

How digital immigrants differ from digital native teachers in implementing technology in the classroom

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ABSTRACT

Learning culture in recent years has shown that we are following the 21-century learning system where technology has a crucial role in it. Technology implementation in the learning activity depends on the teachers' digital competence: digital immigrant and digital native teachers. This study investigated how technology is used by English teachers, focusing on the differentiating factor in implementing technology of two different generations. This descriptive qualitative study involved English teachers from different generations; a teacher with 7 years of teaching experience and another with 22 years teaching experience. An in-depth semi-structured interview was conducted to collect the data. The Apple Classroom Tomorrow (ACOT) framework was used to analyze how the digital immigrant and digital native teachers in the classroom implement technology. The results are that the digital natives and immigrants differ in implementing technology because of age and experience, student motivation, and ICT facility. Generation Z is a participant in the EFL teaching-learning process in the digital age, and this study demonstrates that the digital competence of the teachers must be developed in order to meet their needs.

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1. Introduction

The 21st century teaches us how to live in the digital era, where all human activities can be handled using technology. In addition, the spread of the Covid-19 pandemic for almost two years, where our needs were met through technology; has made technology the main tool of human activities in the learning process. Therefore, internet is not rare in our 21st society, especially for the generation Z. According to the Ministry of Communication and Information of the Republic of Indonesia, almost eight million Indonesia citizens are using the internet (Kemkominfo, 2017) in their daily activities. It can be said that internet and the solid media have embedded in human life in every single aspect from how to communicate and share the information. In a learning activity, the computer and internet become the main support in achieving the learning objectives. Modern education can improve and develop through multimedia teaching (Zhen, 2016), the leader of modernization in the educational process is digitalization (Ciarko & Paluch-Dybek, 2021), and it can be more effective. ICT has become more critical (OECD/CERI, 2008). The teacher needs to improve their competence in using technology as a facilitator to support their lesson in the classroom. Moreover, their participant is the native digital.

Digital competence has become the major competence in the 21st century for society, instead of the teacher as the facilitator in the teaching process. Digital competence is defined as using digital media, communication tools, and the internet to access information (Law et al., 2018). In this context, digital competence is the teacher's ability to utilize technology, such as computers, smartphones, communication applications, and the internet, to support the learning process. The terms of digital competence are the same as ICT skill and digital literacy. Digital literacy is the term of literacy today, which depends on understanding the multiple media and its use effectively (Jones-Kavalier & Flannigan, 2006). There is a gap in the implementation of digital media between teachers; digital-native and digital-immigrant teachers still become an issue in the education field. The implementing the digital media still become a significant issue with integrating competence in using digital for teacher (Shatunova et al., 2021). Prensky (2001) categorized two differences between two generations, digital-immigrant and digital native. In his statement, an individual born before the influx of technology is called the digital immigrant, especially the use of the internet, smartphone, and computer. The terms 'immigrant' here describes teachers' adaptation in utilizing technology in the classroom environment. Digital immigrant teachers taught face to face instruction (Riegel & Mete, 2018), before the coming of virtual instruction. Digital-native is who was born between 1990th -2012th, people who were born during, after, or in the "digital era" of technology being integrated into the classroom is a digital-native.

Teachers do not use technology in their classrooms because some of reasons, the previous study claimed that lack of skill, experience, age, and confidence (Raman & Yamat, 2014) are the reasons. He investigated English teachers regarding the berries to implementing digital media in the classroom setting. The teacher claimed that age had become the main problem; work demands also require teachers to prioritize completing the basic competence in lesson plans rather than using technology in the classroom. Besides that, the teacher also stated that the students were mature enough to use technology. But, teachers have positive attitudes towards digitalization in the teaching process (Habibi et al., 2019).

This study describes the differences between digital-immigrant and digital-native teachers in implementing technology in the classroom. Two questions guided this study: (1) How is digital tool used in the classroom by English Teachers? and (2) What is the difference between digital native and digital immigrant teachers? It is believed that this research would aid teachers in assessing their digital competence and assist schools in preparing ICT facilities to enhance teachers' digital competence in the digital age.

2. Method

This study used a qualitative approach in conveying research results where the data obtained came from class observations and in-depth interviews. In qualitative study, the research produces descriptive data in written or spoken words (Steven J. Taylor, Robert Bogdan, 2016 & Harahap (2020)). Class observations were used to get a direct picture (Creswell, 2003) of how teachers implemented technology in the classroom and was done by taking notes during the observation based on human behavior (Mustori, 2012). The second data were from semi-structured interviews to obtain detailed information (Creswell, 2003). It is used as additional data to support the data from observation. Interviews were conducted for approximately 15-20 minutes for each teacher with audio recordings during the interview.

This study involved two English teachers. One teacher was a digital native who has 7 years teaching experience. The other one was digital immigrant who has been teaching for 22 years. Apple Classroom Tomorrow (ACOT, 1996) is used as data analysis. It is suitable to describe the teacher's digital competence stage, which is the goal of ACOT to assess computer-based education (Baker et al., 1990). The five stages in ACOT are deemed appropriate to see the limits of the teacher's ability to implement technology in the classroom. They are entry, adoption, adaptation, appropriation, and innovation. In the **entry stage** the teachers is not comfortable with technology, so the traditional method is used. Teachers are afraid of using technology; they avoid using it. In the **Adoption** stage teachers can use technology for themselves in the teaching process. It is for the convenience of the teachers. For **Adaptation** stage teachers begin to use technology with their students, e.g. the use of word processing to support traditional instruction in their classroom. The next stage is **appropriation**.

In this stage the teacher allows the student to use software programs and the internet to meet their needs in the learning process. Students use Internet as a resource. The last stage, the highest is **innovation**. Technology has become part of the curriculum. Technology is used to do activities that cannot be done without using it.

3. Findings and Discussion

This study is included semi-structured interviews and classroom observation to paint a clear picture of how teachers employ technology. The collected data will be presented in a table based on earlier study by Kurniawati et al (2018).

Table 1. Five stages of teachers' technology integration

Teacher's Generation	Learning activity	Use of Technology	Entry	Adoption	Adaptation	Appropriation	Innovation
Digital-Native	Giving apperception	LCD projector and presentation software		✓			
	Giving instruction and explanation	LCD projector and presentation software		✓			
	Giving instruction and practice	LCD projector and word processing		✓			
	Giving main practice	Software Program			✓		
Digital-Immigrant	Giving material (learning video)	What's app groups and Youtube		✓			

3.1. Digital-Native Teacher

The English classroom was observed to determine how the teacher implemented technology in English class. Observational data revealed that the teacher fell into the adoption and adaptation stages, three times in the adoption stage and once in the adaptation stage, respectively. To supplement the traditional approach of imparting material, the teacher employed an LCD projector and Presentation software, i.e., she employed technology in the classroom. When providing students with primary practice, the teacher permitted them to utilize printed tasks and software applications.

Adoption-related learning activities include providing perspective, conveying the material, and providing primary instruction using an LCD projector and Presentation software. The teacher also produced a printed assignment for classroom practice. Regarding the task's instruction, the teacher displayed it on an LCD projector. During the observation, the teacher can independently operate the technology. She can handle it without hesitation or difficulty, i.e., the teacher has reached the level of adoption where technology is used to supplement traditional instruction.

The adaption step is exemplified by the way in which the teacher advised her student to use a software design package to finish the project. In their project, the student was permitted to employ a choice of software applications. The instruction was conducted orally by the teacher in the classroom.

It was demonstrated by the teacher's comment when assigning homework: "As for the task, please create your own advertisement." You may utilize the software design program you possess. You will deliver your advertisement at the next meeting."



Figure 1. Classroom Observation in Digital Native Teacher Class

3.2. Digital-Immigrant Teacher

During the observation, it was observed that the teacher still used traditional teaching methods. The teacher still used textbooks and a whiteboard to present topics.



Figure 2. Classroom Observation in Digital Immigrant Teacher Class

The teacher used Whatsapp group to send messages to the students. By using Whatsapp, the teacher is categorized as being in the adoption stage of material delivery. Before class began, the teacher sent her student YouTube video she had previously downloaded. During the observation, the teacher used the textbook as the material source and the whiteboard as the medium for a detailed explanation. As she stated during the interview, her teaching interests include face-to-face instruction and writing on the whiteboard.

"I enjoy writing on the whiteboard while educating my students face-to-face."

The digital immigrant teacher is less capable of integrating technology into the classroom. Age is the primary reason why teachers did not utilize technology in the classroom. During the observation activities, the teacher used textbooks and whiteboards more frequently to provide material to pupils. However, when assigning homework, the teacher permitted students to use the Internet as a reference source; she explains, "On certain topics, I permit students to utilize the Internet as the source for their homework."

3.3. Factors that Make Differences between Digital Native and Digital Immigrant Teachers

This section illustrates how digital natives and immigrant teachers employ technology differently in the classroom. Age, experience, lack of competence and time, limited access, and student skill were cited in a prior study as obstacles to the English teacher's implementation of technology (Saputri et al., 2020; Vrasidas et al., 2010; Raman & Yamat, 2014) Through semi-structured interviews, the researcher gathered the respondent's perspectives on the technology implementation difficulty faced by English teachers.

3.4. Age and Experience

Previous research has demonstrated that age and teaching experience impact the successful deployment of technology in the classroom (Indriani & Wirza, 2020). The similar conclusion may be

drawn from research conducted by Raman and Yamat (2014), who showed that age and teaching experience posed obstacles for English teachers in adapting to technology implementation in the classroom. The findings of this study were comparable. The older, more experienced teacher did not use digital media in the classroom; she explained, "I am too elderly to use digital media in the classroom or *GAPTEK* (technologically backward) and my students are more technologically savvy and [I am] old enough to use it."

According to the data gathered during the observation, teachers' age influenced their capacity to utilize digital tools; these results are consistent with prior research by Champa et al. (2019); nonetheless, even if a teacher lacks proficiency, she was able to operate basic software to support the lesson. Though the usage of technology is already included in the curriculum, the digital immigrant teacher did not include technology into her lessons. The teacher has authority over whether or not a lesson plan is effective; the technology depends on the teacher; as she noted, "the usage of digital media is in the curriculum, but it is up to the teacher to create lesson plans based on the needs of the students."

3.5. Student ICT Skill and Motivation

The elimination of ICT courses affects student-learning motivation, particularly in the area of technology. The teacher believed that the lack of student interest prevents her from using digital media in class. It is proved by the digital native teacher's following statement.

"Because pupils do not comprehend how to use technology in the classroom due to the lack of an ICT course, I hesitate to implement it".

The teacher also believed that the lack of an ICT course is one of the reasons why teachers did not use digital media in the classroom, given that students' grasp of learning technology is still limited. In addition, the length of distance learning reduces students' desire to learn, which is consistent with the findings of a previous study indicating that the teacher believes that technology has not been successfully implanted in the English classroom (Malagón & Pérez, 2017); while studying from home, student roles are reduced to other roles at home, the student is less motivated to complete their duty as a student, such as to complete the assignment (Yu, 2022).

3.6. ICT Facility

In this era, digital abilities must be strengthened and the school's ICT infrastructure must also be upgraded. Incorporating new technologies into education is hampered by limited accessibility and network connectivity (Ghavifekr et al., 2016). Due to a lack of technical support in schools and restricted Internet and ICT access, teachers are unable to use ICT in the classroom (Salehi & Salehi, 2012). Both teachers cited the same reason for not using technology:

"The limited internet access in the classroom became a problem for me, " they noted (digital immigrant teacher).

"The technology-related facilities are not yet complete. This presents a difficulty for me (digital native teacher).

Modern teaching aids support the entire teaching and learning process in the classroom, particularly the ICT facility as a vital source of information in the digital age (Ciarko & Paluch-Dybek, 2021). Preparing for future teachers and pupils of the millennial generation requires equipping the school with modern technology by encouraging and motivating English teachers to integrate technology into their teaching (Ryn & Sandaran, 2020).

4. Conclusion

The study was conducted to determine how the digital native and digital immigrant teachers differ in implementing technology in their classrooms. The digital competence of native teacher who grew up with technology is categorized into the adoption stage and adaptation stage. She was in the adoption stage in giving apperception, delivering material, and instruction practice using LCD projector and

presentation software, adding with using software program as an indicator of adaptation stage. Meanwhile, the digital immigrant teacher was categorized into the adoption stage for she did not use technology when teaching in the classroom; however, she provided learning material that is video downloaded on YouTube and sent it via whatsapp group.

Based on the result of semi-structured interview, it was found that the teacher did not use technology because the main problem was age and experience. The age differences influenced the teacher in implementing technology. The older teacher thought she was too old to use technology among the millennial students. The lack of student motivation and focus in the learning process also influenced the young teacher to implement technology. Both teachers claimed that the less ICT facility at school also became their problem.

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