported that infographics are more effective rather than the conventional method. Students improve their vocabulary by working more on their own and needing less guidance from their teacher. This implied that challenges to students' limited vocabulary can be overcome by teaching using infographics.

The lack of technology ability contributed to the participants' insecurity. This may be caused by the initial experience of participants in using technology, especially ICT media. This insecurity may arise when

the prospective teachers do not feel confident in using infographics as teaching media. As a prospective teacher, participants should prepare themselves to utilize technology, especially in the teaching process. A study conducted by (Ramaila & Molwele, 2022) reports that technology integration in teaching and learning will be very beneficial during the 21st-century era, especially. Therefore, prospective teachers need to prepare their ability to survive in Industry 4.0 (Oztemel & Gursev, 2020).

The participants who face the challenges of designing an infographic feel insecure when they are faced with the use of software to design. This may be due to the ability to master the software to design. Therefore, as a prospective teacher, participants must prepare the ability to create an infographic design because infographics need an attractive and simple visual. A study conducted (Alyahya, 2019) reports the challenges faced by the participants in designing infographics, such as the need for skills in graphic design software and the ability to effectively organize and present information visually. Therefore, additional supports are needed to overcome this challenge following the need to make a good infographic.

Concerning those challenges, the participants propose the resources dealing with the challenges they have faced, the resources reflect the optimism and innovativeness dimension of TRM. The resources that reflect the optimism dimension are finding references on the internet and with the assistance Canva application. Then, the resources reflected the innovativeness dimension by asking for others' feedback, also by joining infographics training.

The challenges, especially lack of design ability can be overcome by finding references on the internet. This is because sometimes teachers feel unconfident in the design. By finding references, teachers can mimic the existing design and then adjust to teachers' style because some of the teachers will be proud when they make the media from the beginning, including the preparation. However, if the teacher does not want to make the infographics from the beginning, prospective teachers can use the assistance of the Canva application. By using the Canva application, teachers will be greatly helped because of the convenience that has been provided. Prospective teachers can use the template provided. Teachers only need to type the material in the existing template. Teachers are also able to choose the template which

suitable for the material that will be conveyed. This is because not every template is suitable for the student's level. Teachers can adjust the template based on their needs.

In other hand, prospective teachers also permitted to seek others' feedback regarding the infographics have been made. For example, teachers can ask students regarding the infographics have been made to check whether the infographics is suitable enough for them or not. Teachers also can ask fellow teachers whether the infographics is good enough to be presented in class or not. By seeking others feedbacks, teachers can understand others point of view to compare the infographics and to know which one is better to be presented in the teaching process.

The challenges also can be overcome by joining infographics training. All of the participants also stated that participants are need an infographics-specific training to overcome the challenges, especially how to make a good infographic and how to utilize infographic as a teaching media which will be very beneficial if the teachers understand to make a good and an attractive infographic. This supported by the study conducted by (Tarkhova et al., 2020) which reported that there is a significant role of

infographics in enhancing educational effectiveness, particularly in technical fields. It promotes the integration of infographics into educational practices to improve understanding and engagement among students. The research highlights the need for better training in creating and interpreting various types of infographics, as many student presentations currently lack effective design.

CHAPTER V
CONCLUSION AND SUGGESTION

This chapter consists of the conclusion of the research findings and discussion and the suggestions according to the findings and discussions.

A. Conclusion

Based on research on EFL pre-service teachers' readiness for the use of infographics as teaching media that has been done by the researcher, which investigate EFL Pre-service teachers' conception, how EFL Pre-Service Teachers perceive readiness to utilize, and challenges do EFL Pre-Service Teachers encounter toward the implementation of infographics as teaching media.

1. Regarding the conception of EFL pre-service teachers, the findings show us most EFL pre-service teachers view infographics positively, finding them easy to understand, visually appealing, and effective to simplify information. Even though there is a small percentage of the participants who classified infographics as hard to understand. These conceptions align with the optimism and discomfort dimensions of the TRM, where optimism reflects the positive conception of infographics in teaching, while

discomfort arises due to challenges in understanding the medium.

2. Regarding the way of EFL pre-service teachers perceived readiness to utilize infographics as teaching media, the findings reveal that all of the participants have experience in designing infographics, feel comfortable using them and supported by technology. This indicates the high readiness level of the EFL pre-service teacher according to TRM. The innovativeness dimension reflected from the participants' willingness to integrate infographics as the digital media into teaching. However, some participants showed the lack of their ability in design and technology which may impact their confidence in using infographics well.
3. Regarding the challenges EFL pre-service teachers encounter toward the use of infographics as teaching media, the findings show that participants faced the internal and external challenges. Internal challenges including difficulty to simplify information and limited design and technology ability, which reflect the discomfort dimension of TRM. While the external challenges including students' different learning style and limited access to infographics training, which reflect the insecurity dimension of TRM. There's a

need for more training, as some teachers feel insecure about their design and technology skills. Access to online references, templates, and application assistance boosts teachers' optimism and supports effective use of infographics.

The implications of this research are related to professional development such as implement training programs to address discomfort and insecurity, ensure teachers have access to helpful resources like online references and templates. Also encourage teachers to experiment with new tools and techniques.

B. Suggestion

Although this study has limitations in terms of time and the number of participants, the researcher attempts to provide useful insights for English language learners who specifically interested into visual learning through digital-based infographics. The researcher hopes that these findings will provide the valuable insights for lecturers, students, and future research. The following are some suggestions from the researcher:

1. For the Lecturers

   Lecturers can incorporate the digital-based infographics into the curriculum to familiarize students with the use and benefits of infographics.

Lecturers can also provide practical tasks and projects in which students generate and evaluate infographics to help them strengthen their teaching effectiveness. In addition, lecturers also can provide training on infographics design, ensuring pre-service teacher improve both content and visual design skills.

2. For the Students

Students can involve to independent learning by exploring design tools like Canva and Piktochart to enhance infographics skills. Besides, students also able to do an experiment with different infographics formats, (e.g., static, interactive, animated) to understand their effectiveness for various student learning styles. This established that infographics can simplifies information which will very beneficial for students in simplifying course materials into easier to understand. In addition, when the students need further information, they able to seek peer and instructor feedback to improve infographics clarity, visual appeal, and effectiveness in teaching.

3. For Future Research

For future research, regarding this study discusses the EFL pre service teachers' readiness, each participants have a different perspective considering the use of infographics as teaching media. Case study

is suggested for further research by investigating individual teachers or schools that successfully implement infographics in their teaching practices. This can provide a comprehensive understanding of best practices, implementation strategies, and common challenges. The researcher can Examine how experienced teachers adapt infographics for different language proficiency levels, learning styles, and classroom settings (e.g., online vs. in-person teaching). In addition, the researcher can explore institutional support systems (e.g., training programs, digital resources, policy initiatives) that enhance teachers' readiness and confidence in using infographics.

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APPENDICES

Appendix 1: Participants' Demographic Information

No	Initial	Gender	Sem.	Teaching English Experience
1.	YNH	Female	5	Volunteer, Teaching Practice, and Teaching Internship (PLP 1)
2.	NUH	Female	5	Teaching Practice, Teaching Internship (PLP 1), and Research Teaching in School
3.	ZDO	Female	5	Private Teaching, Teaching Practice, Teaching Internship (PLP 1)
4.	AR	Female	5	Private Teaching (Part time), Volunteer, Teaching Practice, Teaching Internship (PLP 1)
5.	DAP	Male	5	Private Teaching (Part time), Teaching Practice, Teaching Internship (PLP 1)
6.	FRAZ	Female	3	Volunteer
7.	ASAL	Female	3	Volunteer
8.	AM	Female	3	Private Teaching (Part Time)
9.	HM	Male	3	Private Teaching (Full Time)
10.	FM	Male	3	Peer Teaching (Peer Tutoring)

11.	AP	Female	1	-
12.	N	Female	1	Private Teaching
13.	AA	Female	1	Volunteer
14.	RRR	Male	1	-
15.	MNABH	Male	1	-

Appendix 2: Participants' Responses

P1		CODING
No	**Response**	
1	*Infographics are like digital posters containing important information that is delivered with a creative idea, in the form of pictures icons, or other interesting forms.*	
2	*Infographics are just a media in the form of graphics that consist an information, there is no audio or motions.*	
3	*I am quite confident because currently many websites/applications can be used and several references of infographics exist.*	*Overcome: References*
4	*Not for all ages, because young learners can fail to focus on cute images/icons*	*For younger students*
5	*I am very comfortable using it because it makes it easier to*	*Convenience of using infographics*

	understand and deliver the material without lengthy notes.	*Easy-to-understand media*
6	*Writing skill*	
7	*It can effectively improve teaching because students do not need to read or write many notes that seem monotonous and uninteresting.*	*Interesting media to deliver information*
8	*It is already prepared because in some courses it has been given the task of summarizing in the form of infographics. But actually, I never had the training or any lecturing utilizing infographics as teaching media before.*	*Experience in designing infographics* *Lack of infographics training*
9	*No, because if we make a learning module, we will do research first to analyze the students' needs. So, from that, the teacher will decide the goals of the learning to make the teaching media (infographics).*	*Overcome: Analyze students' needs*
10	*Yes, I do. Infographics need simple, concise, and clear words. Sometimes it is difficult to find sentence ideas/vocabularies that can briefly explain the meaning of a topic of discussion to all the students, because students have different level of vocabulary understanding*	*Challenges: Students' limited vocabulary*
11	*I usually lack creative ideas so I look for references first on the internet.*	*Challenges: Lack of ideas*
12	*Learn a lot of references and pay attention to the clarity of information. But if there is a seminar or webinar to improve my ability to*	*Overcome: References*

	utilize infographics in teaching, it would be great	

P2		CODING
No	**Response**	
1	*Infographics are visual forms that deliver information and data in an interesting way and are easy to understand by using graphics, pictures, and text.*	*Easy-to-understand media*
2	*In my opinion, infographics are cool to show information in a visual, simple, and direct way. So, if there is complex information, infographics can explain it more clearly and easily understand. But that doesn't mean you always have to use infographics. You can mix other media as needed. For example, if the material needs a more detailed explanation, PPT can be an option. If you want to give a more dynamic or interactive picture, use a video, and for practice or games, flashcards are still cool. But infographics can still be the main choice if you want to convey information in a simple but still effective way.*	*Simple media to convey information*
3	*Quite confident, because currently many templates make it easy to create infographics and are easy to use*	*Resource: templates*
4	*Yes, because with the use of infographics, learning will not seem flat, more interesting, and more*	*Interesting media to deliver information*

	interesting to pay attention to for all ages.	
5	*It is quite convenient, because the existence of infographics also helps me in teaching, helping to summarize important points for me to explain.*	*Convenience of using infographics*
6	*Infographics are suitable for teaching reading skills. Because it can explain long and complicated information into easy-to-understand through images, graphics, or diagrams. So, students will be easier to understand and don't make them confused if the visual is interesting, then it will make them more focused and easier to understand. Infographics also help students to find the important point without reading all of the passages.*	*Easy-to-understand media*
7	*Yes, because by integrating it in learning it will feel more fun, and interesting, and students will find it easier to understand if they are interested in what they read.*	*Interesting media to deliver information*
8	*Yes, because not everyone has basic skills for its application, especially for teachers who are already old. However, I never had digital infographics training, especially on how to utilize infographics for teaching practices.* *My lecturer ever asked me for assignment to make an infographic when I was in Sociopragmatics Course in the Fifth Semester.*	*Experience in designing infographics* *Lack of infographics training*

9	*No, I just need to find a suitable template for the material*	
10	*No, because there is already AI technology to paraphrase or simplify what I want to summarize*	*Overcome: Technology*
11	*If I am confused about the concept, I will try to find related references and consult with the AI.*	*Overcome: References*
12	*In addition to special training, workshops, and seminars that are supportive, maybe with the help of AI and video tutorials for those who are not yet mastery*	*Overcome: Infographics training*

P3		**CODING**
No	**Response**	
1	*Infographics a visual media that contain a learning material or others, infographics were made to make the reader easy-to-understand the material given.*	*Easy-to-understand media*
2	*Compared to PowerPoint, infographics are usually more concise and simpler.*	*Simple media to deliver information*
3	*I am confident in designing digital-based infographics because currently there are a lot of tools that can be used to make them. In addition, with the template, which is very helpful, we only need to prepare the material.* *However, I still need more infographic specific training to improve my understanding in using infographic for teaching media,*	

	because my understanding is still basic.	
4	*I think it's just a good fit because the infographic is simple and easy to understand. However, teachers must adjust it to the age, learning interests, and needs of students.*	*Easy-to-understand media*
5	*I feel quite comfortable integrating technology, especially infographic into my teaching because I have experience in making it, I also have learned and practiced other technologies that can be integrated.*	*Convenience in using infographics*
6	*Writing skills,* *presentation skills,* *and also creativity skills*	*Basic English Skills* *Conceptual-based Skills* *21st-Century Skills*
7	*Yes, because infographics can simplify complex material, so of course students will find it easier to understand it.*	
8	*Yes, there are several courses that specifically focus on learning technology that can be integrated into learning. In addition, I also got assignments to make infographics, posters, PowerPoint, etc. several times like in the Sociopragmatics course in the fifth semester. This really helped me prepare myself to create digital-based infographics.*	*Experience in designing infographics* *Lack of infographics training*

9	*Yes, I sometimes find it difficult to create infographics that suit the interests and understanding levels of all students. Different learning styles of students are also an obstacle if learning only uses infographics.*	*Challenges: Different learning style*
10	*Yes, because the limited vocabulary of students makes it difficult for me to make a simple infographic but still be able to convey the message or essence of the material conveyed*	*Challenges: Students' Limited Vocabulary*
11	*I involve students in the process of making infographics so that they are in accordance with their interests. Then I also integrate infographics with other methods to overcome differences in students' learning styles.*	*Overcome: Involve students*
12	*Multiplying templates will be very helpful in creating infographics. Then the feedback from the students also really helps me to evaluate the infographics that have been made so that they can be better in the future.*	*Overcome: Templates, Others' Feedbacks*

P4		**CODING**
No	**Response**	
1	*As short as my knowledge, infographics can be defined as an informational poster that has a cool look and are easy to understand. Usually, the content is a combination of short text, pictures, graphics, or diagrams that make the information clearer. The purpose is to simplify the complicated thing,*	*Easy-to-understand media*

	especially for those who lazy to read a long text. The design was made so interesting and make someone who saw it wanted to read it. This infographic is perfect for explaining data, facts, or concepts that must be understood quickly but not boring. Anyway, the design is simple and attractive, but the information written is still conveyed to the reader, bravo!!	
2	*In the previous answer, I have already written that infographics have the main advantages, which are concise, easy to understand, and very attractive visuals. Compared to other tools like PowerPoint, infographics are not complicated because all the core information is already in one image. PowerPoint is indeed flexible and can provide more detailed explanations through many slides, but sometimes it makes people bored if the content is too full. Sometimes even PPT is full of material (long text), and sometimes PPT is so concise that we have to learn extra to understand. I once found my teacher's PPT which was concise and lacked information, as a result, I studied by myself by looking for material on the website.* *Compared to videos, infographics are simpler in my opinion because they don't take long to understand, while videos usually take more time to convey a message. Flashcards are*	*Interesting media to deliver information* *Simple media to deliver information* *Simple media to convey information* *Basic English skills*

	also different, more of an interactive game or guessing, but not suitable for explaining data or concepts visually. In my opinion, flashcards are suitable for teaching young learners like the introduction of Vocabulary (animals, parts of body, vegetables, etc.) When Grammar and generic Structure (narrative, descriptive, etc.) are more suitable for infographics (because I often find infographics on the website of Ruang Guru). *However, there is a disadvantage of infographics because if you study infographics, you need extra understanding, but if you understand, the memory is quite long because the visuals and information are conceptualized, so my brain can remember more in the long run.* *So, in my opinion, infographics are perfect if you want to give information that is to the point but still attracts attention. Suitable for topics that are not too complex but need visual appeal so that readers can absorb the information more easily*	
3	*I'm confident that maybe about 95%, with my ability to design digital infographics. Because nowadays everything is digital, it's quite familiar with tools like Canva, Corel Draw, or other design applications. Indeed, I don't say I'm*	*Convenience in using infographics*

	really good, but I think learning is very important, especially for aspiring teachers like me. What makes me believe that I have to learn infographics is that infographics are not only about making cool designs but also must be clear about the information that will be conveyed. So, I focus on making eye-catching designs so that the audience is interested, but also the information is easy to understand. Even if something is missing, I am ready to continue learning so that the infographics I make are more optimal and useful, especially for students who are learning English.	
4	*In my opinion, infographics are very suitable for junior high and senior high school students because they can already understand the information presented visually and concisely. For example, for grammar or text materials, infographics can make the material easier to understand and interesting. But, for young learners, infographics are not suitable because they need a fun and interactive approach, such as playing games or flashcards.* *But actually, infographics can be used for all ages as long as they are tailored to their needs. For young children, for example, the*	*Media for older students*

	infographic should be simpler, and colorful, and the content should not be too much text so that they stay interested. The point is that infographics are very flexible, as long as you know how to use them according to your age and the material taught.	
5	*I can say that it is quite comfortable to integrate technology, like infographics, into teaching. You see, technology has now become a part of daily life, and I am also quite familiar with digital tools such as Canva or CorelDraw. In addition, infographics are very easy to use to make learning materials more interesting and easier to understand, especially for more visual students. But even if there is a new technology that I have not mastered, I have no problem learning, because as a prospective teacher, adaptation is very important. So, I believe that technology, including infographics, can help teaching to be more creative, effective, and relevant to the needs of today's students.*	*Convenience in using infographics*
6	*Infographics are not only used to teach grammar and text, but they can also be used to teach vocabulary and tenses, and even to help students understand reading more easily. For example, for vocabulary, infographics can use pictures or illustrations so that*	*Basic English Skills*

	students immediately understand the meaning. Then, create tenses, you can use a timeline or diagram so that it is clear when to use present, past, or future. If you want to make reading comprehension, infographics can display important points so that they are easy to understand. In addition, infographics are also okay for teaching pronunciation, for example using symbols or phonetic diagrams so that the pronunciation is clearer. What's more the current trend is intercultural and multicultural, so infographics can be used to introduce culture, such as the customs or traditions of English-speaking countries, so students can also better understand the social and cultural context in the language they are learning. Anyway, infographics are very flexible for a variety of language skills.	
7	*Infographics can help to improve EFL teaching and learning, but of course, there must be guidance from teachers as well. You see, even though infographics can provide clear and interesting information through pictures, graphs, or diagrams, teachers still play an important role in providing further explanations and ensuring that students understand what is being said. For example, to teach grammar or vocabulary,*	*Basic English Skills*

	infographics can explain the concepts with simple visuals, but you still need a teacher to explain more deeply or give real examples so that students understand. Infographics can also eliminate boredom and make learning more exciting, but if there is no direction from the teacher, students may be confused or not make the most of the infographic. So, infographics are very effective, as long as the teacher can direct and explain in the right way so that the material can be conveyed clearly and students are also actively involved.	*Interesting media to deliver information*
8	*So far, the learning I have participated in has not been fully prepared for using digital-based infographics. There are indeed some materials about technology in teaching, but they are not too focused on infographics, more on classroom management or curriculum development. There was only one lecturer who gave me the task of creating information in the form of infographics, and that was my first experience using technology to make infographics, especially when I was in the Sociopragmatics course in the fifth semester. Previously, I was only familiar with using design applications like this, but it was never really practiced in the context of teaching only for PPT. But I don't have a problem, because*	*Experience in designing infographics* *Lack of infographics training*

	I understand very well that as a prospective teacher, I have to continue to learn and adapt to new technology. If there is further training or a similar task, I am very ready to follow up and add to these skills. So, even though the training is not too infographic, I am confident that I can learn independently and take advantage of tasks like this to develop skills. In the end, everything comes back to us to continue learning and exploring technology so that we can be more optimal in teaching.	
9	*Yes, I feel that there are several challenges in adapting the infographic design to the needs and interests of students. One of them is to ensure that the design remains attractive but also easy to understand for all students, especially if there are students with different learning styles. For example, some prefer simple visuals, while others prefer more detailed and informative designs. So, I had to be smart about adjusting between aesthetics and clarity of information. In addition, sometimes it is also difficult to adapt infographic content to the material being taught so that it remains relevant and not too complex. For example, for more technical materials such as grammar, infographics should be made as*	*Challenges: Different learning style*

	simple as possible so as not to confuse. But if the material is more creative or text-based, the design can be freer and more diverse. So, the challenge is to find a balance between an attractive design and clear information and to adapt it to the student's level of understanding.	
10	*Yes, there must be language challenges, especially when it comes to simplifying complex concepts for EFL students. For example, when explaining grammar or tenses, I have to be able to choose words that are easy to understand but still be able to explain the correct rules. Sometimes, more complicated material, such as difficult sentence structures, can confuse students. So, I have to be very careful that the infographics I make are not too technical so as not to make students dizzier. In addition, I also have to make sure that the language I use is in accordance with the student's ability level. For example, if they are still learning the basics of the language, infographics should be simpler and clearer, not too much information at once. So, the challenge is to adjust the design and language so that the material can be understood easily without losing its significance.*	*Challenges: Hard to simplify information*
11	*To overcome the challenges of creating infographics, there are several strategies that I use. First, I*	*Overcome: Simplifying information*

	started by simplifying the information. So, I will only make important points, without confusing details. For example, when teaching grammar or vocabulary, I only focus on the main rules or the most frequently used words, so as not to overload the information. Second, I often look for appropriate design references, so that the infographic remains attractive but easy to understand. I try to make a simple design, with colors that are not too crowded (usually a maximum of 3 colors), and relevant images to explain the concepts I teach. For example, for tenses, I use a visual timeline so that students can see the difference in time. Third, I also always consider the audience. So, I adjust the level of difficulty and language style to the ability of the students I teach. If they are beginners, I use simpler language and a design that doesn't have too many elements. If the students are more advanced, I can give them a more detailed and informative design. Finally, I often ask for feedback (it is a must) from friends, so that the infographics I make can be better improved and understood better. In these ways, I can more easily overcome the challenges of creating effective and engaging infographics.	*Overcome: References* *Overcome: Others' Feedback*

12	*Additional support that I think can help reduce the challenge of creating infographics for teaching is training or design workshops. For example, training on how to use design tools such as Canva or Adobe Photoshop can help me better understand how to design infographics that are not only attractive but also effective in conveying information. In addition, training in visual design principles is also important so that the infographics I make can be more structured and easier to understand. In addition, access to ready-made templates will also be very helpful because sometimes design ideas can be stuck, and templates can be a starting point that makes the process of creating infographics easier. Also, feedback from fellow teachers or students can directly give a new perspective and help me check if the infographic I made is effective in conveying the material. Lastly, if there are additional resources such as infographic examples that have proven to be successful, I can be more inspired and learn how to create infographics that can fit my teaching needs. So, support from training, access to templates, and feedback may give a big impact in reducing the challenges in the making of infographics.*	*Overcome: Infographics training* *Overcome: Templates*

P5		CODING
No	**Response**	
1	*Infographics is a learning media that is image-based accompanied by data in the form of text. For example: Daily Activity Material, can be made into a picture of someone's eating, followed by the text next to 'eat picture', and then the meaning of the picture is below the picture.*	
2	*Comparing infographics with other teaching aids, such as video, PowerPoint, and flashcards is actually similar. But infographics are simpler and accompanied by interactive images while other media such as flashcards or PowerPoints require more materials and slides.*	*Simple media to convey information*
3	*I am very confident because I am helped by applications such as Canva Pro, Padlet, and other ICT tools.*	*Technology*
4	*Yes, it is very suitable, from pre-kindergarten to higher education can be taught by using infographics, because the design and images presented also adjust to the level taught.*	*Media for all groups of age*
5	*I think it is very comfortable because I am interested in making an infographic and also challenged to design it interestingly so that students will be engaged.*	*Convenience of using infographics*
6	*Of course, reading skills and also speaking skills.*	*Basic English Skills*

7	*Yes, it is, as far as I can do, it can improve learning, especially student motivation because compared to monotonous teaching, students are more interested and excited if learning is based on interesting pictures.*	*Interesting media to deliver information*
8	*I have never participated in a teacher training program to use digital-based infographics, but I ever made an infographic in ICT-Based Learning on the 5th Semester and an LTM course on the 2nd Semester. I use the Padlet website to create infographics. I also use infographics as my teaching media for second-grade students.*	*Experience in designing infographics* *Lack of infographics training*
9	*Yes, maybe when the editing process requires patience and material composition that suits the needs of students.*	
10	*Yes, of course, It is hard to simplify the material, due to the complexity of the material. Sometimes I feel hard to choose which material should be eliminated and which material should be presented.*	*Challenges: hard to simplify information*
11	*By finding English teaching infographic material references as much as possible.*	*Overcome: References*
12	*Perhaps the addition is to hold infographic training aims for better understanding of the infographic media.* *And the application of the material for prospective teachers, including*	*Overcome: Infographics training*

	English education students whose memorandum is prospective English teachers in the future.	

P6		
No	**Response**	
1	*Infographics a visual media that deliver information that is easy to understand in the form of pictures.*	*Easy-to-understand media*
2	*Infographics are simpler than PowerPoint, video, and flashcards.*	*Simple media to convey information*
3	*If it's rated 1-10, maybe 8/10 because in reality, infographics are easier to understand and remember.*	*Easy-to-understand media*
4	*Yes, because nowadays people are too lazy to ramble when studying.*	
5	*It's just comfortable, maybe for some people it's better because we teachers don't need to talk much.*	*Convenience in using infographics*
6	*Reading and speaking skills.*	*Basic English Skills*
7	*Yes, because it is simpler and easier to understand.*	*Simple media to convey information*
8	*Yes, because there are already several lecturers who teach us to teach technology-based, but not for specific infographics. I ever made an infographic when in LID course in the 3rd Semester and Extensive Listening Course on 2nd semester. I used Canva to make the infographic because it is easy to use.*	*Experience in designing infographics* *Lack of infographics training*

9	*Yes, sometimes it is considered less interesting and difficult to understand.*	*Hard to understand media*
10	*Yes, a little bit*	
11	*The challenge is a little confusing to find relevant visuals., I need to make sure the visual is relevant to the material. So that students can understand the infographics.*	*Overcome: Find the suitable visual*
12	*By increasing students' curiosity. Also, I wonder if my lecturer teaches me how to maximize the use of infographics, because infographics is simple and easy to understand*	*Overcome: Increasing students' curiosity*

P7		
No	**Response**	
1	*Infographics are visual media that convey information or data in an attractive and easy-to-understand way. The word infographic comes from the English language, namely infographic, which is a combination of the words information and graphics.*	*Easy-to-understand media*
2	*In my opinion, infographics and PowerPoint are both interactive, but infographics are more concise to use rather than PowerPoint.*	*Simple media to convey information*
3	*I think it may be less professional because I haven't mastered and recognized the field.*	*Challenges: Lack of technology ability*
4	*I don't think so, because infographics if intended for young*	*Media for older students*

	children such as kindergarten will not be optimal because they are less interactive than learning using videos.	
5	*It is convenient, because it can make learning easier to understand because of the use of images with more colors*	*Convenience in using infographics*
6	*Reading and writing skills.*	*Basic English skills*
7	*Yes, because it is shorter, concise, and easy to understand*	*Simple media to convey information*
8	*Not yet, because so far there have been no special courses for that field. But I ever made a kind of infographic like mind mapping in digital using online application, like Canva when I was in the Voice and Accent course on 1st semester.*	*Experience in designing infographics* *Lack of infographics training*
9	*Yes, for example, not all students have the same ability to understand infographics or a text/material model at a glance, it can be easier for the child to understand using media that has a sound or some prefer it if it is explained through a story, so it should be like an infographic so that it can match all the abilities of students.*	*Challenges: Different learning style*
10	*In my opinion, why do I answer yes to the language challenge of creating infographics for EFL students because based on experience, students often have difficulty understanding technical terms or idioms used in infographics. In*	*Challenges: Students' Limited vocabulary*

	addition, the right selection of visuals is also very important so that students can easily connect images with text. To solve this problem, we need to use simple and clear language, as well as provide examples that are relevant to students' daily lives.	
11	*Usually, I look for inspiration from Tiktok or Youtube*	*Overcome: References*
12	*Specific training support, such as infographics-based teaching training.*	*Overcome: Infographics training*

P8		**CODING**
No	**Response**	
1	*Infographics are usually used to present or deliver something quickly and clearly.*	
2	*I think infographics are simpler rather than video, PowerPoint, and flashcards, because the visual is more concise.*	*Simple media to convey information*
3	*I feel less confident because I feel less confident in using software.*	*Challenges: Lack of technology ability*
4	*It is suitable for all age groups, but must also be age-adjusted, just as children are suitable for being given information with many colors but adults are not suitable for it.*	*Media for all groups of age*
5	*I feel comfortable because I think that by using infographics, students can be more interested and even students can become more active.*	*Convenience in using infographics*

6	*It will improve creative skills due to it needs to be creatively created. If teacher create the infographics interestingly, students will also become creative.*	*21st-century skills*
7	*Yes, it is effective, with infographics the information provided is easier to remember because infographics tend to provide information that is not long.*	*Easy-to-understand media*
8	*I feel like my teacher only asked me to make an infographic, like when I was in a grammar and vocabulary course in 1st semester. But my teacher didn't teach me how to make a good and correct infographic in advance. I make the infographic by utilizing templates from Canva.*	*Experience in designing infographics* *Lack of infographics training*
9	*Yes, because not all students have the same interests and it is very difficult to find interesting infographic themes.*	*Challenges: Different learning style*
10	*Yes, often I am confused about how to use words or also choose words that are easy to understand*	*Challenges: Students' Limited Vocabulary*
11	*As much as possible I use sentences that are easy to understand by using simple and clear language, I also like to add cute elements so that many people are interested in the infographics I make.*	*Overcome: Using simple language*
12	*Access templates and also training on the use of infographic design*	*Overcome: infographics training*

P9		CODING
No	**Response**	
1	*An infographic is a poster to convey important things.*	
2	*Infographics are more flexible because it is in the form of an online platform.*	
3	*Not really, because it is not practiced every day*	*Challenges: Lack of technology ability*
4	*Yes, because infographics can be used as any poster*	
5	*Quite comfortable because it is more flexible, the teacher can adjust the infographics in their style.*	*Convenience in using infographics*
6	*Presentation skill. Because to make student easily understand the material, presentation skill is needed to make them easily present material taught clearly and effectively.*	*Conceptual-based skills*
7	*Yes, because it helps students to be able to conclude the important points of the material.*	
8	*It is very rare to get the training because lecturers often use PPT. Then my lecturer ever gave me a task to make an infographic when I was in Vocabulary and Grammar in the 1st semester, Second Language Acquisition (SLA) in the 2nd semester, and Language Learning Evaluation (LLE) in the 3rd semester. I made them using Canva, because I think Canva is the easiest way to design by the resources provided.*	*Experience in designing infographics* *Lack of infographics training*

9	*No, it's not so difficult because there is already a template, just edit it as you want.*	*Overcome: template*
10	*Didn't feel, because I had never used infographics*	
11	*By using Canva*	*Overcome: Application*
12	*By using Artificial Intelligence (AI) as the reference and by joining a Canva design training to improve my ability in designing an infographic.*	*Overcome: References*

P10		**CODING**
No	**Response**	
1	*Infographics is a media consisting of important points which made into a graphic or a media, it makes the reader easier to analyze the point are delivered by the provided content.*	
2	*Infographics are simpler but consist of an important point that can be directly visible to the reader. When PPT and other media, need more effort to make, with many slides, and containing long explanations so that readers or listeners are sometimes overwhelmed.*	*Simple media to convey information*
3	*I feel less confident, because I had never used infographic media before, and still used traditional media such as ppt, cartons, etc.*	*Challenges: Lack of technology ability*
4	*Yes, it is, learning using infographics made us easier to capture the point that is explained and wants to be conveyed in the text.*	*Easy-to-understand media*

5	*Since I've never integrated it, it might make it easier, but I'm not very good at designing.*	*Challenges: Lack of design ability*
6	*Visual literacy and Digital Literacy. Because teaching requires appropriate skills, for example by providing interactive images so that the eyes of the listener and students do not get tired of looking at the available images, it will be easy to make them focus.*	*21st-century skills*
7	*It is effective, but we must know the differentiation of student learning, because not all students like visual learning, some are audiolingual and kinesthetic, therefore we must continue to integrate with other methods or innovations.*	*Different Learning style*
8	*Yes, because currently teachers are equipped to be able to provide an environment that is in accordance with the times, learning media through digital, learning resources, and others have begun to be worn from an early age.* *My lecturer only gave me an assignment to make an infographic to present my group work by using Google Sites in the Voice and Accent course when I was in the 1st semester. I make the infographic using Canva apps and present it through Google Sites.* *However, my lecturer did not teach me to design a good infographic in more detailed.*	*Experience in designing infographics* *Lack of infographics training*

9	*Yes, because some students are not interested in reading the text alone, but rather they can be listened to with audio or visual audio.*	*Challenges: Different learning style*
10	*Yes, of course, because infographics usually contain important points, but they become difficult to understand because they are usually only in the form of an outline, not explained in detail.*	*Challenges: Students limited vocabulary*
11	*I don't know what applications are suitable for designing infographics as a learning medium, but the strategy that I will use can be by studying with friends, participating in training, and subscribing to applications or website design.*	*Overcome: Infographics training Application*
12	*Need the help of a friend or teacher who is more expert in using a certain application or tool.*	*Overcome: others' feedback*

P11		**CODING**
No	**Response**	
1	*Infographics are a medium to deliver information to make it more practical and easier to understand*	*Easy-to-understand media*
2	*Infographics are like audio and graphics. Graphics might make students hard to understand if the lecturer used infographics. Compared with other teaching aids, like PowerPoint and video, it explains in more detail compared to infographics.*	*Easy-to-understand media*

3	*I lack confidence in designing infographics because I don't have the experience to learn infographics more deeply or it can be said that I only know infographics.*	*Challenges: Lack of design ability*
4	*Yes, it is suitable for different groups of age, because infographics also make it easier for us to explain something we want to discuss.*	*Media for all groups of age*
5	*I feel less comfortable because I feel that I lack the ability to use technology in teaching.*	*Challenges: Lack of technology ability*
6	*Visual literacy and Digital Literacy. Which is effective for using infographics that contain lessons that contain elements such as audiovisuals, graphics, images, and others.*	*21st-century skills*
7	*Yes, because it helps us understand the lesson.*	
8	*Never got any lecturing using an infographic.* *But I ever made an infographic utilizing template from Canva application when I was in the 1st semester, on the Vocabulary and Grammar course.*	*Experience in designing infographics* *Lack of infographics training*
9	*Yes, because I've never designed infographics so I don't feel like I am good at designing an infographic. Because it needs an interesting combination.*	*Challenges: Lack of design ability*
10	*Yes, because I've never designed infographics, it makes it hard to*	

	customize the content that facilitates students' needs.	
11	*I am not really sure, because haven't used infographics in teaching yet. But I think the online references will be helpful.*	*Overcome: References*
12	*I don't know, because I have never used infographics in learning. But I think I need the training which give me an understanding of how to design infographics appropriately*	*Overcome: Infographics training*

P12		CODING
No	**Response**	
1	*Infographics give direct information with data visualization that delivers complex information to make the reader easily understand the point of the infographics.*	
2	*As I know, infographics are simpler, the way to convey information faster and easier to understand, while PowerPoint, I think it's a bit complicated.*	*Simple media to convey information*
3	*I think if it is ranked from 1-100%, I will say 60% because I don't understand how to design an infographic. Also, I am not that good at designing.*	*Challenges: Lack of design ability*
4	*I think it does because we can hone our skills.*	
5	*It is quite comfortable because infographics as one of the technologies in education can make learning easier for teachers to teach learning materials to students.*	*Convenience of using infographics*

6	*It is best to improve visual skills and conceptual-based skills, like analytic skills, and presentation skills.*	*21st-century skills* *Conceptual-based skills*
7	*Yes, because it is more effective than other media such as PowerPoint.*	
8	*I never had a lecturer related to infographics, but I ever made it when I was in the 1st semester, in the Vocabulary and Grammar course by utilizing several templates from Canva application as the easiest way to make a poster.*	*Experience in designing infographics* *Lack of infographics training*
9	*Not so difficult*	
10	*Challenges are there, especially in simplifying information. But I will deal with it by trying to understand how to use infographics*	*Challenges: Hard to simplify information*
11	*By finding the references to make my infographics perfect and also using applications to support the process of designing. Also, I need a webinar or seminar that teach me to design, especially related to infographics design because my design ability is very weak.*	*Overcome: References Applications Infographics training*
12	*By finding the references to make my infographics perfect and also using applications to support the process of designing. Also, I need a webinar or seminar that teach me to design, especially related to infographics design because my design ability is very weak.*	

P13		
No	**Response**	
1	*As I know, Infographics is a visual medium that presents information or data in a concise and attractive manner to facilitate understanding.*	*Interesting media to deliver information*
2	*Infographics are the most effective way to deliver information visually and concisely but are not as interactive as other teaching aids. The choice of tools depends on the goals and teaching style.*	
3	*I lack confidence in designing digital-based infographics because I feel that I do not really understand how to arrange the infographic layout.*	*Challenges: Lack of design ability*
4	*Infographics are suitable for all groups of age by paying attention to the age level and language ability of students. For young students or beginners, use simpler infographics with a focus on images. For adult or advanced students, more complex infographics can be used to convey more detailed information.*	*Media for all groups of age*
5	*I feel comfortable using infographics in teaching and believe that this integration is very beneficial to improving the effectiveness and attractiveness of learning.*	*Convenience of using infographics*
6	*Infographics are perfect for teaching visual literacy skills and conceptual-based skills like presentation. It helps students*	*Conceptual-based skills*

	understand complex information in an engaging and memorable way.	
7	*Yes, infographics can effectively improve EFL teaching and learning, as they can improve Visual Comprehension, facilitate self-paced learning, and motivate or attract attention.*	*21st-century skills*
8	*Never, really, classroom teacher training programs have helped introduce technology, but more practical training is needed on how to strategically design and use infographics for EFL learning. The integration of infographic design practices in the training will be very beneficial.* *Yet I had an assignment to make an infographic when I was in the Vocabulary and Grammar course in the 1st semester by using Canva.com website.*	*Experience in designing infographics* *Lack of infographics training* *Canva Application assistance*
9	*Yes, adapting the infographic design to the needs and interests of students can be challenging. However, these difficulties can be overcome with a better understanding of students, the use of appropriate design tools, and a creative approach. Involving students in the process and using their feedback can also help produce more relevant and effective infographics.*	*Overcome: Application Others' feedback*

10	*Yes, I faced language-related challenges, especially in simplifying complex concepts when creating infographics for EFL students. It is because in my opinion, all material is important and need to be presented.*	*Challenges: Hard to simplify information*
11	*By simplifying the language, choosing relevant visuals, and keeping the design clear and structured, I was able to overcome the challenges that often arise in creating infographics.*	*Overcome: Simplifying the language Choose relevant visual*
12	*By getting support in the form of design training, tools, collaboration with experts, and access to better resources, I was able to reduce the challenges of creating infographics and create more engaging and effective learning materials for EFL students.*	*Overcome: Infographics training Application Others' feedback*

P14		**CODING**
No	**Response**	
1	*Infographics is a learning media that contains information or material in the form of graphs, charts, or others.*	
2	*Infographics consists of a complex information which easy to understand rather than Power Point, video or another.*	*Easy-to-understand media*
3	*I am still not confident in my ability to design infographics, because my ability to use digital media is still not proficient.*	*Challenges: Lack of design ability*

4	*Yes, because usually the teaching materials used in infographics have been summarized in an attractive, interactive, and easy-to-understand form for all groups of age.*	*Interesting media to deliver information*
5	*It is very comfortable, because when in teaching, the information conveyed is summarized and arranged in an interesting form so that students do not feel bored when in the learning process.*	*Convenience in using infographics*
6	*In my opinion, effective skills when taught using infographics are to be more creative and innovative in creating learning media using digital media.*	*21st-century skills*
7	*Yes, because infographics make a teacher and student become creative and innovative in delivering material during the teaching process, and also students find it easy to understand the content of the material from the infographic.*	
8	*Yes, because on several occasions in class, we are allowed to make infographics or the like when conveying information or learning materials, like when I was in the PPKN course in the 2nd. I create it using Canva apps.* However, I never had the training or lecturer using infographics as teaching media, lecturer usually used PPT.	*Experience in designing infographics* *Lack of infographics training*

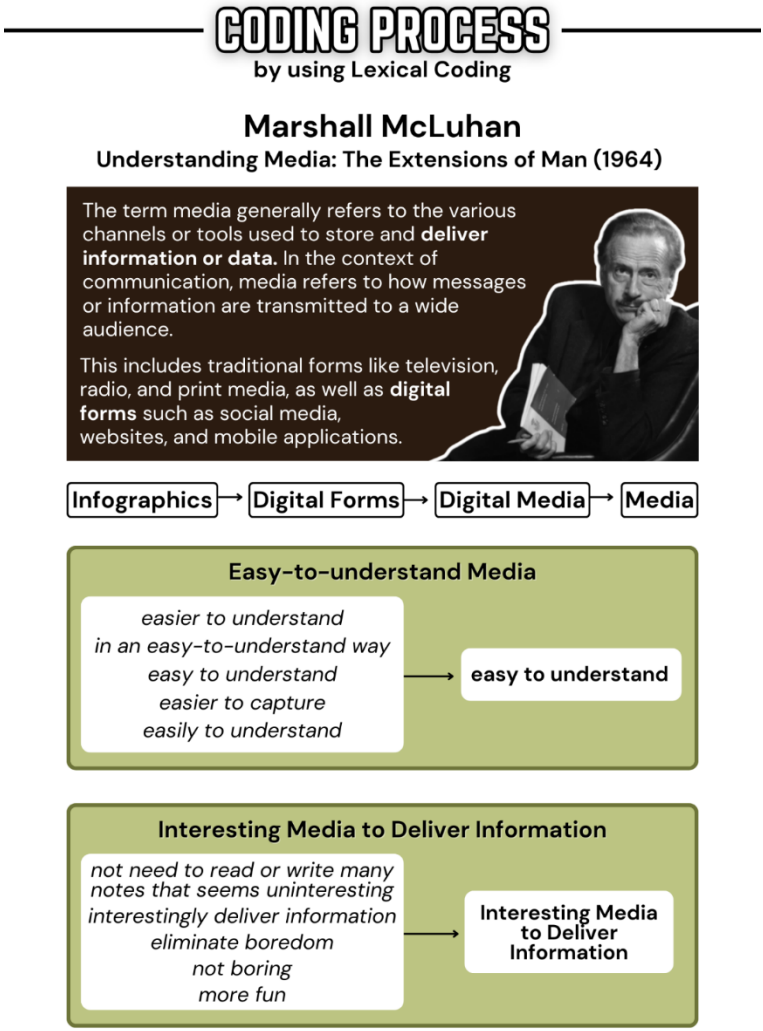
9	*Yes, because basically the language used to convey the content in the infographic is a little difficult to understand while students usually prefer to use language that is easy to understand, and usually students tend to get bored more easily during the delivery process so that it requires us to make the infographic as interesting as possible.*	*Challenges: Students' limited vocabulary*
10	*Yes, I faced the challenge, like when simplifying complex information. Usually, it comes from the package books whose discussion tends to be longer .*	*Challenges: Hard to simplify information*
11	*The way I use is to make it easy to understand, look for several sources as reference materials, and use interesting elements when making infographics usually I can focus more on making infographics when the surrounding situation is calm or quiet like at midnight.*	*Overcome: References Find the suitable visual Infographics training*
12	*The help that I think helps in reducing the challenge is to look at some infographics from the internet as reference materials when I create infographics for teaching Also, I think I need a training to help me simplify the information to simplify my infographic.*	

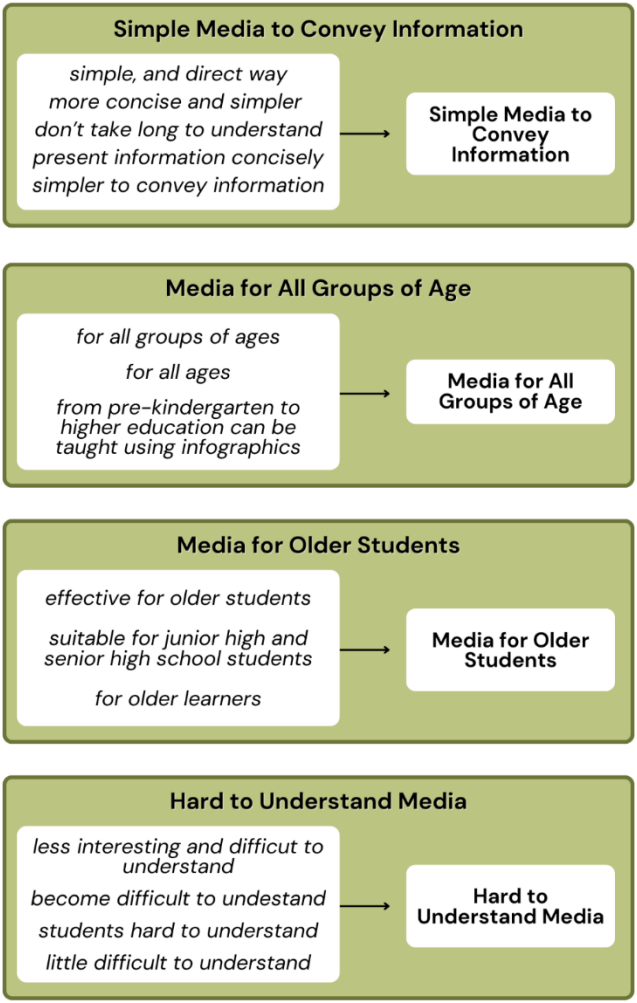
P15		**CODING**
No	**Response**	
1	*Infographics are information delivered using visuals or images.*	

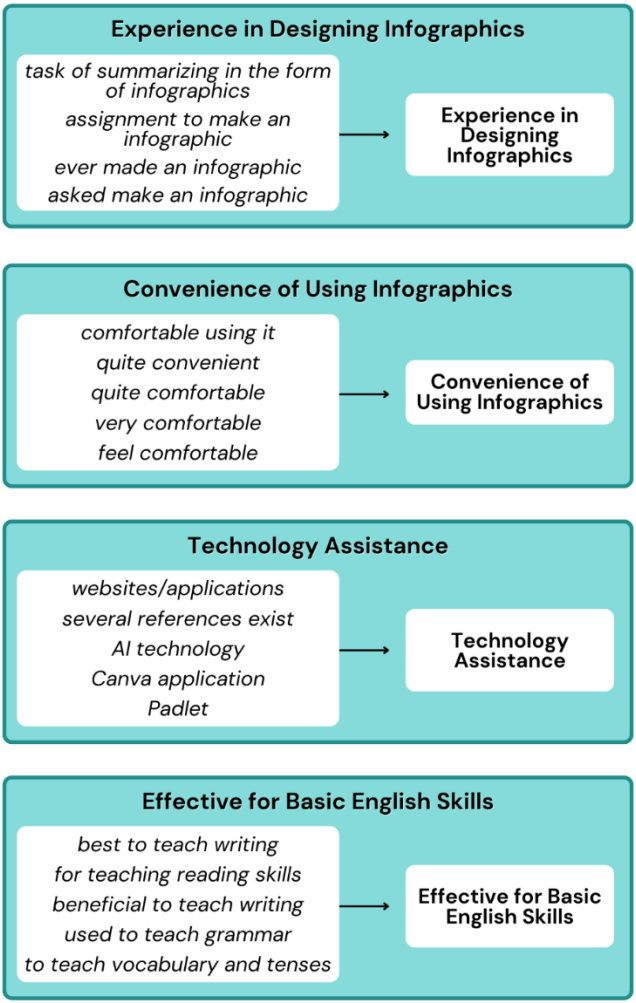
2	*In my opinion, infographics are easier to understand. Because it does not only consist of information, it is also displayed in the form of visuals or graphics that make it easier for us to understand the information.*	*Easy-to-understand media*
3	*I am confident because besides giving information, I am also into something related to design.*	*Convenience in designing infographics*
4	*In my opinion, it is suitable (for different groups of ages) because infographics are not only in the form of explanations of information but also accompanied by pictures and visuals.*	*Media for all groups of age*
5	*It is quite comfortable because it makes it easier for us to explain in more detail.*	*Convenience in designing infographics*
6	*Classroom presentation skills.*	*Conceptual-based skills*
7	*Yes, so that students do not feel bored with learning which is only in the form of explanations by reading*	*Interesting media to deliver information*
8	*Yes, already, in addition to making the class not feel bored, infographics can also make them feel easy to understand* *I have never had an assignment to make an infographic in class, but I already had one when doing PBAK.* *I never participated in a training that talked about infographics, but I ever participated in a seminar that talked about how to utilize Canva for daily*	*Experience in designing infographics* *Lack of infographics training*

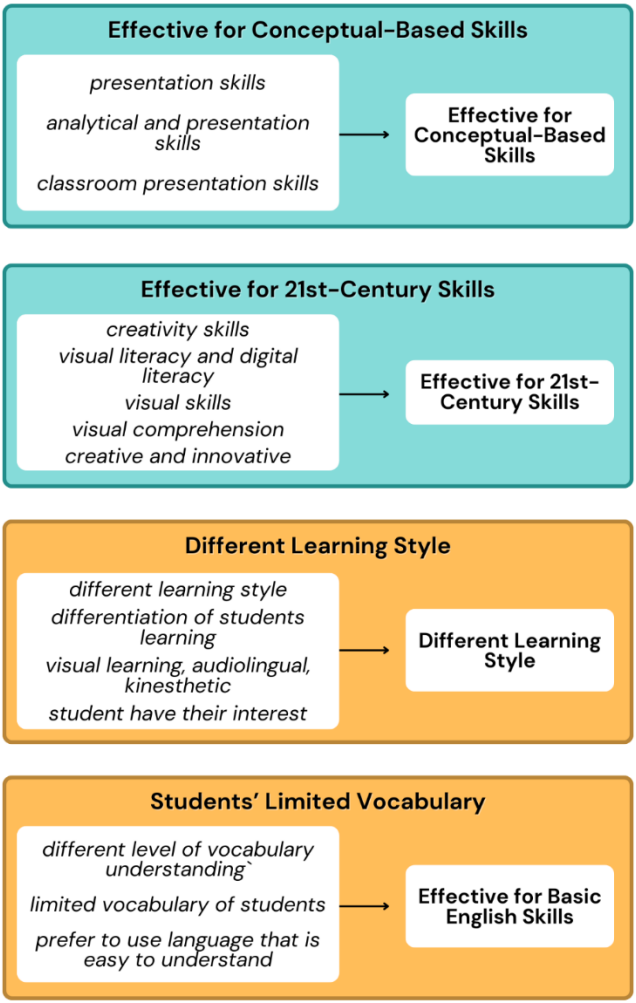
	lifes when I was in senior high school.	
9	*Yes, of course. This is because every student must have their own interests. That is why teacher should facilitate all the types of students*	*Challenges: Different learning style*
10	*Yes, of course, because we have to be able to make words that are detailed and easy to understand*	
11	*The challenge is that we must have many images or visuals for us to use as our infographic material to make it easier. So that I need a training to help me choose the appropriate visual in my infographic.*	*Overcome: Find the suitable visual*
12	*Often to see content related to infographics there can be made to be infographic material (references).*	*Overcome: References*

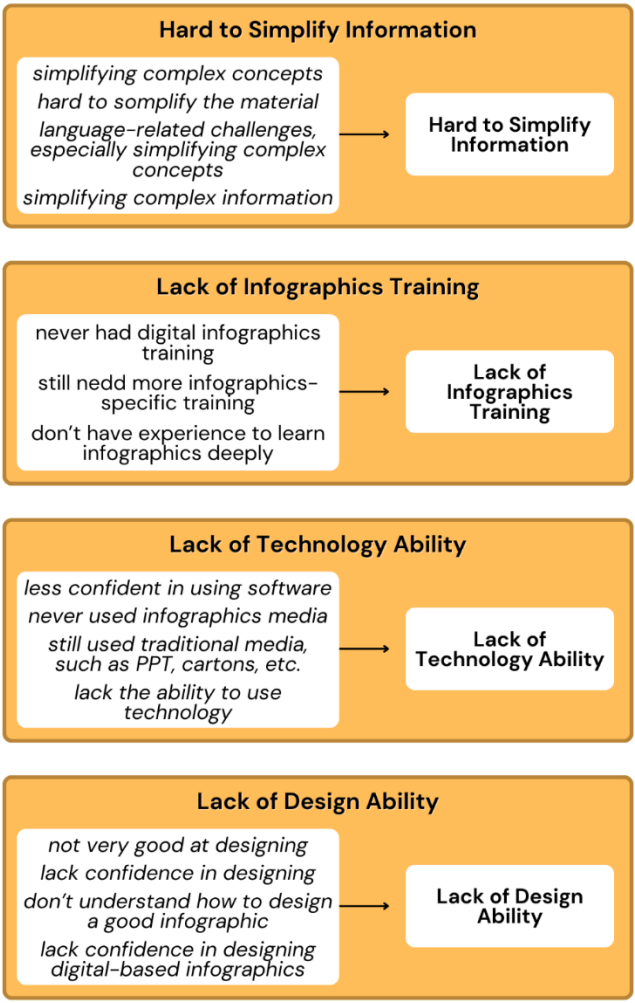
Appendix 3: Coding Process

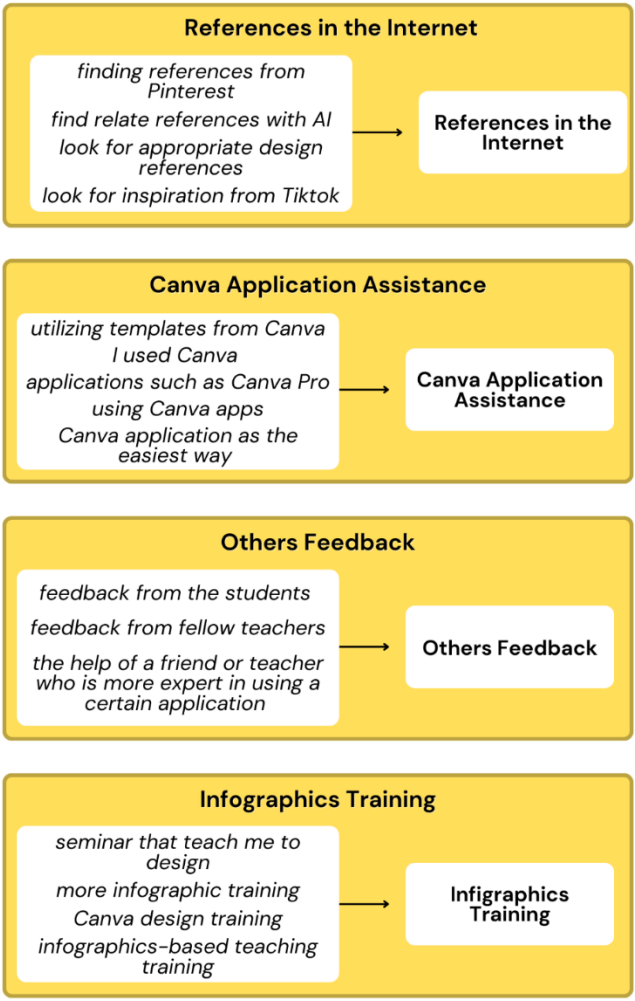



Simple Media to Convey Information
simple, and direct way
more concise and simpler
don't take long to understand
present information concisely
simpler to convey information
Simple Media to Convey Information
Media for All Groups of Age
for all groups of ages
for all ages
from pre-kindergarten to higher education can be taught using infographics
Media for All Groups of Age
Media for Older Students
effective for older students
suitable for junior high and senior high school students
for older learners
Media for Older Students
Hard to Understand Media
less interesting and difficut to understand
become difficult to undestand
students hard to understand
little difficult to understand
Hard to Understand Media

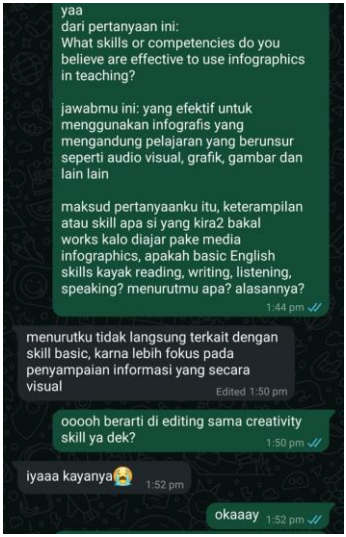

Experience in Designing Infographics
task of summarizing in the form of infographics
assignment to make an infographic
ever made an infographic
asked make an infographic
Experience in Designing Infographics
Convenience of Using Infographics
comfortable using it
quite convenient
quite comfortable
very comfortable
feel comfortable
Convenience of Using Infographics
Technology Assistance
websites/applications
several references exist
AI technology
Canva application
Padlet
Technology Assistance
Effective for Basic English Skills
best to teach writing
for teaching reading skills
beneficial to teach writing
used to teach grammar
to teach vocabulary and tenses
Effective for Basic English Skills

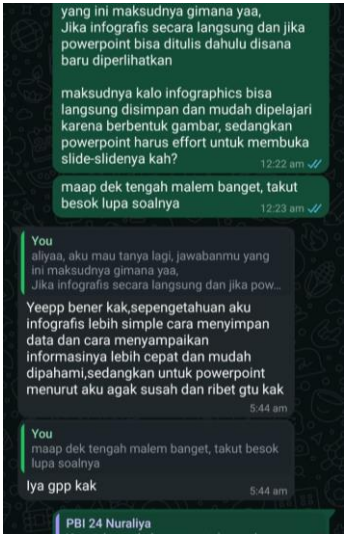

Effective for Conceptual-Based Skills
presentation skills
analytical and presentation skills
classroom presentation skills
Effective for Conceptual-Based Skills
Effective for 21st-Century Skills
creativity skills
visual literacy and digital literacy
visual skills
visual comprehension
creative and innovative
Effective for 21st-Century Skills
Different Learning Style
different learning style
differentiation of students learning
visual learning, audiolingual, kinesthetic
student have their interest
Different Learning Style
Students' Limited Vocabulary
different level of vocabulary understanding`
limited vocabulary of students
prefer to use language that is easy to understand
Effective for Basic English Skills

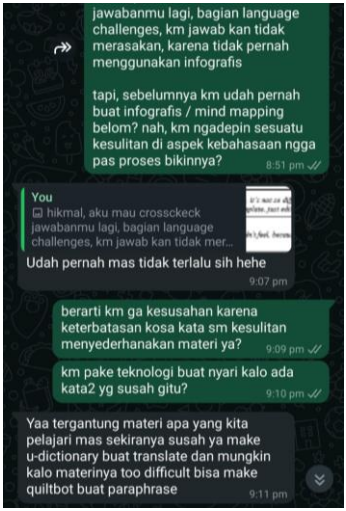

Hard to Simplify Information
simplifying complex concepts
hard to somplify the material
language-related challenges, especially simplifying complex concepts
simplifying complex information
Hard to Simplify Information
Lack of Infographics Training
never had digital infographics training
still nedd more infographics-specific training
don't have experience to learn infographics deeply
Lack of Infographics Training
Lack of Technology Ability
less confident in using software
never used infographics media
still used traditional media, such as PPT, cartons, etc.
lack the ability to use technology
Lack of Technology Ability
Lack of Design Ability
not very good at designing
lack confidence in designing
don't understand how to design a good infographic
lack confidence in designing digital-based infographics
Lack of Design Ability

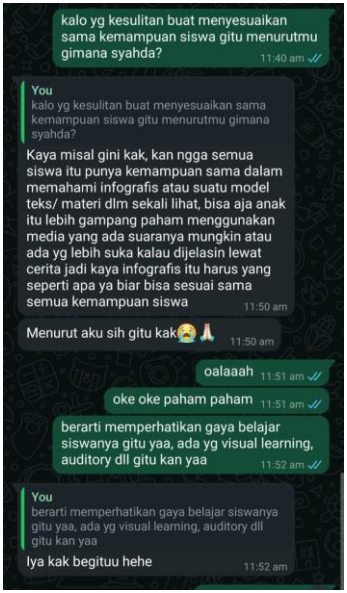

References in the Internet
finding references from Pinterest
find relate references with AI
look for appropriate design references
look for inspiration from Tiktok
References in the Internet
Canva Application Assistance
utilizing templates from Canva
I used Canva
applications such as Canva Pro
using Canva apps
Canva application as the easiest way
Canva Application Assistance
Others Feedback
feedback from the students
feedback from fellow teachers
the help of a friend or teacher who is more expert in using a certain application
Others Feedback
Infographics Training
seminar that teach me to design
more infographic training
Canva design training
infographics-based teaching training
Infigraphics Training

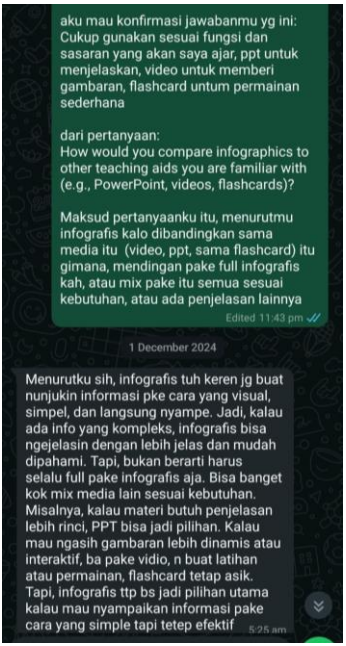
Appendix 4: Documentation of Trustworthiness Member Checking

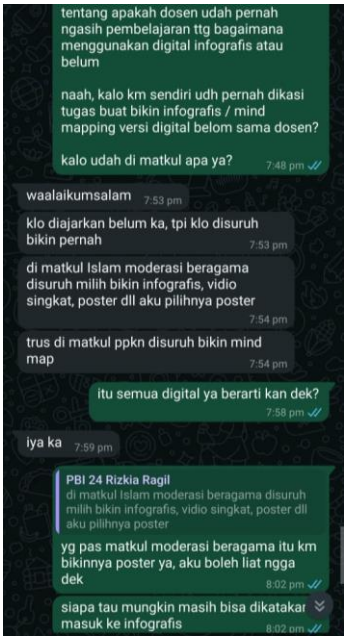




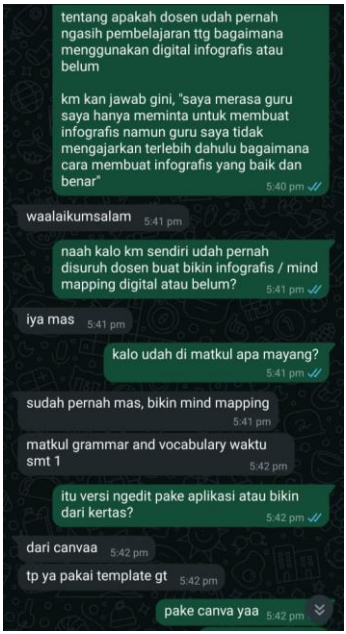


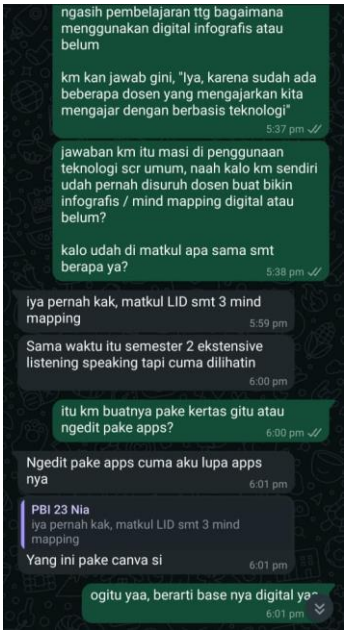


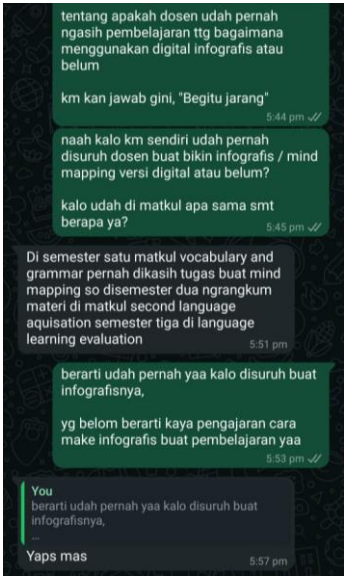

aku mau konfirmasi jawabanmu yg ini:
Cukup gunakan sesuai fungsi dan sasaran yang akan saya ajar, ppt untuk menjelaskan, video untuk memberi gambaran, flashcard untum permainan sederhana
dari pertanyaan:
How would you compare infographics to other teaching aids you are familiar with (e.g., PowerPoint, videos, flashcards)?
Maksud pertanyaanku itu, menurutmu infografis kalo dibandingkan sama media itu (video, ppt, sama flashcard) itu gimana, mendingan pake full infografis kah, atau mix pake itu semua sesuai kebutuhan, atau ada penjelasan lainnya
Edited 11:43 pm
1 December 2024
Menurutku sih, infografis tuh keren jg buat nunjukin informasi pke cara yang visual, simpel, dan langsung nyampe. Jadi, kalau ada info yang kompleks, infografis bisa ngejelasin dengan lebih jelas dan mudah dipahami. Tapi, bukan berarti harus selalu full pake infografis aja. Bisa banget kok mix media lain sesuai kebutuhan. Misalnya, kalau materi butuh penjelasan lebih rinci, PPT bisa jadi pilihan. Kalau mau ngasih gambaran lebih dinamis atau interaktif, ba pake vidio, n buat latihan atau permainan, flashcard tetap asik. Tapi, infografis ttp bs jadi pilihan utama kalau mau nyampaikan informasi pake cara yang simple tapi tetep efektif 5:25 am

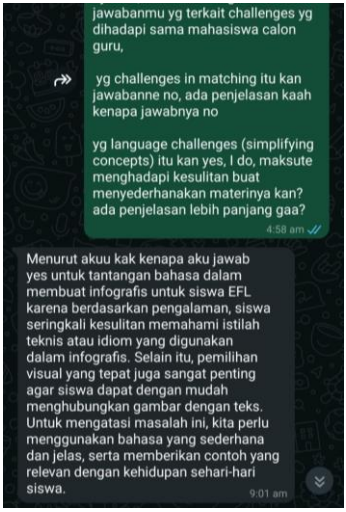

tentang apakah dosen udah pernah ngasih pembelajaran ttg bagaimana menggunakan digital infografis atau belum
naah, kalo km sendiri udh pernah dikasi tugas buat bikin infografis / mind mapping versi digital belom sama dosen?
kalo udah di matkul apa ya? 7:48 pm
waalaikumsalam 7:53 pm
klo diajarkan belum ka, tpi klo disuruh bikin pernah 7:53 pm
di matkul Islam moderasi beragama disuruh milih bikin infografis, vidio singkat, poster dll aku pilihnya poster 7:54 pm
trus di matkul ppkn disuruh bikin mind map 7:54 pm
itu semua digital ya berarti kan dek? 7:58 pm
iya ka 7:59 pm
PBI 24 Rizkia Ragil
di matkul Islam moderasi beragama disuruh milih bikin infografis, vidio singkat, poster dll aku pilihnya poster
yg pas matkul moderasi beragama itu km bikinnya poster ya, aku boleh liat ngga dek 8:02 pm
siapa tau mungkin masih bisa dikatakan masuk ke infografis 8:02 pm

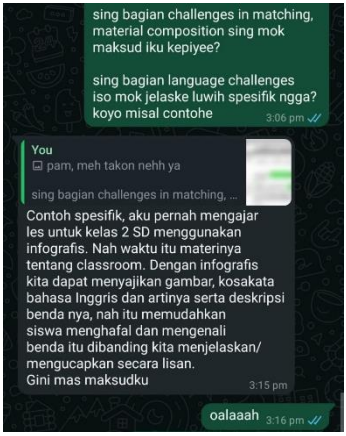
kita buat mind mapping di matkul language teaching media sama matkul voice accent dulu kak 6:04 pm
mata kuliah Language learning evaluation juga buat mind map beberapa 6:04 pm
voice accent: sems 1
LTM: 3
LLE: 3
6:04 pm
itu semua mind mapping versi digital atau ada yg make kertas gitu maul? 6:05 pm
ada yg digital ada yg manual ka 6:13 pm
voice accent semester 1 kak 6:14 pm


tentang apakah dosen udah pernah ngasih pembelajaran ttg bagaimana menggunakan digital infografis atau belum
km kan jawab gini, "saya merasa guru saya hanya meminta untuk membuat infografis namun guru saya tidak mengajarkan terlebih dahulu bagaimana cara membuat infografis yang baik dan benar" 5:40 pm
waalaikumsalam 5:41 pm
naah kalo km sendiri udah pernah disuruh dosen buat bikin infografis / mind mapping digital atau belum? 5:41 pm
iya mas 5:41 pm
kalo udah di matkul apa mayang? 5:41 pm
sudah pernah mas, bikin mind mapping 5:41 pm
matkul grammar and vocabulary waktu smt 1 5:42 pm
itu versi ngedit pake aplikasi atau bikin dari kertas? 5:42 pm
dari canvaa 5:42 pm
tp ya pakai template gt 5:42 pm
pake canva yaa 5:42 pm

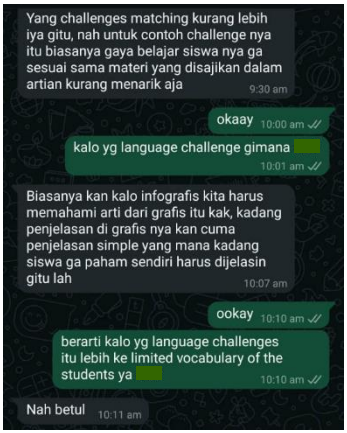

ngasih pembelajaran ttg bagaimana menggunakan digital infografis atau belum
km kan jawab gini, "Iya, karena sudah ada beberapa dosen yang mengajarkan kita mengajar dengan berbasis teknologi"
5:37 pm
jawaban km itu masi di penggunaan teknologi scr umum, naah kalo km sendiri udah pernah disuruh dosen buat bikin infografis / mind mapping digital atau belum?
kalo udah di matkul apa sama smt berapa ya?
5:38 pm
iya pernah kak, matkul LID smt 3 mind mapping
5:59 pm
Sama waktu itu semester 2 ekstensive listening speaking tapi cuma dilihatin
6:00 pm
itu km buatnya pake kertas gitu atau ngedit pake apps?
6:00 pm
Ngedit pake apps cuma aku lupa apps nya
6:01 pm
PBI 23 Nia
iya pernah kak, matkul LID smt 3 mind mapping
Yang ini pake canva si
6:01 pm
ogitu yaa, berarti base nya digital ya
6:01 pm

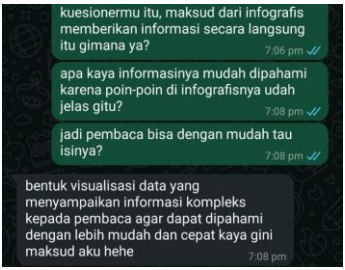

tentang apakah dosen udah pernah ngasih pembelajaran ttg bagaimana menggunakan digital infografis atau belum
km kan jawab gini, "Begitu jarang"
5:44 pm
naah kalo km sendiri udah pernah disuruh dosen buat bikin infografis / mind mapping versi digital atau belum?
kalo udah di matkul apa sama smt berapa ya?
5:45 pm
Di semester satu matkul vocabulary and grammar pernah dikasih tugas buat mind mapping so disemester dua ngrangkum materi di matkul second language aquisation semester tiga di language learning evaluation
5:51 pm
berarti udah pernah yaa kalo disuruh buat infografisnya,
yg belom berarti kaya pengajaran cara make infografis buat pembelajaran yaa
5:53 pm
You
berarti udah pernah yaa kalo disuruh buat infografisnya,
...
Yaps mas
5:57 pm


jawabanmu yg terkait challenges yg dihadapi sama mahasiswa calon guru,
yg challenges in matching itu kan jawabanne no, ada penjelasan kaah kenapa jawabnya no
yg language challenges (simplifying concepts) itu kan yes, I do, maksute menghadapi kesulitan buat menyederhanakan materinya kan? ada penjelasan lebih panjang gaa?
4:58 am
Menurut akuu kak kenapa aku jawab yes untuk tantangan bahasa dalam membuat infografis untuk siswa EFL karena berdasarkan pengalaman, siswa seringkali kesulitan memahami istilah teknis atau idiom yang digunakan dalam infografis. Selain itu, pemilihan visual yang tepat juga sangat penting agar siswa dapat dengan mudah menghubungkan gambar dengan teks. Untuk mengatasi masalah ini, kita perlu menggunakan bahasa yang sederhana dan jelas, serta memberikan contoh yang relevan dengan kehidupan sehari-hari siswa.
9:01 am


sing bagian challenges in matching, material composition sing mok maksud iku kepiyee?
sing bagian language challenges iso mok jelaske luwih spesifik ngga? koyo misal contohe
3:06 pm
You
pam, meh takon nehh ya
sing bagian challenges in matching, ...
Contoh spesifik, aku pernah mengajar les untuk kelas 2 SD menggunakan infografis. Nah waktu itu materinya tentang classroom. Dengan infografis kita dapat menyajikan gambar, kosakata bahasa Inggris dan artinya serta deskripsi benda nya, nah itu memudahkan siswa menghafal dan mengenali benda itu dibanding kita menjelaskan/ mengucapkan secara lisan.
Gini mas maksudku
3:15 pm
oalaaah
3:16 pm

tentang apakah dosen udah pernah ngasih pembelajaran ttg bagaimana menggunakan digital infografis atau belum
kan km jawab belum pernah diajarin
naah, kalo km sendiri udh pernah dikasi tugas buat bikin infografis / mind mapping versi digital belom sama dosen?
kalo udah di matkul apa sama smt berapa?
6:00 pm
udah kaa 6:21 pm
matkul grammar 6:21 pm
di smt 1 ini berarti yaa? 6:22 pm
iyaa kaa 6:22 pm
itu ngedit pake apps atau bikin pake kertas gitu?
6:22 pm
bikin dr canva trs di print sihh 6:22 pm
oalaah tapi ngedit dulu pake canva yaa
6:24 pm


Yang challenges matching kurang lebih iya gitu, nah untuk contoh challenge nya itu biasanya gaya belajar siswa nya ga sesuai sama materi yang disajikan dalam artian kurang menarik aja
9:30 am
okaay 10:00 am
kalo yg language challenge gimana
10:01 am
Biasanya kan kalo infografis kita harus memahami arti dari grafis itu kak, kadang penjelasan di grafis nya kan cuma penjelasan simple yang mana kadang siswa ga paham sendiri harus dijelasin gitu lah
10:07 am
ookay 10:10 am
berarti kalo yg language challenges itu lebih ke limited vocabulary of the students ya
10:10 am
Nah betul 10:11 am


kuesionermu itu, maksud dari infografis memberikan informasi secara langsung itu gimana ya?
7:06 pm
apa kaya informasinya mudah dipahami karena poin-poin di infografisnya udah jelas gitu?
7:08 pm
jadi pembaca bisa dengan mudah tau isinya?
7:08 pm
bentuk visualisasi data yang menyampaikan informasi kompleks kepada pembaca agar dapat dipahami dengan lebih mudah dan cepat kaya gini maksud aku hehe
7:08 pm

CURRICULUM VITAE

A. Personal Data

Nama	: Muhammad Hirza Qusuma Dani
Place of Birth	: Kendal
Date of Birth	: June, 15th 2002
Address	: Sarimanan Barat, Kutoharjo, Kaliwungu, Kendal
Email	: hierzadani@gmail.com
Phone Number	: 081413281301

B. Education Background

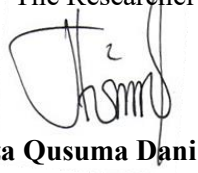
1. TK Tarbiyatul Athfal 2 Kutoharjo
2. SD Negeri 2 Kutoharjo
3. SMP Negeri 1 Brangsong
4. SMA Negeri 1 Kendal
5. Universitas Islam Negeri Walisongo Semarang

C. Scientific Writing

1. Activity-Based Presentation in Higher Education: The Description of its Implementation and the Presenters' Presentation Skills

Semarang, March 3, 2025

The Researcher



Muhammad Hirza Qusuma Dani