

Teachers perceptions of digital learning: A case study of the learning process at Bahtera Multiple Intelligence Preschool in Bukit Jelutong City, Malaysia.

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Abstract

The importance of teachers understanding of technology integration in early childhood education has become one of the key issues in today's educational environment. The aim of this study is to explore teacher's perceptions of the use of digital learning. The subjects of this research are the teachers and the owner of Bahtera Multiple Intelligence Preschool in Malaysia. The instruments used in this study are observation and interviews. Data collection was conducted through in-depth interviews related to digital learning. Data were analyzed using triangulation, coding, and data reduction methods, focusing on the identification of key themes from the interview transcripts. The results of the study indicate that teachers have diverse views on the effectiveness, ease of use, and challenges of digital learning. These perceptions are influenced by the availability of technological resources, training, and the teacher's personal preferences regarding learning methods.

Keywords: Teacher Perception, Digital Learning, Malaysia

INTRODUCTION

Learning media can be described as tools that contain information and materials used and delivered in the teaching process. The media used in learning are important for both teachers and students, as they facilitate the acquisition of new concepts, skills, and abilities (Hasan et al., 2023). Learning media are continuously evolving in line with technological advancements. The more advanced the technology becomes, the more sophisticated the learning media that can be utilized. This progress allows for the delivery of more interactive and engaging content, which can enhance students' motivation and understanding in the learning process.

In this digital era, teachers are required to possess adequate digital competence not only in mastering technology but also in the ability to design, develop, and implement learning that is relevant, engaging, and effective. Teacher's digital competence includes the ability to use digital

devices and applications, search for and evaluate online information, communicate and collaborate digitally, as well as understand the ethical and security implications of technology use. These abilities are essential for creating a learning environment that is adaptive and responsive to the needs of students in this constantly changing era. In line with what Muqodas, 2015 stated, it is important for teachers to be able to provide an environment that stimulates student's creativity.

According to Qayyum, 2022, data show that the use of technology in teaching procedures is not optimal due to teacher's reluctance to use digital media. However, the reality in the field shows that teacher's readiness to face the digital era still varies. Some teachers may demonstrate high enthusiasm and adequate skills, while others may feel less confident, insufficiently trained, or concerned about potential obstacles in implementing digital learning. Factors such as age, teaching experience, educational background, access to technological resources, and support from the school can influence teacher's perceptions and readiness to adopt digital learning.

Kurikulum Standar Prasekolah Kebangsaan (KSPK) 2017 serves as a guideline for preschool teachers in implementing the preschool education curriculum for young children. This curriculum emphasizes that preschool children must acquire 21st-century skills. Therefore, KSPK aims to prepare children to adapt to the increasingly complex challenges of the future.

However, the effectiveness of digital learning implementation heavily depends on teacher's perceptions and readiness, as they are the frontliners in education. Teacher's perceptions of digital learning reflect their beliefs, attitudes, and understanding of the benefits, challenges, and implications of using technology in the classroom. These perceptions influence the extent to which teachers are willing and able to adopt, integrate, and effectively utilize digital technology in their teaching practices. At Bahtera Multiple Intelligence Preschool, this challenge may be more complex. The teachers at this school need to balance the use of technology with conventional methods to ensure that children remain engaged and do not lose focus.

Meanwhile, research by Mahyudin, 2023 highlights the importance of teacher's digital competence in creating effective learning media. Teachers who possess strong digital skills are more likely to feel confident in using technology in the classroom. Therefore, understanding teacher's perceptions is key to designing appropriate training programs that support their professional development.

Research on teacher's perceptions of digital learning is becoming increasingly important to understand the challenges and opportunities involved in implementing technology in the classroom. Previous studies have examined various aspects related to teacher's perceptions of online learning, the use of YouTube as a learning media, and teacher's digital competence. For example, research shows that teachers had a positive perception of conducting online learning during the Covid-19 pandemic. Meanwhile, other studies highlight the importance of teachers understanding of technology integration in early childhood education.

The challenges faced by teachers in digital learning are becoming an increasingly prominent trend. Teachers play a crucial role in the implementation of digital learning in the classroom. Therefore, teacher's perceptions of digital learning remain an interesting subject for further research.

Most previous studies have focused on aspects of teachers' digital literacy in general, the challenges of technology access in public schools, or descriptive analysis of digital media use among preschool teachers in specific regions such as Kuantan, Pahang. However, very few studies have examined in depth how teachers in private preschools with a specific pedagogical approach of multiple intelligences build perceptions, as well as balance digital technology with conventional methods in the context of early childhood educators in Malaysia.

Case studies on teacher's perceptions of digital learning are relevant to conduct, given the important role teachers play in creating an innovative and technology-oriented learning environment. By understanding teacher's perceptions of digital learning, stakeholders can be better equipped to design training and professional development programs that help teachers optimize the use of digital technology in the learning process. Through interviews with the teachers, this study will identify

the factors that influence their perceptions, including personal experiences with technology, support from the school, and the challenges they face in implementing digital learning.

Against this background, the researcher will explore new insights by taking the unique setting of Bahtera Multiple Intelligence Preschool, which offers a different context from public schools and conventional preschools, thus enriching the understanding of the dynamics of technology use in multiple intelligence-based intuitions. This study will also provide new insights in exploring the specific types of technology and digital media that teachers actually use in their daily practice, as well as how they adapt the utilization of digital technology to the needs and characteristics of early childhood. Through in-depth interviews, this study also explores the unique perceptions of teachers in Malaysia, revealing motivations, concerns, and adaptation strategies that have not been revealed in previous research. As such, this study advances knowledge in the field of digital learning by challenging the old paradigm that tends to see the use of technology only as a matter of access and technical training. It highlights the importance of contextual factors, school culture, and teachers' perceptions and pedagogical competencies as key determinants of successful digital technology integration in preschool classrooms. The findings of this study are expected to serve as a reference in designing more contextualized teacher training, as well as encouraging the development of more inclusive and adaptive digital education policies in Malaysia.

METHOD

This research employs a qualitative method with a case study research design. This research uses a case study design to explore in-depth the teacher's perceptions of digital learning at Bahtera Multiple Intelligence Preschool, Malaysia. In line with what was noted by Creswell, 2019, this research is to explore digital learning used by teachers at Bahtera Multiple Intelligence Preschool, Malaysia by collecting detailed data through interviews with teachers regarding digital learning such as the media used, challenges and obstacles in digital learning. This research involves various sources of information, namely interviews with several teachers who are principals, and who use digital media during learning, then observing when learning takes place to report case descriptions. The researcher wanted to see directly the teacher's opinion about digital learning at Bahtera Multiple Intelligence Preschool. Therefore, a case study is conducted to gain a deeper understanding of the events in the field. This study used semi-structured interview instruments designed with open and closed questions to explore teachers' perceptions in depth. The questions were systematically organized to align with the research objective of understanding the factors that influence teachers' perceptions of digital learning at Bahtera Multiple Intelligence Preschool. The clarity of the instrument was maintained by using easy-to-understand language and avoiding ambiguous or biased questions. The research design can be seen in figure 1.

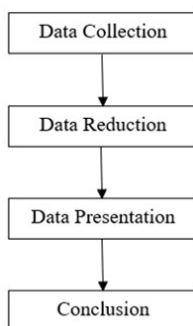


Figure 1. Research Design

Data Collection Stage: The researcher collects data relevant to the research topic. In this context,

data was collected through interviews with 2 teachers and 1 school owner at Bahtera Multiple Intelligence Preschool, Bukit Jelutong city, Malaysia and through observation during the learning process, to find out the digital learning conducted at the school.

Data Reduction Stage: After the data was collected, the researcher conducted data reduction. This process involved selecting the most relevant data, simplifying the information, and abstracting the key points. The aim was to focus the analysis on key aspects relating to teachers perceptions of digital learning.

Data Presentation Stage: The data that has been reduced is then presented in a structured and easy-to-understand format. Miles and Huberman, 1984 suggest using matrices, graphs, or charts to visually present data. In this study, matrices can be used to compare teachers perceptions based on various characteristics, while tables can be used to summarize the main themes that emerged from the data related to teachers perceptions of digital learning.

Conclusion Phase: The researcher analyzes emerging patterns and trends to identify factors that influence teachers perceptions of digital learning. These conclusions were then verified by comparing them with existing literature and other relevant data sources.

By following Miles and Huberman, 1984 research design, researchers can ensure that the data analysis process is carried out systematically and structured, resulting in valid and reliable findings. To increase data validity and reduce response bias, this study applied method triangulation by combining in-depth interviews, classroom observations and conducting a literature review to obtain more valid results on the use of digital tools in the school environment. Classroom observations were conducted to confirm teacher-reported technology use practices, while digital tool use data provided objective evidence of the frequency and types of technology utilized. This triangulation approach allowed the researcher to obtain a more comprehensive picture and reduce the risk of social desirability bias in the interviews.

The data analysis method used in this research is thematic data analysis. According to Braun and Clarke, 2006, thematic data analysis is a technique for finding, analyzing, and reporting patterns or themes in data. Then the data is described in the form of units and then organized into appropriate patterns. Then the data is described in the form of conclusions so that it is easily understood by oneself and can be informed to others, Sugiyono, 2010.

RESULT AND DISCUSSION

School Facilities In Supporting Digital Learning

The findings of this study reveal the perceptions of early childhood education teachers at Bahtera Multiple Intelligence Preschool, Bukit Jelutong, Malaysia, regarding the school's facilities to support digital learning both inside and outside the classroom. This research also provides insight into the teachers knowledge of the facilities available at the school for digital-based learning. One respondent, the school owner, provided their perception regarding the facilities available at the school for digital use in learning. The school owner believes that the use of digital media can impact the learning process; therefore, the facilities provided are not excessive, as illustrated in the following interview results:

There are only two projectors at the school, and for computers, teachers use their personal devices to create lessons. (DRFB)

The findings of this limitation in teaching aids could certainly hinder a more interactive and engaging learning process for students. In addition, the use of personal computers may cause inconvenience for teachers who do not have easy access to these devices. Therefore, it is important for schools to consider procuring more teaching aids to improve the quality of education. This can be related to Wahyuningrum, 2004 statement in Duwanti *et al.*, 2024, which reveals that facilities are anything that can facilitate the smooth implementation of administrative tasks. According to

Sufiyanto et al., 2021, one of the main obstacles in the implementation of digital media is the limited technological infrastructure. This finding is supported by the statement of the school principal, who mentioned that the school is insufficiently equipped in providing digital media. Another reason for the lack of technology facilities in this school is that the principal wants children to build multiple intelligences through naturalist/traditional activities without digital media that can distract children. In contrast to schools in urban areas that have begun to use many technological tools Lestari et al., 2024. The utilization of technology in education is adjusted to the readiness of each school in a particular area Iskandar et al., 2023.

Teacher competency training is also a facility that should be provided. It is an important step in improving the quality of education and ensuring that teachers have the necessary knowledge and skills to teach effectively. In this context, training not only covers pedagogical aspects but also an understanding of the technology that can be used in the learning process. This training includes developing skills to effectively integrate character education into the curriculum Apriyansyah et al., 2023. However, there is a viewpoint that suggests no formal training is necessary, and that it is, in fact, the more experienced teachers in technology who provide lessons to their colleagues. This is shown by the following interview results:

There was no training, it was the teachers who gave me lessons, because teachers are more expert about technology. Teachers do not need to be certified in technology because technology is distracting. For in bahtera, it does not lean towards technology, only a little bit, namely during STEAM / Project and related things such as blaming video / music. (DRFB)

It is said that the use of technology is quite distracting when it is used. Teachers emphasize the importance of a balance between technology and direct interaction so that children can develop social and emotional skills optimally. Moreover, with the vision and mission of this school, which is related to multiple intelligences, the principal minimizes the use of technology during learning, however it is important for teachers to continuously update their knowledge on the use of relevant technology in order to effectively utilize such tools in appropriate learning contexts. Various studies have consistently shown the importance of teacher training in using technology for ECD Peralta and Costa, 2007. By providing training to teachers, it will also increase the competence of the teacher, which according to the Kementerian Pendidikan Malaysia (KPM) always ensures that the education provided is balanced between knowledge, skills and has pure values that are in line with the National Education Philosophy.

The Use Of Digital Media

The use of digital media in education has been proven to have a positive impact on the learning process, especially in attracting students' attention and interest. Digital media, such as videos, interactive apps and multimedia presentations, can present information in a way that is more engaging and easily understood by children. By utilizing this technology, teachers can create a more dynamic and enjoyable learning experience.

The findings of this study show the perceptions of teachers at Bahtera Multiple Intelligence Preschool, Bukit Jelutong, Malaysia towards the use of digital media and the knowledge of teachers regarding the effects of digital learning. Respondents consisted of 2 teachers who gave their perceptions regarding the use of digital media in learning at school. Teachers believe that the use of digital media can influence the learning process in increasing children's interest in learning. The use of digital in learning is explained in the following interview:

Teachers have used digital media in the classroom because children understand better when using digital. (TD) The use of digital is often done during the day, so that children are more interested in the material presented. (MRK)

This provides an explanation of how students are better at using digital, and then students are happier when learning uses technology. This shows that the integration of digital media not only improves children's understanding of lessons, but also creates a more interactive and fun learning atmosphere, encouraging their active involvement in the learning process. As practiced by educators in Lotu sub-district, North Nias district, Indonesia, the use of Interactive Whiteboards is another example of integrated technology that can promote active learning. In addition, homeroom teachers stated that online tools can help students to expand their ability to achieve learning targets. Therefore, teachers agree that integrating technology and methodology can reverse the idea that the source of information is the teacher. So, students can take part in learning independently so that the learning process can be more active than conventional methods Rosfalia *et al.*, 2024. Students who exist today are certainly different from students who were born in the past, Affi, 2019 learning in the current digital era is very different from before where at this time students are said to be individuals who have digital native characters, because at this time students are born into the world in direct contact with the digital world in their lives. Nikawanti *et al.*, 2024 also said that for now, in order to attract children's attention, it is necessary to involve technology in their play activities.

Effectiveness Of Digital Learning

By utilizing technology, teachers can present subject matter using digital learning in a more interesting and interactive way, thus increasing children's motivation and interest in learning. In addition, digital media allows access to rich and varied learning resources, which can enrich their learning experience. However, the use of digital media also has its challenges. This was found in the following interview:

The use of digital is very effective to attract children's interest in learning, but there is also a lack, because children will quickly lose focus, if they see digital children will "I want to try" then they will fight because they want to try. But for effectiveness, it is very effective. (TD) For the effectiveness of digital learning, it is very effective, because children are more focused in class. (MRK)

The use of digital is very effective in engaging children's interest in learning, but it also has its drawbacks, as children can quickly lose focus. When viewing digital content, children often feel compelled to try new things, which can sometimes cause conflict between them when they want to experiment simultaneously. Nonetheless, in terms of effectiveness, digital learning has proven to be very effective as it can make children more focused in class and increase their engagement in the learning process. According to Saputra and Gunawan, 2021 that the efficiency and effectiveness of teaching in the process of good learning interaction is all the teacher's efforts to help students learn better. It is also related to teacher competence in how teachers develop digital teaching materials that can attract children's focus and interest. According to Hamalik in Azhar, 2019 suggests that the use of learning media should arouse new desires and interests, and even have a psychological influence on children.

Focusing on its advantages, it is clear that this emerging technology provides many applications that can be used by teachers to personalize teaching, assess student performance, create educational content, create learning experiences, and provide automated feedback Montiel-Ruiz and Ruiz, 2023. Or as Ayuso-del Puerto and Gutierrez-Esteban, 2022 put it, AI applications can prepare young people to face a changing labor market characterized by new social demands.

Challenges And Barriers To Digital Learning

Digital learning offers many opportunities to enhance the learning experience, but it also faces a number of challenges and barriers. One of the main challenges is to ensure that the media used can capture the attention of children, given that they have a relatively short attention span. In addition,

teachers should consider various factors, such as children's technical abilities and the accessibility of digital devices. Other barriers include potential distractions from overly flashy elements, which can take students' focus away from the actual learning material. As illustrated in the following quote:

The obstacle in creating digital learning is that the teacher must make sure the media is interesting, because so that children will be interested in it, by adding interesting elements. But don't overemphasize the element and lose the child's focus. So in making media, it must be even and enough to attract children's focus but not too much that children lose focus. (TD) When making games for children, when thinking about the requirements of the game such as suitable for children, children do not like slow games usually like fast and precise games. Children will also be overexcited in digital learning. (MRK)

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The challenges of using digital media in learning are complex and include various aspects, ranging from limited teacher competence, lack of facilities and infrastructure, to the risk of overexposure to digital devices Bintang et al., 2024. Many teachers at the early childhood level still find it difficult to integrate digital media into learning due to the lack of adequate training and support. In addition, differences in access to devices and the internet between urban and rural schools widen the digital divide, so not all children get equal learning opportunities Pratiwi et al., 2021. This challenge will also impact on the multiple intelligences of children in these schools.

The Digital Media Used

Digital media, such as learning videos and educational apps, not only increase children's motivation to learn, but also help them understand concepts in a more fun way. In this context, the use of platforms such as wordwall.com is very beneficial as it provides a variety of educational games that can strengthen children's understanding of the subject matter. a increases children's learning motivation, but also helps them understand concepts in a more fun way. By utilizing interactive digital media, children can be actively involved in the learning process, thus increasing their interest and critical thinking skills. In addition, digital media allows teachers to present information in a more interesting and varied way, thus creating a richer and more meaningful learning experience for students. As illustrated in the following quote:

I mostly use videos and the wordwall.com website, there are games for education, there is math, melayu and other languages, so just click on the website and use it, but if it is not suitable for learning, I just use the video and then explain again to find out whether

the child understands or not. (TD) I always use the video lesson for that day and the games on the wordwall.com website, because it is easy to make lessons for children, because they like puzzles and stacking games. I also use YouTube videos because there are many videos that are suitable for children's subjects. (MRK)

The use of digital media in learning, such as videos and educational gaming platforms like wordwall.com, has been proven effective in engaging preschoolers and improving their understanding of the subject matter. Urnila et al., 2024 also argue that technology now allows teachers and students to make better use of time and resources. By utilizing relevant YouTube videos and interactive games, which can be seen in Figures 2 and 3 below.



Figure 2. Video from youtube for learning



Figure 3. Interactive Games

Teachers can create more fun and educational learning experiences, so that children are more engaged in the learning process. This shows that the integration of digital media not only facilitates the delivery of material, but can also increase student motivation and engagement in learning. This is in line with research showing that the use of learning videos can improve student learning outcomes. Which is where the video used from YouTube and is the choice because many videos are in accordance with the learning material. This is in line with what Hartini, 2022 said that learning videos can encourage individuals to know, then explore, then finally get a better understanding. Hadi, 2017 also argues that the application of YouTube video learning media is more efficient in the learning process, students more easily understand the material through videos and learning is not boring. In addition, the utilization of the wordwall.com website, with its puzzle and stacking game features, makes it easier for teachers to create interesting learning for children.

The use of digital media based on artificial intelligence (AI) can be one of the things that can be used by teachers in the current era, this can bring significant changes in improving early childhood learning. AI enables a personalized learning experience, where materials and difficulty levels can be tailored to each child's needs, interests, and learning pace (Lattore et., al. 2025). Through AI-based educational applications, interactive games, and adaptive simulations, children can learn in a more fun and interactive way, increasing their motivation and engagement in the learning process.

The results of this study refer to the Kementerian Pendidikan Malaysia (KPM) (2023) which says that educators must be digitally knowledgeable, proficient and innovative to create quality education and cultivate digitally fluent students which is a reference for Malaysia to become a high-income

country. In line with Sitompul's research (2022), professional teachers in the digital era are teachers who carry out their professional duties based on digital technology. Other research according to Yuniarti et al., 2023 says digital learning media can increase student learning motivation because of the more attractive form of media.

The results of this study can be the latest reference in preparing educators' competencies in Malaysia regarding Digital Learning. Further research can be done by examining in depth the competencies of educators in Indonesia and comparing them with the competencies of educators in Malaysia, so that educators have a new understanding of what competencies must be possessed to carry out digital learning.

CONCLUSION

Based on the results of the case study research at Bahtera Multiple Intelligence Preschool, Malaysia, it can be concluded that the use of digital media such as videos from YouTube and games from Wordwall.com in the learning process can attract children's attention and facilitate understanding of the material. Similarly, teachers agreed that the effectiveness of digital media on student interest and focus is very high, although there are challenges related to distraction and classroom management. Therefore, teacher training related to digital media competency, which is not only the use of YouTube and wordwall, but there are other applications that can be used by teachers in the current era such as artificial intelligence (AI). Especially in the current era of digitalization, where human activities must be related to digital, and use digital. The expected output is that schools can provide adequate facilities for digital use in schools and provide training related to digital use to teachers to increase students' understanding of subject matter and their ability to interact with technology positively.

AUTHOR CONTRIBUTION STATEMENT

Y.T.R. contributed to the formulation of the research problem and literature review relevant to the study topic. N.I. provided support in designing the research methodology and collecting data. W.S. gave input on data analysis and interpretation to support the research findings. N.M. provided theoretical framework support and assisted in developing the discussion. G.G. contributed to editing, formatting, and ensuring academic accuracy in the manuscript. M.N.H. contributed throughout the research process, coordinated the overall writing, and finalized the manuscript for submission. All authors participated in the preparation and refinement of this research article.

DECLARATION

The author declares that there is no conflict of interest regarding the publication of this article. The author has no affiliation or involvement with any organization or party that has a financial or non-financial interest in the material or subject discussed in this manuscript.

DATA AVAILABILITY

Data supporting the findings in this study are available and can be requested from the corresponding author. However, due to the involvement of educational participants and ethical considerations, some data cannot be published openly.

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