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# Digital Competence in High School: Physics Teachers' Priorities and Implementation

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**Abstract**
Digital competence is essential in the Indonesian independent curriculum, yet many teachers, particularly in physics, lack emphasis on integrating these skills in teaching. This study examines high school physics teachers' practices and priorities for digital competence implementation. A survey was conducted with 53 physics teachers from 11 public and 14 private high schools in Gowa district, focusing on digital competence areas prioritized and those deemed less critical. Findings show that teachers rank digital content creation, communication, and collaboration as primary digital competences, while evaluation, problem-solving, and security are often deprioritized. No significant difference in digital competence prioritization was observed across grade levels (X, XI, and XII) or between public and private school teachers. Most teachers report using implicit approaches to integrate digital skills, especially in digital content creation. This study underscores the need to enhance digital competence in physics teaching, suggesting that targeted digital training and curriculum support could improve teaching quality.

**Keywords**
Digital Competence, Physics Teachers, High School Teaching

## INTRODUCTION

In the current era, possessing knowledge alone is no longer sufficient for success (Carayannis & Morawska-Jancelewicz, 2022; Peña-Ayala, 2021). Individuals must cultivate adaptable mindsets to compete and thrive in an era defined by rapid technological advancement (Natarajan et al., 2022; Starkey, 2020). The rate of change over time continues to increase, especially from the increase in technological innovations that have a direct influence on human life (Popkova & Sergi, 2020; Usman & Hammar, 2021). The accelerated pace of technological innovation significantly impacts all facets of human life, including education, where integrating technology has demonstrably enhanced learning quality (Bernacki et al., 2020; Naik et al., 2020). For educators, digital competence—defined as the ability to effectively use digital tools and technologies—has emerged as a critical component of teaching in the digital age (Guillén-Gámez et al., 2021; Olofsson et al., 2020).

In Indonesia, the independent curriculum prioritizes technology integration in teaching, with digital competence seen as vital for teachers' professional development (Pöntinen & Räty-Záborszky, 2020; Zhao, Pinto Llorente, et al., 2021). The curriculum currently applied in Indonesia (the independent curriculum) is starting to prioritize technology-integrated learning systems (Mulyasa, 2023). Teachers are increasingly expected to develop and apply digital skills to enhance their instructional practices (Fernández-Batanero et al., 2022; Helleve et al., 2020). Digitalization competences provide space for teachers to implement technological developments in learning (Heine et al., 2023a; Zabolotska et al., 2021a). There are many technological innovations that can be implemented in learning, for example digital teaching materials.

Despite these curricular demands, however, many educational institutions have yet to fully support teachers in advancing their digital competences. Studies indicate that Indonesian teachers face significant challenges in digital skill development, resulting in limited integration of technology within classrooms (Hoesny & Darmayanti, 2021; Mia & Sulastri, 2023; Supandi et al., 2020; Syahid et al., 2022, 2023). The main reason hindering the digitalization in the learning process is that teachers are less capable of applying technology in their classes (Latif, 2020; Mercader & Gairín, 2020; Miguel-Revilla et al., 2020; Yanti et al., 2022). This gap between expectation and capability has sparked calls for a stronger emphasis on digital competence in teacher training and development.

Much of the existing research on digital competence focuses on theoretical frameworks and teacher perceptions, often utilizing qualitative approaches such as interviews to capture teachers' perspectives (Reisoğlu, 2022; Tondeur et al., 2021). While these studies offer valuable insights, they frequently lack empirical data on how teachers actually implement digital competence in classroom settings. To address this gap, the present study utilizes a survey method to assess the practical application of digital competences among high school physics teachers. By including a diverse sample from public and private schools, this study aims to provide a comprehensive view of teachers' digital competence priorities and practices, offering data that can inform policies aimed at enhancing technology integration in Indonesian classrooms.

## Defining Teacher Digital Competence

Teacher digital competence encompasses a range of skills for using technology effectively in educational and administrative contexts (Basilotta-Gómez-Pablos et al., 2022; Lucas et al., 2021). It involves both reflective practices and active engagement in the digital environment to improve learning outcomes (Cabero-Almenara et al., 2022; Garzón-Artacho et al., 2021). Teachers' skills in utilizing digital technology in learning as a professional form are very important to improve the quality of learning (Lindfors et al., 2021; Skantz-Åberg et al., 2022). Competent digital educators not only utilize technology but also inspire innovation, playing a pivotal role in advancing education quality (Backfisch et al., 2020; Budiharso & Tarman, 2020). Digital competence has become a key element in the 21st century in improving the quality of education (Erstad et al., 2021; Rahimi & Tafazoli, 2022). Besides, it is a main topic for national and international educational institutions to discuss and develop (Caena & Redecker, 2019; Zabolotska et al., 2021b).

Several research results suggest that teacher digital competence is related to the teacher's ability to use information and communication technology (ICT) which is based on pedagogical principles (Chohan & Hu, 2022; Sulaiman & Ismail, 2020). Thus, there are three levels of teacher digital competence based on the use of ICT: 1) basic digital competence, namely the level of use of ICT tools, access to information and communication; 2) learning approach, namely the level of use of ICT in educational services; and 3) learning strategies, namely the level of use of ICT in the learning process (Casillas Martín et al., 2020). Carretero et al in their book "The Digital Competence Framework for Citizens" which discusses the Ministry of Education wrote five dimensions of digital competence that teachers must develop and apply, namely information and data literacy, communication and collaboration, digital content creation, safety, and problem solving (Carretero et al., 2017). Other researchers also argue that there are six digital competences that teachers must have, namely information, communication, formal, creating technological devices and operational skills (Esteve-Mon et al., 2020; McGarr & McDonagh, 2021). From the definitions of teacher digital competence, it can be concluded that the main characteristics of digital competence are increased understanding of the digital environment, collaboration of theory and practice, increased digital creativity, increased participation and collaboration (Mattar et al., 2022; Pettersson, 2018). The practical application of these competences includes using digital resources, integrating technology in instruction, and managing digital content effectively (Spiteri & Chang Rundgren, 2020; Ovcharuk & Ivaniuk, 2021).

Digital competences can be implemented through implicit and explicit approaches, or a combination of both (Heine et al., 2023b; Hubschmid-Vierheilig et al., 2020). The implicit approach integrates digital skills naturally within the teaching process, while the explicit approach involves structured, targeted instruction (Muñoz-Moldes & Cleeremans, 2020; Vermeylen et al., 2021). The choice of approach varies depending on the context and educational objectives, with studies showing effectiveness in both strategies (Reichert et al., 2020). Other researchers also argue that the application of digital competences is more effective when using an explicit approach (Cattaneo et al., 2022). However, the extent to which teachers use this approach in the learning process to support the implementation of digital competences in schools still needs to be studied. Therefore, our research surveyed teachers about their practices in implementing digital competences.

## Teacher Digital Competence in Learning Process

We have reviewed several literatures on how to apply digital competences in learning. Most of the research we reviewed used a qualitative approach, researchers conducted interviews by asking respondents open-ended questions. Thus, the answers obtained only capture the respondent's perspective, but cannot be mapped based on existing theory. In certain cases, open interviews are not effective in articulating teachers' priorities and needs in implementing digital competences. For example, research conducted by Salsabila et al observed the use of technology in learning as a form of implementing digital competence (Salsabila et al., 2023). The approach used in this research was semi-structured interviews with 10 high school teachers. Several important findings in this research are the lack of teacher readiness in delivering material, teachers not being trained in applying and developing the digital competences they have, as well as inadequate supporting facilities and infrastructure. Apart from that, the data obtained is not able to represent the condition of each school, because it does not explain in detail the status of the school (Public/Private). Thus, in the research we conducted, we included samples from public and private high schools with the hope that the results obtained could be generalized to all schools (public and private).

Other research also suggests that digital competence is difficult to apply in learning due to a lack of ability to apply technology (Hidayat et al., 2023; Saerang et al., 2023). The lack of support for the development and application of digital competences in learning was also revealed in research results from one of the high schools in Banyumas Regency (Wiguna, 2023). Overall, the findings indicate a consensus in the theoretical literature, but a lack of understanding in developing and applying digital competences in learning. Therefore, it is necessary to carry out further research on how digital competence is applied by teachers in learning, as well as the extent of the relationship between practice and the theoretical framework of digital competence.

Class level aspects also need to be considered in implementing digital competences. Where several researchers argue that each grade level requires a different learning strategy approach (Bouilheres et al., 2020; Wang et al., 2020), because they have different students' characteristics and levels of difficulty of the subject matter (Hillmayr et al., 2020; Tokac et al., 2019). Moreover, a study also showed a different view that there were no differences in learning strategy approaches at each grade level (Tang et al., 2020). This is the basis for the need for further research to explore how to apply digital competences at various grade levels. In this research, we examine whether teachers' teaching practices and priorities in applying their digital competences differ at each grade level. In this research sample, we focused on physics teachers in classes X, XI and XII. The main reason is because physics material is very complex (Sarapak & Kearns, 2022; Stadermann & Goedhart, 2020), so it requires a learning approach that is appropriate to the character of the material. We are interested in how physics teachers can apply digital competences to complex physics materials. The application of teacher digital competence is very much needed in designing the material so that it is easy to understand. We realize that the application and development of digital competences is also needed in other subjects. Therefore, researchers in other subject areas can conduct further research to explore the teaching practices and priorities of these teachers in implementing and developing their digital competences.

Based on the studies above, our research is intended to answer the following research questions:

1. Which digital competence areas do physics teachers prioritize in learning?
2. Do physics teachers' priorities differ based on grade level and school status?
3. How do physics teachers apply digital competences in learning?
4. Does this (no. 3) differ based on grade level and school status?

## METHODS

This research uses quantitative methods in the form of an online survey. The aim of the research is to explore the teaching practices and priorities of physics teachers in applying their digital competences. Data collection used a questionnaire instrument, carried out online via Google Forms. The research instrument was prepared based on digital competence areas adopted from the books by Carretero (2017) and Ferrari (2013) (table 1). This instrument consists of two parts, namely:

1. Identity section: School Identity, Class, Service Period, and Age
2. Core parts:
   a. Ranking for each digital competence area: important (rank 1) and unimportant (rank 2)
   b. Statement about digital competence (Implementation): consists of 3 answer choices, namely Yes, No and Not Sure.

Respondents are required to choose one of these answers. Before completing the questionnaire, respondents' consent was obtained to participate in this study. Instruments were sent via WhatsApp group of Physics teachers in Gowa Regency. There were 53 physics teachers from 25 high schools (11 public and 14 private) who filled out the digital competence instrument (Class X = 9, Class XI = 27, and Class XII = 17). The average length of service of the participants was 3 to 20 years with the age range of 26 to 57 years.

Furthermore, the quality of the instrument was tested by looking at the validity and reliability of the instrument. Content validation was carried out by 3 experts, and the results were analyzed by using Aiken's. Reliability test with Single Trial Administration was analyzed with Cronbach's alpha (α) coefficient. Data analysis was carried out with the help of the RStudio 4.3.2 program. The Aiken's analysis result was 0.83, meaning that in terms of content, the instrument was declared valid. The result of Cronbach's alpha (α) coefficient analysis was 0.91; therefore, the instrument was declared reliable.

The data that had been collected were then analyzed. The data analysis technique used descriptive analysis. Descriptive analysis was used to explore teaching practices and teachers' priorities in applying their digital competences. Descriptive analysis looks at the percentage of teacher answers using a formula (Hartono, 2018):

$$P = (n/N) \times 100\%$$

In addition, a chi-square test was carried out to compare differences/identify the relationships found in several variables (Widana & Muliani, 2020). In this research, the chi-square test was carried out to determine the differences/relationships between digital competence areas, between class levels (X, XI, and XII), and between school status (State and Private). Data analysis was carried out with the help of the RStudio 4.3.2program.

**Table 1** Area of Digital Competence (Carretero et al., 2017; Ferrari, 2013)

| No. | Area | Description |
|---|---|---|
| I | Information management | Carrying out activities: identifying, accessing, storing and managing information. |
| II | Collaboration | Participating in online activities and networks, interacting with others constructively. |
| III | Communication | Utilizing online media to communicate by considering privacy, security and correct behavior. |
| IV | Creating Digital Content | Integrating and elaborating knowledge and content in digital form, generating innovation. |
| V | Evaluation | Identifying digital needs, solve problems using digital, assess the information obtained. |
| VI | Problem Solving | Solving conceptual problems through digital media, using technology creatively, solving technical problems, updating one's own and others' competences. |
| VII | Operating Technique | Utilizing technology in various activities |
| VIII | Security | Protection of personal information and data, digital identity protection, digital content protection, security measures, and responsible and safe use of technology. |

## RESULTS AND DISCUSSION

### Physics Teachers' Digital Competence Priorities

The results of the descriptive analysis illustrate the grouping of digital competence areas, namely important (rank 1) and not important (rank 2) for 53 physics teachers in high schools in Gowa Regency. On average, digital competences that are considered important (rank 1) in learning are digital content creation, communication and collaboration. Meanwhile, digital competences that are considered unimportant (rank 2) are evaluation, problem solving and security. The data analysis shown in Figure 1 is based on percentages; there is a slight overlap in the ranking. This means that if most teachers give a rating of 1 in one area, then very few teachers give a rating of 2 in that area and vice versa. For example (figure 1), in the results of the analysis of the area of digital content creation, there were 77.36% of teachers who placed it in rank 1 and 7.55% who placed it in rank 2. However, there were exceptions in information management, because it was not assessed as an "important" or "not important" competence. The area appears to be rated as mid-range.

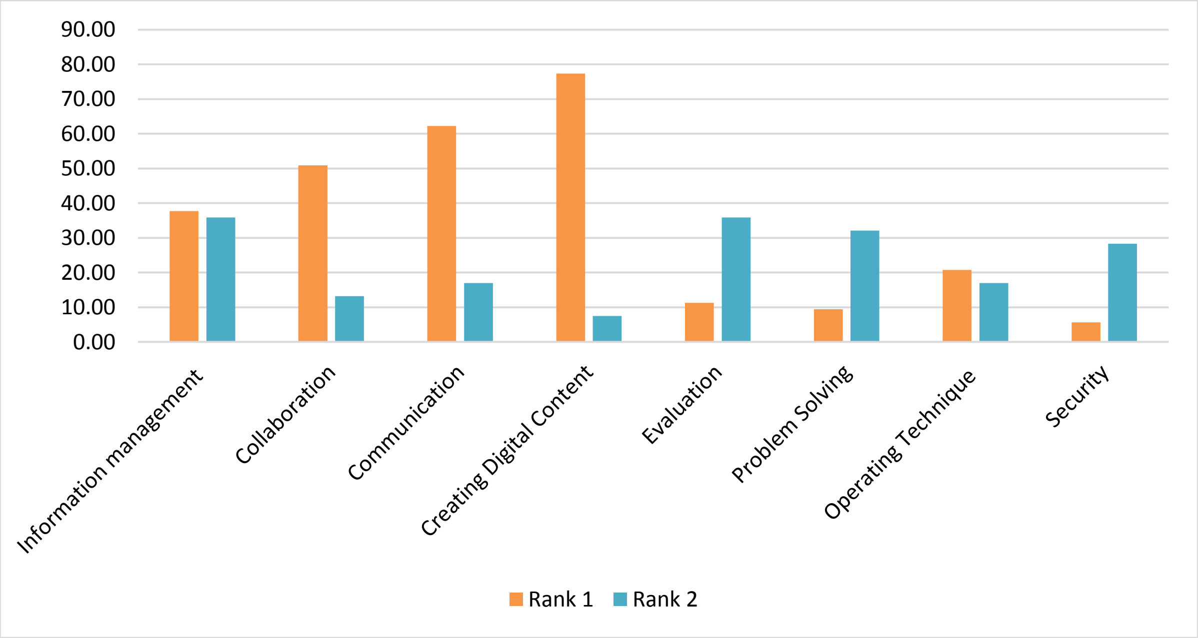


**Fig. 1** Percentage of Rank 1 and Rank 2 for Each Digital Competence Area

To minimize overlap in rankings, grouping is carried out based on teacher rankings (low-middle-high). This grouping is used to control the interdependence of assessments due to the possibility of a rating paradigm being imposed on teachers. This grouping tests the relative importance of each digital competence area compared to the average of all areas, for each teacher. The grouping results show that the 'information management' area is in the middle rank, while area of digital content creation has the main influence on digital competence (high group). This means that this area is statistically significant in teachers. The areas of digital content creation, communication and collaboration were rated as significantly more important compared to the area of information management. On the other hand, the evaluation, problem solving, and security areas were rated as significantly less important compared to the information management area.

**Physics Teachers' Digital Competence Priorities based on Grade Level**

The physics teacher in class X ranked 'digital content creation as an important competence, followed by the areas of collaboration and communication. Meanwhile, problem solving and evaluation areas were considered as non-essential competences. There are no statistically significant differences in all digital competence areas. Physics teachers in class XI the area of digital content creation as an important competence, followed by the area of communication. The area that is not important was the security area, while the other areas are not ranked as statistically significant to each other. The physics teachers in class problem as rank 2 (not important). The physics teachers in Class XII ranked all competence areas almost similarly (the rank difference is not significant statistically); however, they also ranked 'digital content creation' as 1 (important) and security and problem solving as 2 (not important).

**Physics Teachers' Digital Competence Priorities based on School Status (State and Private)**

Another test is comparing the level of importance of digital competence of physics teachers in state and private schools. The results of the analysis showed that physics teachers in public and private schools gave a rating of 1 for digital content creation. Statistically there is no significant difference in ranking digital competence areas for physics teachers in public and private schools. However, physics teachers teaching in Public Schools rated 'operational techniques' as significantly more important compared to physics teachers teaching in Private schools.

**Digital Competence Implementation to support the physics teaching in schools**

Another interesting study in this research is how teacher's digital competences can be useful in learning at school. Several questions were designed to gather this information from physics teachers.

**a. Do you highlight the importance of digital competence in the learning process? (answer options Yes, No, Not Sure)**

Overall, the analysis results show that 84.91% of physics teachers highlighted the importance of digital competence when teaching. There were 3.77% of physics teachers who did not highlight this when teaching, and another 11.32% were not sure whether they highlighted digital competences in the teaching process. It was recorded that 45 physics teachers chose the answer 'Yes', meaning that physics teachers predominantly consider the importance of digital competences that must be possessed in teaching. In addition, a chi-square test was carried out to compare the distribution of physics teachers' responses to the Yes/No/Not Sure answer choices. The results of the analysis showed significant differences in response distribution, where the p value was 0.0000.

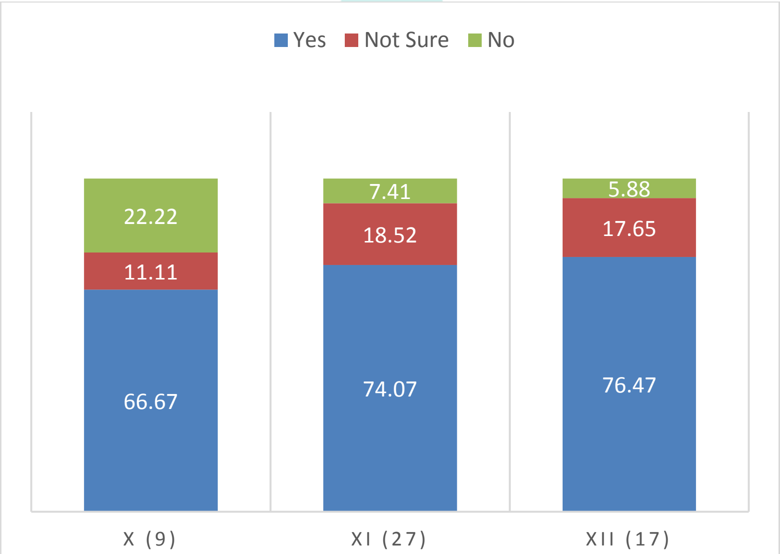


**Fig. 2** Percentage of physics teachers' responses to the question "Do you highlight the importance of digital competence in the learning process?" based on class level. The total number of physics teachers in each class is reported in parentheses

The chi-square test was also carried out to see the distribution of physics teachers' answers (Yes/No/Not Sure) based on school categories (Public and Private). The results of the analysis obtained a *p* value of 0.81. This means that there is no significant difference between public and private physics teachers in highlighting the importance of digital competence in their teaching. Furthermore, a chi-square test was carried out to find out whether physics teachers from different classes (X, XI, and XII) tended to highlight the importance of digital competence in their classes. The results of the analysis obtained a *p* value of 0.70, indicating that there were no significant differences in physics teachers at each grade level (X, XI, and XII) in highlighting the importance of digital competence. Figure 2 shows that the dominant physics teachers chose the answer 'Yes", meaning that physics teachers for classes X, XI and XII highlighted the importance of digital competence in learning.

**b. What type of approach do you use in implementing digital competences in the classroom?**

This analysis is based on responses from 53 physics teachers. In general, physics teachers tend to use an implicit approach through subject content in applying digital competences compared to an explicit approach. For example, in the statement "using a combination of explicit and implicit instructions in applying digital competences; with a greater focus on implicit instructions" (statement 4, table 2). In more detail, we grouped implicit approaches (statements 1 & 4, table 2) and explicit approaches (statements 2 & 5, table 2). The grouping results also show that the percentage of implicit approaches is greater than the explicit approaches (figure 3). Furthermore, a chi-square test was carried out to see the differences in approaches used by physics teachers in applying digital competences (implicit and explicit). The results of the analysis show that more physics teachers adopt an implicit approach to learning than an explicit approach, meaning that there is a significant difference, where a *p* value of 0.01 is obtained.

**Table 2** Percentage of Approach in Implementing Digital Competences

| Item | Approach | Frequency | Percentage |
|---|---|---|---|
| I use instructions that are implicit in applying digital competences | implicit | 11 | 13,21 |
| I use explicit instruction in applying digital competences. | explicit | 4 | 7,55 |
| I use a combination of explicit and implicit instruction in applying digital competences | N/A | 13 | 32,08 |
| I use a combination of explicit and implicit instruction in applying digital competences; with a greater focus on implicit instructions. | implicit | 17 | 26,42 |
| I use a combination of explicit and implicit instruction in applying digital competences; with a greater focus on explicit instruction. | explicit | 7 | 18,87 |
| I'm not sure what type of instruction I use to apply digital competence. | N/A | 1 | 1,89 |
| I do not apply digital competence when teaching. | N/A | 0 | 0,00 |

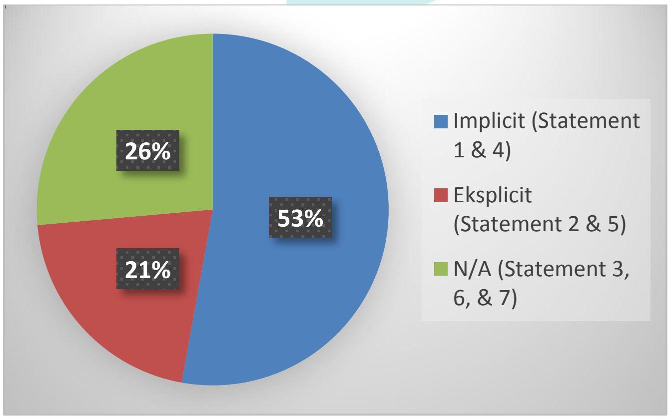


**Fig. 3** Percentage of physics teachers' responses of implicit and explicit approaches

The chi-square test was also carried out to see the differences in approaches used by physics teachers in public and private schools in applying digital competences (implicit and explicit) in the classroom. The results of the analysis show that there is no significant difference between the frequency of implicit and explicit approaches used by physics teachers in state schools and physics teachers in private schools ($p = 0.94$). Furthermore, a chi-square test was carried out to see whether there were differences in the use of implicit and explicit approaches based on class level (X, XI, and XII). The analysis results show a *p* value of 0.81. This means that there is no significant difference between the frequency of the types of approaches used in the three classes.

**c. What types of activities do you use in learning as a form of applying digital competence in the classroom?**

To understand how physics teachers apply digital competences in detail, we examined what activities teachers carried out to support the application of their digital competences. We grouped them into five core activities as the application of digital competences adopted by several researchers (Amhag et al., 2019; Ghomi & Redecker, 2019; Romero-Tena et al., 2020). These activities can be seen in table 3. The results of the analysis showed that the activity 'Using digital teaching materials' had the highest response percentage, namely 87%. This means that in implementing digital competences in the classroom, the most visible activity was the use of digital teaching materials. This was followed by the activities 'carrying out digital-based assessments' and 'utilizing social media in learning'.

**Table 3** Percentage of Activities Supporting Digital Competence Implementation

| Activity | Percentage (%) |
|---|---|
| Using the internet to search for learning materials | 45 |
| Utilizing social media in learning | 72 |
| Carrying out digital-based assessments | 77 |
| Using digital teaching materials | 87 |
| Using non-digital teaching materials | 9 |

This research shows that physics teachers in class X consider digital content creation, collaboration, and communication as important digital competence areas. For class XI physics teachers, digital content creation and communication ranked as important in their teaching practice. Meanwhile, the physics teacher in class XII ranked digital content creation as important in digital competence. Other research also shows the same thing, where digital content creation is the most important thing to support teachers' implementation of digital competences (Artacho et al., 2020; Cabero-Almenara et al., 2020). This research investigates a pattern that the majority of physics teachers reported using digital teaching materials in the application of digital competences. The importance of using digital teaching materials has been proven to be effective in improving learning outcomes and student independence (Bachri et al., 2023; Baker & Sibona, 2022; Lukitasari et al., 2022; Wekerle et al., 2022). These findings illustrate that the use of digital teaching materials is able to support teachers' digital competence, especially in the area of digital content creation.

Moreover, it is also important to discuss digital competences that are considered unimportant by physics teachers; they are evaluation, problem solving, and security. The results of this research show that the dominant physics teachers do not consider it important to identify digital needs, solve problems using digital things, and assess the information obtained. Physics teachers also consider that protecting personal information and data, protecting digital identity, protecting digital content, security measures, and responsible and safe use of technology are not important in digital competence. This means that there are still many physics teachers who do not understand the meaning of plagiarism. This is supported by several research results which show a lack of concern among educational practitioners regarding plagiarism (Khathayut & Walker-Gleaves, 2021; McCulloch & Indrarathne, 2023; Romanowski, 2022).

Specifically, evaluation and problem solving were reported as unimportant for physics teachers in grades XI and XII. Meanwhile, security is considered unimportant at all grade levels (X, XI, XII). This provides some initial evidence regarding the ranking of digital competence areas between classes X, XI, and XII. Other research suggests that the application of digital competences can be influenced by differences in grade levels (Ayyildiz et al., 2021; Marnita et al., 2023; Zhao, Sánchez Gómez, et al., 2021). However, this research showed that there was no significant difference. The responses of physics teachers from classes X, XI, and XII showed more similarities than variations in classifying digital competence areas as ‘important’ or ‘not important’.

In practice, curriculum design and an integrated approach can be applied in the learning process at grade level. The application of teacher digital competence must be supported by the applicable curriculum. In Indonesia, a curriculum (independent curriculum) that supports the development and application of teacher competence in learning has been implemented (Mursalin et al., 2024). Teachers are required to develop their digital skills and literacy (Biletska et al., 2021; Handayani & Singaraja, 2023; Manco-Chavez et al., 2020; Sánchez-Cruzado et al., 2021). On the other hand, an integrated approach, although it does not lead to a general or specific approach, opens the way for a mixed approach (a combination of general and specific approaches) to be used to support student development. For example, a general approach can emphasize the mechanisms of the digital competence areas identified as important in this research (digital content creation, communication, and collaboration). In addition, the learning process can be supplemented with specific activities and examples as part of a special approach.

This research also identified the ranking of digital competence areas based on the status of the school where the teacher teaches (State and Private). It revealed that there were no statistically significant differences in the ranking of digital competence areas other than the area of operational techniques. Physics teachers in public schools assessed the operational technique area as more important than physics teachers in private schools. Significant differences for operating technique areas require further qualitative exploration to understand where the differences originate. Overall, there were no differences across the two schools (Public and Private) in terms of how digital competences were prioritized, most likely because Public and Private schools had similar approaches to teaching practices and curriculum design. Therefore, it is not surprising that both schools produce similar digital competence area rankings. Further research can explore more whether schools with different teaching practices and curricula differ in prioritizing digital competences.

Furthermore, physics teachers reported that they highlighted the importance of applying digital competences in learning. Similar things were also stated by other authors, where a teacher must be able to develop their digital competences to create a quality learning system (He & Li, 2019; Mehrvarz et al., 2021). In addition, physics teachers, regardless of class and school, predominantly apply digital competences implicitly by designing the subject content taught in class. The results of other research also report that the application of digital competences is more effectively applied implicitly (Heuling et al., 2021). However, other research suggests different things, where the learning process on certain topics is more effective when applying digital concepts explicitly (Sousa & Rocha, 2019). Other research supports the opinion that an explicit approach can create a positive learning atmosphere on certain topics (Fawns, 2019). Academically, teachers can apply digital competence by positioning their topics in different contexts according to students' needs.

Based on several research results, there are two concepts in the application of digital competence in the classroom based on theory and teaching practice. Firstly, the teacher's point of view is that they need to modify their teaching practices. Both researchers' points of view need to modify their research. The results of these two concepts are expected to result in more effective implementation of teacher digital competence in the long term. In this study, a dual aspect approach (teacher perspective and research literature) is used, in which teacher responses were analyzed and interpreted based on what was obtained from the literatures. However, whatever approach is used to link teaching theory and practice, what is most important is that research literature needs to encourage innovation and inform teaching (Fink, 2020; Snyder, 2019).

Several limitations in this research need to be discussed for consideration for future research in a similar field. First, sampling is carried out based on chance, possibly causing bias because the sample is self-selected. It is possible that the teachers in the sample have different knowledge about digital competence. Thus, the sample does not reflect all physics teachers in public and private schools at every grade level. Second, ranking by asking teachers to rank eight digital competence areas, the priority becomes increasingly unclear the further away from rank 1 (important) and rank 2 (not important). However, this is not the focus of our research; our focus is on important and non-important digital competence areas. As a suggestion, this can be used as further research for overall ranking/middle ranking grouping, using a ranking procedure with conjoint analysis.

## CONCLUSION

The conclusion of this research is that of the eight digital competence areas, there are three areas that are ranked 1st (important), namely the areas of digital content creation, communication and collaboration. Meanwhile, rank 2 (not important) is the area of evaluation, problem solving and security. Specifically, most physics teachers consider the area of digital content creation to be important in the learning process. This can be seen from physics teachers' reports where the percentage of use of digital teaching materials in the learning process is greater than other activities that support teachers' digital competence. Besides, both from the school perspective (public and private) and grade level (X, XI, and XII), there are no statistically significant differences in prioritizing teacher digital competence. Physics teachers gave a similar response in highlighting the importance of implementing teacher digital competence in learning. Our suggestion based on the results of this research is that teachers, especially physics teachers, must be able to create innovative digital-based teaching materials that can support teachers' digital competence. In addition, schools must provide facilities and infrastructure to support teachers' digital competence.

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