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Portrayal of Professional Digital Competence (PDC) of English Teacher: Digital Immigrant vs. Native

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Abstract

This study aimed to investigate the differences in professional development for digital competence (PDC) levels between digital immigrant and digital native teachers. A total of 49 teachers participated in the study. Data was collected through an online survey that measured their PDC levels in seven domains: Subject and Basic Skills, School in Society, Ethics, Pedagogy and Subject Didactics, Leadership of Learning Processes, Interaction and Communication, and Change and Development. The results indicated that there were slight differences between the PDC levels of digital immigrant and digital native teachers. Digital immigrant teachers had higher percentages at the none level and the skills level, while digital native teachers had higher percentages at the knowledge level and the competence level. The findings suggest that both groups of teachers have relatively high levels of PDC, indicating that they are capable of using technology effectively in their teaching practices. The study highlights the importance of ongoing professional development for both groups to ensure they are equipped with the necessary digital competencies to effectively support their students in the digital age. The PDC framework can be a useful tool for identifying areas of strength and weakness for both digital learner groups, and can guide the development of targeted professional development programs.

Key Words: Digital competence, English Teacher, Proffesional, Digital learner

Introduction

The increasing importance of digital competence in language teaching cannot be ignored in today's technologically advanced world. Digital competence is defined as "the set of knowledge, skills, attitudes and behaviours necessary to operate in a digital environment" (Yazon et al., 2019). In language teaching, digital competence involves the use of technology to enhance teaching and learning, as well as the ability to critically evaluate and select appropriate digital tools for language instruction.Research has shown that incorporating digital technologies in language teaching can increase motivation, engagement, and learning outcomes for students (Bui, 2022). For example, using social media platforms, such as Twitter and Facebook, can encourage authentic communication and provide opportunities for learners to interact with native speakers (Desta et al., 2021). Additionally, using virtual reality and augmented reality tools can provide immersive and interactive language learning experiences (Boyles, 2016).

However, the use of digital technologies in language teaching also presents challenges, such as the need for teachers to develop digital competence and the potential for technology to distract from language learning goals (Chun et al., 2016). Therefore, it is important for language teachers to receive training and support in developing digital competence, as well as to carefully evaluate and select appropriate digital tools for language instruction (Kessler, 2016). In response to the growing importance of digital competence in language teaching, organizations such as the European Union have developed digital competence frameworks for language teachers (Yazon et al., 2019). The frameworks outline the digital

competencies and skills that language teachers need to effectively integrate technology into their teaching practice. This known as Professional Digital Competence framework.

Professional Digital Competence (PDC) has become an essential skill set for language teachers in the 21st century. With the widespread use of technology in language learning and teaching, teachers are expected to have a solid understanding of digital tools and platforms and how to integrate them effectively into their teaching practice. PDC is defined as the "set of knowledge, skills, attitudes, and behaviors that enable individuals to use digital devices, communication applications, and networks to access, manage, integrate, evaluate, create, and communicate information responsibly, ethically, and effectively to solve problems and accomplish goals"(Kelentrić et al., 2017). It includes competences such as digital literacy, media literacy, information literacy, and communication and collaboration.

Research has shown that integrating PDC into language teacher education can enhance the quality of language instruction and improve learner outcomes. One study found that teachers who had received PDC training were more confident in their ability to use technology in the classroom and were more likely to integrate digital tools into their teaching practice (Méndez et al., 2022). Another study found that language teachers who had high levels of PDC were more likely to use technology in innovative ways, such as creating digital storytelling projects or using social media for language learning (Sharples et al., 2017). To develop PDC, language teachers need to engage in ongoing professional development and training. This can include attending workshops and conferences,

participating in online courses and webinars, and collaborating with colleagues to share best practices and learn from one another. Language teacher education programs also need to incorporate PDC training into their curriculum, to ensure that future teachers are equipped with the necessary digital competences.

Moreover, to effectively incorporate Professional Digital Competence (PDC) training for teachers, it is important to understand the differences between digital natives and digital immigrants. Digital natives are individuals who were born and raised in a world where digital technology has been a ubiquitous part of their lives (Creighton, 2018; Riegel & Mete, 2017). In contrast, digital immigrants are individuals who grew up in a time when digital technology was not yet as pervasive as it is (Jarrahi & Eshraghi, 2019; Riegel & Mete, 2017).

The differences between these two groups can have a significant impact on their ability to effectively navigate and utilize digital technology in the classroom. According to Riegel and Mete (2017), digital natives are typically more comfortable with and proficient in the use of digital technology, while digital immigrants may experience greater challenges in adapting to new digital tools and platforms. This can be due to factors such as differences in cognitive processing and learning styles, as well as varying levels of exposure and experience with digital technology (Gallardo-Echenique et al., 2015). Moreover, the difference between digital natives and digital immigrants is not solely based on generational issues, but also on social factors such as skills in using technology, access to technology and the internet, economic and political factors, and cultural influences (Abdul

Aziz et al., 2019). Therefore, it is crucial for teacher training programs to take these factors into consideration when designing PDC training initiatives.

The literature suggests that digital natives, those individuals born and raised in the digital era, exhibit certain characteristics that distinguish them from digital immigrants, who were born prior to the advent of technology. Scholars such as Creighton (2018) and Riegel & Mete (2017) have noted that digital natives are more comfortable with using multimedia, such as images, audio, and video, for learning. They are also more adaptable to new technological developments compared to digital immigrants, as they have been exposed to digital technology from an early age (Creighton, 2018). Moreover, digital natives are reported to have the ability to teach digital immigrants about using digital technology effectively (Riegel & Mete, 2017), and to be highly interactive and communicative through various social media platforms and applications (Riegel & Mete, 2017).

In contrast, digital immigrants, who were born before the era of technology, are reported to face challenges and difficulties with using digital technology, as noted by scholars such as Bayne (2015) and Riegel & Mete (2017). However, Creighton (2018) emphasizes that digital immigrants possess various abilities and expertise in utilizing technology. Aavakare & Nikou (2020) noted that digital immigrants have gaps in their digital literacy and experience caused by time and experience, but they can still teach digital natives how to use digital technology in the classroom effectively (Riegel & Mete, 2017). Digital immigrants prefer direct or face-to-face interaction and are able to adapt to their environment more easily according to Creighton (2018).

In order to effectively develop PDC training programs for teachers, it is essential to first assess the existing levels of digital competence among both digital natives and digital immigrants. By doing so, it will be possible to tailor training programs to meet the unique needs and challenges of each group. To this end, several frameworks have been developed to define and assess the components of PDC, including the framework developed by The Norwegian Centre for ICT in Education (Skogseth & Solheim, 2018). This framework consists of seven competency areas, each with its own set of knowledge, skills, and competencies required for effective digital teaching. By utilizing such frameworks, researchers and educators can better understand the specific competencies required for effective digital teaching and develop targeted training programs to meet those needs.

Professional Digital Competence (PDC) refers to the knowledge, skills, and attitudes necessary for educators to effectively use digital technologies in their professional practice, including teaching and learning (Kessler, 2016). It involves the ability to critically evaluate and select appropriate digital tools and resources, design and implement technology-enhanced learning activities, and effectively communicate and collaborate with others using digital platforms (García-Peñalvo et al., 2020). There are several components of PDC that have been identified in the literature. One widely used framework is the DigCompEdu framework, developed by the European Commission to guide the development of digital competences for teachers (Redecker, 2017). The DigCompEdu framework identifies six areas of digital competence for educators: information and data literacy, communication and collaboration, digital content creation, safety, problem-solving, and innovation.

Another framework, proposed by the UNESCO Institute for Information Technologies in Education, includes five dimensions of digital competence for educators: cognitive, technical, didactic, ethical, and socia l(UNESCO, 2018). The cognitive dimension involves the ability to think critically and creatively about the use of digital technologies in education, while the technical dimension involves the ability to effectively use digital tools and software. The didactic dimension focuses on the integration of technology into teaching and learning, while the ethical dimension involves understanding and practicing responsible and ethical behavior online. The social dimension involves the ability to effectively communicate and collaborate with others in online environments. One of comprehensive framework was Norwegian Frmework.

The Professional Digital Competence Framework developed by The Norwegian Centre for ICT in Education provides a comprehensive overview of the competencies required for teachers to become digitally competent professionals. The framework comprises seven competency areas, which are Subject and Basic Skills, school in society, ethics, pedagoy and subject didactic, leadership of learning processes, interaction and communicatin, and Change and development (Kelentrić et al., 2017).

Each competency area is broken down into levels of knowledge, skills, and competencies, with detailed descriptions of what each level entails.). The PDC framework is designed to help teachers develop their digital competencies and identify areas for improvement, as well as provide guidance for teacher education programs and professional development initiatives. Its comprehensive nature and clear structure make it a useful tool for researchers and educators alike.

In summary, in order to effectively incorporate PDC training into language teaching, it is necessary to determine the level of PDC among teachers. This will allow for the development of appropriate activities for PDC training. Therefore, the purpose of this study is to describe the level of PDC among language teachers, distinguishing between two categories: digital immigrants and digital natives. The significance of this study lies in the fact that PDC is becoming increasingly important in language teaching and

it is important to understand the level of PDC among teachers in order to better equip them for the demands of the digital age.

Research Methodology

This study employed a qualitative research method to gain insights into the level of Professional Digital Competence (PDC) among English teachers in Jakarta. The research design for this study is a descriptive survey. A survey is an effective research method for collecting data on a specific population's characteristics, attitudes, beliefs, and behaviors (Creswell, 2017). In this study, the survey will be conducted to determine the level of PDC among language teachers, distinguishing between two categories: digital immigrants and digital natives. The survey will include a range of questions that address various aspects of PDC, such as the use of digital tools and the level of proficiency in digital skills.

The study was conducted in schools located in Jakarta, involving English teachers from junior high, senior high, and vocational school levels. The sample comprised teachers from various schools located in different areas of Jakarta, including East Jakarta, South Jakarta, West Jakarta, North Jakarta, and Central Jakarta. The researcher ensured that the digital questionnaires were distributed to English teachers in each school after obtaining permission and confirmation from the stakeholders concerned. A total of 29 schools were involved. Out of 71 accepted responses, 59 responses were considered valid after invalid responses were confirmed based on the same answer choices of 57 statement points. The valid responses were analyzed and identified to provide insights into the level of PDC among English teachers in Jakarta. The descriptions showed 7

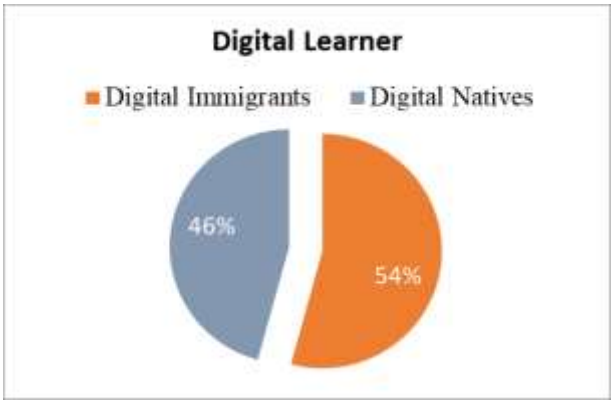
category of PDC ; Subject and Basic Skills, school in society, ethics, pedagoy and subject didactic, leadership of learning processes, interaction and communicatin, and Change and development (Kelentrić et al., 2017) and broken down into levels of knowledge, skills, and competencies,

Data collection was done using an online survey tool, such as Google Forms or SurveyMonkey. The survey will be distributed via email to language teachers, with a request for their voluntary participation. The survey will be anonymous, and participants will be assured of the confidentiality of their responses. Data analysis were done using descriptive statistics, such as frequency distribution, mean, and standard deviation, to describe the level of PDC among language teachers.

Findings and Discussion

Findings

The age categorization that the researcher used is digital immigrants and digital natives based on (Jarrahi & Eshraghi, 2019). Digital immigrants are digital learners born before 1980, while digital natives are digital learners born after 1980. Consequently, according to the teachers who were involved as respondents, there are 32 teachers as digital immigrants and 27 teachers who as digital natives. This indicates the number of teachers as digital immigrants and digital natives are slightly equal.



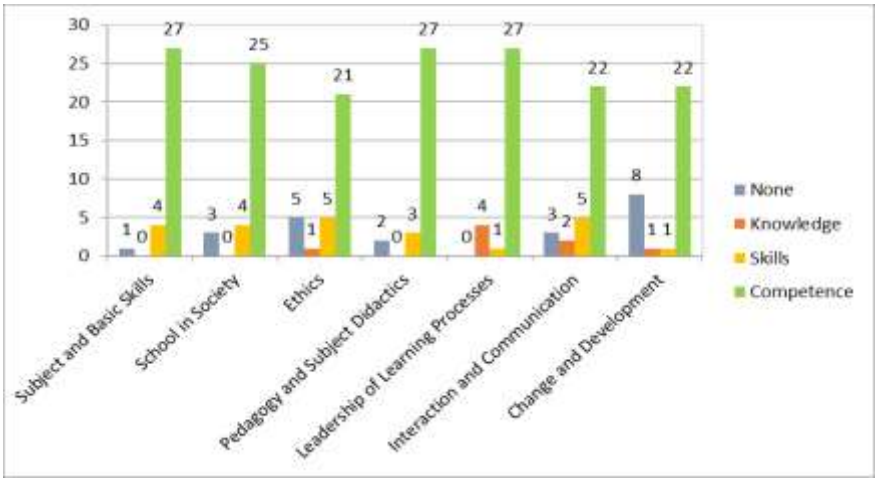
Digital Learner Category

The presented data depicts the distribution of research participants based on their digital learner classification, with 32 respondents identified as digital immigrants and 27 as digital natives. It is noteworthy that the number of digital immigrants' respondents exceeds that of digital natives. Furthermore, a cluster column chart illustrates the PDC level of digital learners for each digital competency.

a) Digital Immigrants

The chart provided below depicts the percentage of 32 teachers categorized as digital immigrants and their respective levels of Professional Digital Competence (PDC). Generally, the level of competence among digital immigrants is relatively high, with a few teachers lagging behind in terms of skills and some not having attained any level related to PDC. Notably, 25% of digital immigrants (8 out of 32 teachers) have not attained any level in Change and Development. The highest number of knowledge levels was observed in Leadership of Learning Processes, where 4 teachers (13%) achieved this level. On the other hand, the skill level was highest in Ethics and Interaction and Communication, where 5 teachers (16%)

attained this level. A significant proportion of digital immigrants, 27 teachers (84%), attained competency level, with the largest number being in Subject and Basic Skills, Pedagogy and Subject Didactics, and Leadership of Learning Processes. Overall, most of the digital immigrants have achieved a level of competence. However, some still have not attained any level related to PDC, indicating a need for enhancement in PDC development among this category of teachers.



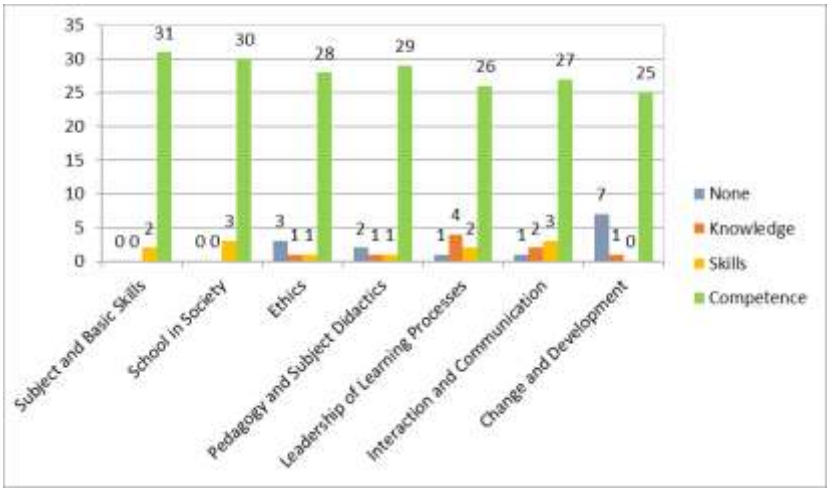
PDC level of Digital Immigrant Teachers

b) Digital Natives

The aforementioned chart depicts the PDC levels of 27 teachers categorized as digital natives. The majority of teachers in this group have achieved the level of competence, with a small proportion of teachers falling under none, knowledge, and skill levels. Specifically, the number of teachers at the none level is low, indicating that most digital native teachers have some level of PDC. However, in the Change and Development category, 26% or 7 out of 27 teachers are yet to attain the PDC level. The Leadership of Learning Processes category has the highest number of

teachers at the knowledge level, with 15% or 4 teachers falling under this category. Additionally, only a small number of teachers are at the skill level, with the highest number being 11% or 3 teachers. Conversely, the level of competence has the highest number of teachers, with 93% or 25 teachers achieving this level, particularly in the Subject and Didactics category.

Overall, while most digital native teachers have achieved a certain level of PDC competence, there is still a small number of teachers who are yet to reach the level of competence, and therefore, require further improvement.



PDC Level of Digital Native Teachers

Digital Immigrants	No Level	Knowledge	Skills	Competence
Subject and Basic Skills	3%	0%	13%	84%
School in Society	9%	0%	13%	78%
Ethics	16%	3%	16%	66%
Pedagogy and Subject Didactics	6%	0%	9%	84%
Leadership of Learning	0%	13%	3%	84%

Processes				
Interaction and Communication	9%	6%	16%	69%
Change and Development	25%	3%	3%	69%
Average	10%	4%	10%	76%
Digital Natives	**No Level**	**Knowledge**	**Skills**	**Competence**
Subject and Basic Skills	0%	0%	7%	93%
School in Society	0%	0%	11%	89%
Ethics	9%	4%	4%	81%
Pedagogy and Subject Didactics	7%	4%	4%	85%
Leadership of Learning Processes	4%	15%	7%	74%
Interaction and Communication	4%	7%	11%	78%
Change and Development	26%	4%	0%	70%
Average	7%	5%	6%	81%

The table appears to compare the competencies of Digital Immigrants and Digital Natives across different areas related to education and technology. Digital Immigrants seem to have a higher level of competence in areas such as Subject and Basic Skills, Pedagogy and Subject Didactics, and Interaction and Communication. They score relatively low in areas such as Leadership of Learning Processes and Change and Development.

On the other hand, Digital Natives appear to have a higher level of competence in areas such as Leadership of Learning Processes and Interaction and Communication. They score relatively low in areas such as

Change and Development, and Pedagogy and Subject Didactics. The average competence level of Digital Immigrants is 76%, whereas that of Digital Natives is 81%. It seems that Digital Natives have an overall higher level of competence in the areas examined in the table, although the difference is not very significant.

Discussion

The findings of this study show that there are some differences between the PDC levels of digital immigrant and digital native teachers. Specifically, digital immigrant teachers have a higher percentage at the none level, and a slightly higher percentage at the skills level, compared to digital native teachers. On the other hand, digital native teachers have a slightly higher percentage at the knowledge level, and a higher percentage at the level of competence. These findings are in line with previous studies that have investigated the PDC of teachers. For example, a study by Sang et al. (2010) found that older teachers, who are more likely to be digital immigrants, tend to have lower levels of PDC compared to younger teachers, who are more likely to be digital natives. Another study by Ballano et al. (2022) found that while both digital immigrant and digital native teachers had relatively high levels of PDC, there were some differences in their approaches to technology integration in the classroom. Digital native teachers tended to use technology more frequently and in more innovative ways, while digital immigrant teachers were more likely to use technology in a traditional, teacher-centered way.

Overall, these findings suggest that there are some differences between digital immigrant and digital native teachers in terms of their PDC

levels and their approaches to technology integration in the classroom. However, both groups of teachers have relatively high levels of PDC, indicating that they are capable of using technology effectively in their teaching practices.

The comparison between the competencies of digital immigrant and digital native teachers reveals that both groups have similar patterns in terms of their competencies at the no and knowledge levels. However, there are differences in the skills and competence levels. Digital immigrants have a higher percentage at the skills level in Ethics and Interaction and Communication, while digital natives have a higher percentage in School in Society and Interaction and Communication. Additionally, digital natives have a higher percentage at the level of competence in Subject and Basic Skills.

These findings are consistent with previous studies that suggest that digital natives tend to have more advanced technology skills than digital immigrants due to their exposure to technology from a younger age (Kesharwani, 2020). However, the results also highlight the importance of ongoing professional development for both groups to ensure they are equipped with the necessary digital competencies to effectively support their students in the digital age. It is important to note that the PDC framework can be a useful tool for identifying areas of strength and weakness for both digital learner groups, and can guide the development of targeted professional development programs.

Conclusion

In summary, this study explored the PDC levels and competencies of digital immigrant and digital native teachers. The results indicate that both groups of teachers have relatively high levels of PDC, with some differences between them. Ongoing professional development is essential for both groups to acquire the necessary digital competencies to effectively support their students in the digital age. The PDC framework can guide the development of targeted professional development programs for both groups of teachers.

Despite the valuable insights gained from this study, there are several limitations that should be acknowledged. Firstly, the study's sample size was relatively small, which may limit the generalizability of the findings. Additionally, the study only examined teachers' self-reported PDC levels and competencies, which may not fully reflect their actual use of technology in the classroom. To address these limitations, future research could consider using a larger and more diverse sample, as well as incorporating classroom observations and other objective measures of technology integration. Furthermore, policymakers should consider the findings of this study when developing policies related to technology integration in education. Investing in ongoing professional development programs for teachers is crucial to ensure that they have the necessary skills and competencies to effectively use technology in the classroom.

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