Teachers' Perception of Technology Integration Easiness in Teaching Preschool Children

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Abstract

Despite the technology included in the National Preschool Standard-based Curriculum, teachers in Malaysian preschool are yet to fully integrate technology to enhance children's learning in the classroom. Concerns such as how the preschool teacher perceived the easiness of technology integration became our main focus in this study. It is believed that teachers' acceptance and readiness influenced the outcomes of the technology used in teaching and learning pre-schoolers. This study employed a quantitative approach and data collection through a survey to investigate the teacher's perception towards technology integration in the preschool settings based on the Technology Acceptance Model (TAM). A total of 50 teachers in this survey were selected through random sampling from eight private preschools in Bandar Puteri, Puchong. Nevertheless, only 30 questionnaires were returned by the teachers. The survey was done through a questionnaire using a 5-point Likert scale. The data has been collected and analysed using the Statistical Package for Social Science (SPSS) to get the frequencies, percentages, and means of the teachers' perception of technology integration in teaching and learning. This study found that teachers aged 30 to 39 have the highest perception of technology integration in teaching and learning, and Science and Technology is the most suitable area to teach children with technology.

Keywords: *Technology Integration, Preschool Teacher, Easiness*

Introduction

Early childhood is a critical learning period for every human being's holistic development, including cognitive, physical, spirituality, morality, creativity, language acquisition, and social-emotional. More and more researchers nowadays focus on early childhood education as it gains greater attention from various parties such as parents, educators, and communities. Increasing numbers of early childhood research focus on knowing more about children's development and teaching for better results. One pedagogy would be technology integration into classroom teaching and learning (Sundqvist et al., 2015). Undoubtedly, technology can be found everywhere in today's society. Today's generation of children prefers to learn with technology (Morisson, 2015). Children can easily access the technology at home as the family is mainly equipped with mobile phones, computers, tablets, laptops, and other devices, which are also network enabling for communication purposes. There are still many debates on the effect of technology on young children. Researchers are still trying to ascertain if technology brings more harm than benefits to young children. One 21st century skill that will not be explored in this text is digital or technical fluency, which is the ability to effectively and proficiently navigate and function in the digital world (Daly & Beloglovsky, 2020).

Increasingly innovative uses of interactive media in all aspects of early education has become a major trend (Bredekampt, 2017). The use of technology in the early childhood environment for instance, would help young children learn and develop, especially in terms of their social interactions (Lee & O'Rouke, 2006; Bracken, 2015 & Ralph, 2018). Ralph (2018), in his research on iPads amongst four-year-old children, found digital learning did not reveal any evidence of adverse effects but provides strong evidence of positive social behaviour. Additionally, Couse and Chen (2010) also supported computers and believed the computers help promote children's learning in a more effective and meaningful way. This includes conceptual understanding, abstract thinking development, verbal skills, and problem-solving (International Society for Technology in Education [ISTE], 2007). Morisson (2015) stated that technology is student-centred and gives students some control over their learning.

Criticism also surfaced from the researchers and educators regarding the disadvantages of introducing technology such as computers in early childhood education settings. The question is no longer whether young children should be exposed to digital media, but rather what is the quality of technological tools provided for them (Bredekampt, 2017). Alliance for Childhood (2004) proposed to remove the computer from the school setting as it claimed that the use of a computer would be harmful to children's development either physically, emotionally, or cognitively. Besides, Bruner and Bruner (2006) also supported the statement and claimed that simply implementing computers in kindergartens and schools does not necessarily help children learn.

The moderate implementation of computers in the early childhood classroom setting could allow teachers to evaluate the computer's values and effectiveness in helping children learn. This would be meaningful as teachers who use computers during teaching and learning in the classrooms can better observe the effects of the computer on children learning. However, Bredekampt (2017) stated that interactive media require many professional decisions on the part of early childhood teachers and media developers to ensure that they are of the highest quality and are used appropriately and effectively.

Current researches and literature are gradually changing their perceptions of technology usage in Early Childhood Education (ECE). This is due to the changing trend of the common use of technologies in the world we live in today and also the increasing number of technology penetration to the ECE settings nowadays. As a result, the

researchers' focus now has changed their direction into "how" the technologies are being used in ECE instead of "should" or "will" the computer be used in ECE (Edwards, 2005; Couse & Chen, 2010).

Literature Review

With its vision of becoming a knowledge-based economy country in the year 2020, Malaysia has encouraged Malaysians to well-equipped with 21st century skills (Mustapha & Abdullah, 2004). Technology mastering skill is one of the skills required in achieving this vision. As such, Malaysia has made the necessary changes to the education blueprint by integrating technology into the curriculum. In the blueprint itself, the Malaysian government has stressed and emphasised the importance of technology learning in schools, including in early childhood education (Ministry of Education, 2013). Technology is designed as one of the core components of learning under the Science and Technology strand in the National Preschool Standard-based Curriculum (NPSC). NPSC is a standard document written by the Ministry of Education (MoE), and it serves as a guideline for preschool teaching and learning in Malaysia to follow (MoE, 2017).

After all, the changes in the curriculum would affect the ways teachers teach. Teachers have to make the necessary changes by adapting their instructional teaching tools and the curriculum content. However, the implementation of the curriculum needs competent, passionate, and skilful teachers (Abdul Halim et al., 2021). The teaching practice has to be developmentally appropriate to achieve optimum results. Developmentally appropriate practice refers to applying child development knowledge in making thoughtful and appropriate decisions about early childhood programme practices (Getswicki, 2017). Ertmer and Ottenbreit-Leftwich (2010) mentioned that teachers experiencing these changes would feel pressured to adjust their teaching methods and shape the new expectation towards their work and role. The new challenges would include adopting different teaching pedagogy, changing teacher's roles, ensuring children adapt to in-class learning, and grabbing the opportunity in learning technology tools and integrating them into the school curriculum. All these changes are required to ensure developmentally appropriate teaching and learning outcomes.

Additionally, the National Association for the Education of Young Children (NAEYC) also viewed teachers as the key players in determining how the early years' education integrates with technology. Although technology has grown over the years, teachers' usage of technology that duplicates passive pedagogy of traditional classes has become more common (Genota, 2018). Educators trying to meet the needs of the new generation effectively would need to adapt to technology and be comfortable with children multitasking and open to a technology-rich environment (Hartman, Townsend & Jackson, 2019). However, the support required to identify and implement technology is not readily available for all teachers. Therefore, teachers are not adequately equipped with the knowledge, skills, and confidence to effectively use the available technology (Hartman, Townsend & Jackson, 2019). Thus, we might need to explore the humanistic aspects of the change process as hands-on experience by the teachers (Hartman, Townsend & Jackson, 2019).

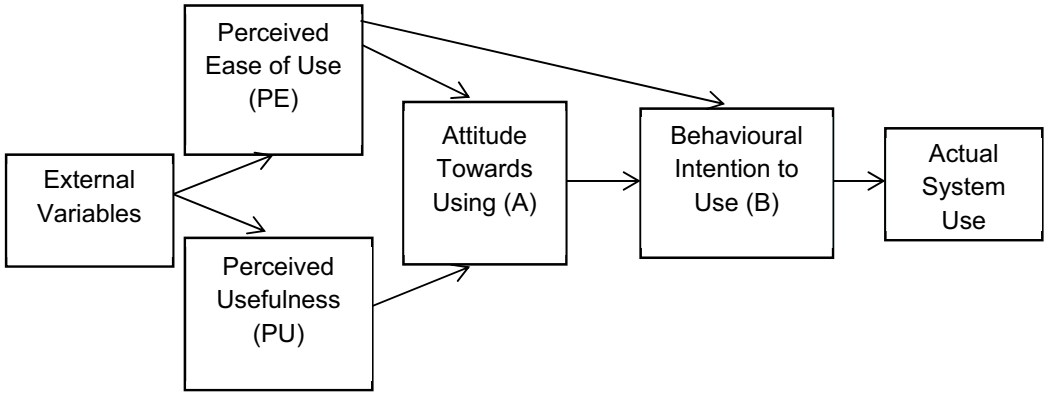
In education, technology has a tremendous impact on how teachers teach and function in their work, but also on children's experiences at home and in school (Bredekampt, 2017). Teachers' views on technology will affect their technology teaching pedagogy in early childhood settings and, indirectly, influence the ways children learn and develop. As a result, the teacher's perception of technology implementation in ECE must be known and identified to ensure that technology has been carried out effectively and appropriately.

Teacher's perceptions could be influenced by several factors (Buabeng-Andoh, 2012). These include the positive perception of the ease and usefulness of technology implementation. Teachers who believe technology is easy to use and flexible for their teaching are more likely to integrate technology into their classroom. In contrast, those who find difficulties in using technology would be less likely to incorporate technology in their teaching. Besides, the teachers must also find technology as being helpful to them, such as to increase their job performance, productivity, and effectiveness; and by doing so, they will choose technology as one of their teaching tools (Teo et al., 2009). Some teachers might even look at how technology can spark interest in individual children (Peter & Graham, 2016). A study done in Taiwan by Hsu (2010) found that teachers who were better trained in using technology are more likely to integrate technology into classroom instructions successfully. According to Ertmer and Ottenbreit-Leftwich (2010), teachers' self-efficacy is another factor that directly affects teachers' perceptions. This perception includes their ability to deliver technology teaching. Teachers who have a high level of self-efficacy will be more committed and willing to spend more time and use technology more frequently in classroom teaching. On the other hand, Cullen and Greene (2011) also stated that teachers' positive attitude towards technology would determine how effectively the teachers deliver technology integration into their teaching.

Since technology has been included in NPSC, there is a need to understand the teachers' practices in classroom teaching and learning by integrating technology to enhance children's learning skills. It is believed that teachers' perception is essential in determining teachers' choices and practices for technology integration (Teo, 2011). The framework called Technology Acceptance Model (TAM) (Davis et al., 1989), as shown in Figure 1, has been chosen to examine preschool teachers' perception of technology integration in preschool settings. This research would be timely and useful to identify teacher's perception of the technology used in preschools. For preschool teachers, adopting TAM is the first step to create an engaging learning environment. Combined with the use of TAM and Constructivist theory, teaching and learning will be more interactive, developmentally appropriate and greater ease. Teacher can facilitate learning by asking children to choose the topics they want to explore and try to connect them visually through active participation. Children should have the freedom to choose the topics, collaborate with a small group, express ideas, and think deeply about the topics they explored. It is the preschool teacher's responsibility to explore, experiment, and test the different digital technologies shared with their children.

Figure 1

Technology Acceptance Model (TAM) (Davis et al., 1989)



Children's instinctive and inquisitive desire to actively engage with their environment may be suppressed when introduced to technology at too early of an age (Daly & Beloglovsky, 2020). With changes in modern technologies, learners need to be equipped with updated knowledge that will help them adapt to the changing world (Ghavifekr et al., 2016). Research shows technology integration helps in children's development in different aspects such as social, cognitive, language, writing, literacy, and mathematics (McManis & Gunnewig, 2012). Children need the social, emotional, and cognitive capacities that are going to get them into the twenty-first century as thriving adults and effective citizens (Daly & Beloglovsky, 2020).

Theorists Jean Piaget and Lev Vygotsky laid the foundation for the practice of constructivism, which is based on the theory that children construct their knowledge and that their knowledge is unique for each child (Morisson, 2015). Vygotsky's theory has provided a new perspective in early childhood education and is valuable for early childhood educators. It helps them understand the importance of recognising the individual child's development and providing appropriate activities or experiences that enhance their learning. His sociocultural theory focuses on how the children learn, primarily through social interaction and with the assistance of the more knowledgeable peers or adults in the Zone of Proximal Development (ZPD) or scaffolding, enabling them to progress to a higher-level knowledge gaining. His theory of ZPD is widely applied in any principle means to extend to children's learning ability.

Research Objectives

Specifically, the objective of this study is to assess the teachers' perception of technology integration easiness in teaching and learning preschool.

Methodology

This study employed a quantitative approach and data collection was done through a survey to assess teachers' perception towards technology integration in a preschool setting based on the Technology Acceptance Model (TAM). A total of 50 teachers in this survey were selected through a random sampling from eight private preschools in Bandar Puteri, Puchong. Nevertheless, only 30 questionnaires were returned by the teachers. The survey was done through a questionnaire using a 5-point Likert scale. The quantitative data were analysed using the Statistical Package for Social Science (SPSS) to get the frequencies, percentages, and means of teachers' perception of technology integration in teaching and learning.

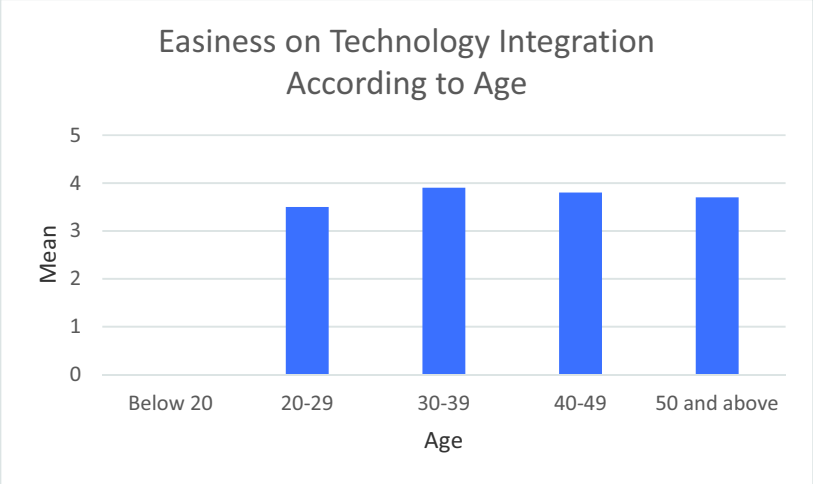
Findings

Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Age

The data shows that teachers aged 30 to 39 have the highest perception of the technology integration easiness in preschool. While there is no result for teachers who are 20 years and below. Teachers of age groups 40 to 49, and 50 and above show that their level of perception is almost similar. Figure 2 shows teachers' perception of technology integration easiness in teaching and learning according to age.

Figure 2

Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Age

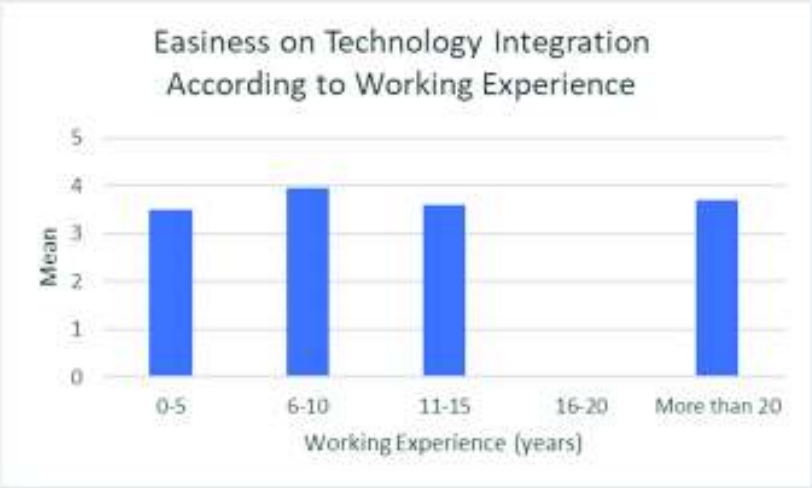


Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Working Experience

Teachers who have working experiences from 6 to 10 years have the highest perception of technology integration easiness in teaching and learning according to their working experience. Whereas teachers who have working experience of 16 to 20 years did not show any perception on technology integration easiness. Those who have more than 20 years of experience and 11 to 15 years' experience have a similar level of perception. Figure 3 below shows the teachers' perception of technology integration easiness in teaching and learning according to their working experience.

Figure 3

Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Working Experience



Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Academic Qualification

Teachers with Bachelor qualifications have the highest perception of technology integration easiness, followed by those who are Sijil Pelajaran Malaysia (SPM) certificate holders and diploma holders. Meanwhile, teachers with Sijil Tinggi Pelajaran Malaysia (STPM) have the lowest perception of technology integration easiness in teaching and learning. This perception can be seen in Figure 4 below.

Figure 4

Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Academic Qualification

Discussion

The results of this study show that teachers age 20 years and above have the highest perception of technology integration easiness in preschool. Sariçoban (2013) stated the attitude towards technology integration could be affected by age. Teo (2011) has reported that age is one factor influencing the use of technology. This group of teachers is the generation who uses technology to communicate and adapts very well to it. Pedró (2006) stated teachers within the age group of 30 to 39 and below are categorised as the New Millennium Learners (NML) who were born from the 1980s onwards and grew up with digital technology, where technology cannot be separated from their daily lives. This study also found that teachers who fall into the groups of those with working experience between 5 to 15 years and 20 years and above, have a high perception of technology integration easiness. These teachers are experienced, and they are willing to spend more time learning new technology in the classroom. Teachers with a high level of self-efficacy will be more committed and willing to spend more time and use technology more frequently in classroom teaching (Leftwich, 2010). A good early childhood teacher must have the ability to be self-aware and possess the intrinsic motivation to teach (Biddle et al., 2014).

Buabeng-Andoh (2012) stated the successful technology integration are influenced by many other factors such as gender, teaching experience, teaching workload, and institutional characteristic. The TAM model is suitable for assessing the technology easiness among preschool teachers. These findings present powerful evidence for the applicability of the TAM model. The results also indicate that teachers' academic qualification is another factor that is assessed in this study. Teachers with a bachelor's degree have the highest perception towards the technology easiness integration. The second highest is from the teachers with SPM qualification, followed by STPM holders. The crucial strategy is to become a good observer of children (Gestwicki, 2017). Vygotsky's theory focuses on various forms of how children learn, primarily through social interaction. With the assistance of the more knowledgeable peers or adults in ZPD (scaffolding), they can progress to a higher-level knowledge gaining (Morrison, 2015). Thus, the teacher as the primary mediator plays a vital role in implementing and incorporating technology teaching in young children's learning (Edwards, 2005). Teachers must use various strategies through technology to support children learning and development. Learning how to use technology to help children learn and how to involve them in the use of technology to ensure their learning is an essential role of teacher's today (Morisson, 2015).

Conclusion

The findings of this study can be utilised to encourage positive perception among teachers through various efforts to transform to the full implementation of technology integration and recognise its importance in developing one of the children's 21st century learning skills. To succeed in the twenty-first century, children will need to accurately assess their personalities, strengths, and areas of growth and seek ways to continually develop their skills (Daly & Beloglovsky, 2020). In addition, it can be used by different parties such as policymakers and preschool management. The finding of this study will help different parties understand the importance of teacher's perception and the drawbacks that need to be overcome to encourage more technology integration easiness in preschool teaching and learning.

References

Abdul Halim, M., Muhammad Haziq, M. S., Masayu, D., Hafsah, T., Mohd Mokhzani, I., Asmayati, Y., Che Nidzam, C. A., Saipolbarin, R., Rosfizah, M. T., Mazlina, C. M., & Nurul Shakila, A. A. W. (2021). The teachers' knowledge about the new preschool curriculum. *International Journal of Education, Psychology, and Counselling (IJEPC)*, *6*(38), 1–12.

Alliance for Childhood. (2004). *Tech tonic: Towards a new literacy of technology.* Alliance for Childhood.

Biddle, K. G., Garcia-Nevarez, A., Henderson, W. R., & Valero-Kerrick, A. (2014). *Early childhood education: Becoming a professional*. Sage Publication.

Bredekampt, S. (2017). *Effective practices in early childhood education: Building a foundation*. Pearson.

Bruner, O., & Bruner, K. (2006). *Playstation nation: Protect your child from video game addiction*. Center Street.

Buabeng-Andoh, C. (2012). Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature. *International Journal of Education and Development using Information and Communication Technology*, *8*(1), 136.

Bracken, C. J. (2015). Using technology as a social tool in preschool matching philosophy with the application. *Voices of Practitioners*,*10*(2), 7–23.

Couse, L. J., & Chen, D. W. (2010). A tablet computer for young children? Exploring its viability for early childhood education. *Journal of Research on Technology in Education*, *43*(1), 75–96.

Daly, L., & Beloglovsky, M. (2020). *Loose parts 4: Inspiring 21st-century learning*. Redleaf Press.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8), 982–1003.

Edwards, S. (2005). The reasoning behind the scene: Why do early childhood educators use computers in their classrooms? *Australian Journal of Early Childhood, 30*(4), 25–33.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, *42*(3), 255–284.

Genota, L. (2018), "Why Generation Z learners prefer YouTube lessons over printed books". *Education Week*. https://www. edweek.org/ew/articles/2018/09/12/why-generation-z-learners-prefer-youtube-lessons. html

Gestwicki, C. (2017). *Developmentally appropriate practice: Curriculum and development in early childhood education* (6th ed.). Cengage Learning.

Ghavifekr, S., Kunjappan, T., Ramasamy, L., & Anthony, A. (2016). Teaching and learning with ICT tools: Issues and challenges from teachers' perceptions. *Malaysian Online Journal of Educational Technology, 4*(2), 38–57.

Hartman, J. R., Townsend, M. B., & Jackson, M. (2019). Educator's perception of technology integration into the classroom: A descriptive case study. *Journal Research in Innovation Teaching and Learning, 12*(3), 236–249.

Hsu, S. (2010). The relationship between teacher's technology integration ability and usage. *Journal of Educational Computing Research, 43*, 309–325.

International Society for Technology in Education (ISTE). (2007). National educational technology standards for students. The next generation. http://www.iste.org/inhouse/nets/cnets/students/pdf/NETS_for_Students_2007.pdf

Lee, L., & O'Rourke, M. (2006). Information and communication technologies: Transforming views of literacies in early childhood settings. *Early Years*, *26*(1), 49–62.

McManis, L. D., & Gunnewig, S. B. (2012). Finding the education in educational technology with early learners. *YC Young Children*, *67*(3), 14.

Ministry of Education. (2017). *National Preschool-standard based curriculum.* Curriculum Division Department, MoE.

Ministry of Education. (2013). *Malaysia Education Blueprint 2013-2025*. MoE.

Morrison, G. S. (2015). *Early childhood education today* (13th ed.). Pearson Education.

Mustapha, R., & Abdullah, A. (2004). Malaysia transitions toward a knowledge-based economy. *Journal of Technology Studies*, *30*(3), 51–61.

Pedró, F. (2006). *The new millennium learners: Challenging our views on ICT and learning*. Inter-American Development Bank. https://publications.iadb.org/bitstream/handle/11319/2432/The%20New%20Millennium%20Learners:%20Challenging%20our%20Views%20on%20ICT%20and%20Learning.pdf?sequence=1

Ralph, R. (2018). Media and technology in preschool classrooms. Manifesting prosocial sharing behaviours when using iPad. *Technology, knowledge and learning, 23*(2), 119–121.

Sariçoban, A. (2013). Preservice ELT teachers' attitudes towards computer use: A Turkish survey. *Eurasian Journal of Educational Research*, *53*, 59–78.

Sundqvist, P., Nilsson, T., & Gustafsson, P. (2015). The purpose of technology education in preschool: Swedish preschool staff's descriptions. *DiVA*. http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A821710&dswid=7065

Teo, T. (2011). Factors influencing teachers' intention to use Technology: Model development and test. *Computers & Education*, *57*(4), 2432–2440.

Teo, T., Lee, C. B., Chai, C. S., & Wong, S. L. (2009). Assessing the intention to use technology among preservice teachers in Singapore and Malaysia: A multigroup invariance analysis of the Technology Acceptance Model (TAM). *Computers & Education*, *53*(3), 1000–1009.