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Teachers' Perception on the 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 preschools 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 teachers' perception of technology integration in preschool settings based on the Technology Acceptance Model. 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 from teachers. The survey was done through a questionnaire using 5 points Likert Scale. The data has been collected and analysed using Statistical Package for the Social Science to get the frequencies, percentages, and means of 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. Science and Technology is the most suitable area to teach children about technology.

Keywords: *curriculum, early childhood, easiness, preschool children, preschool teacher, technology integration*

1. Introduction

Early childhood is a critical learning period for every human'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 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 twenty-first-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 is a major trend (Bredekampt, 2017). The use of technology in the early childhood environment for instance would help young children learn and develop, especially the development of their social interactions (Lee & O'Rouke, 2006; Bracken, 2005 & Ralph, 2018). Ralph (2018), in his research on iPad amongst four years old children, found digital learning did not reveal any evidence of adverse effects but strong evidence of positive social behaviour. Additionally, Couse and Chen (2010) also supported computers and believed that 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 research 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 technologies in the world we live in today and also increasing numbers of technology penetration to the ECE settings nowadays. As a result, the researchers' focus now is changing their direction to "how" the technologies are being used in ECE compared to "should" or "will" the computer being used in ECE (Edwards, 2005; Couse & Chen, 2010).

2. Literature Review

With its vision of becoming a knowledge-based economy country in the year 2020, Malaysia has encouraged Malaysian to well-equipped with 21st-century skills (Mustapha & Abdullah, 2004). Technology mastering skill is one of the skills required in achieving the vision. As such, Malaysia has made 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 early childhood education (Ministry of Education, 2013). Technology is designed as one of the learning core components 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 a competent, passionate, and skillful teacher (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 alter 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, children's adaptation to in-class learning, and grabbing the opportunity in learning technology tools and integrating them with 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 the passive pedagogy of traditional classes became 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 be 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 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 the technology implementation 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 positives perception of the ease and usefulness of technology implementation. Teachers who believe the 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 using the technology would be less likely to incorporate technology in their teaching. Besides, the teachers must also find technology that is helpful for them, such as increasing their job performance, productivity, and effectiveness for their teaching to 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 more frequently in classroom teaching. On the other hand, Cullen and Greene (2011) also stated that teachers' positive attitude toward technology would be determining how effectively the teachers deliver technology integration in their teaching.

Since technology has been included in NPSC, there is a need to understand 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 teachers' perceptions of the technology used in preschools. For preschool teachers, adopting TAM is the first step to creating an engaging learning environment. Combined with the use of TAM and Constructivist theory, teaching and learning will be more interactive, developmentally appropriate and with greater ease. Teachers can facilitate learning by asking children to choose 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 teachers' responsibility to explore, experiment and test the different digital technologies shared with their children.

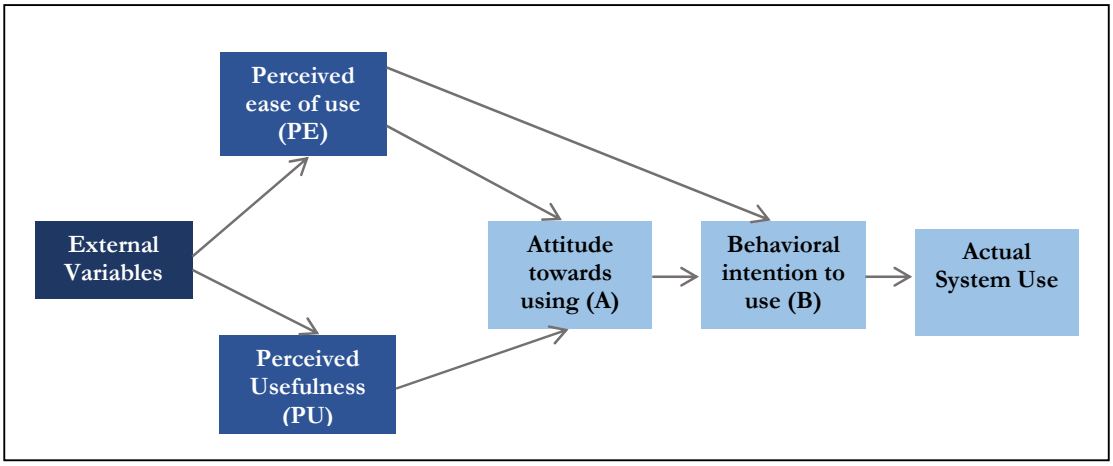

Figure 1. Technology Acceptance Model (TAM) (Davis et al., 1989)

A child'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 on early childhood education. His theory 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 children learn, primarily through social interaction and with the assistance of more knowledgeable peers or adults in ZPD (scaffolding), enabling them to progress to higher-level knowledge gaining. His theory of ZPD widely applies to any principle means to extend to children learning ability.

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

3. Methodology

This study employed a quantitative approach and data collection was done through a survey to assess teachers' perception of technology integration in 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 from teachers. The survey was done through a questionnaire using 5 points Likert Scale. The quantitative data were analysed using Statistical Package for the Social Science (SPSS) to get the frequencies, percentages, and means of teachers' perception of technology integration in teaching and learning.

4. Findings

4.1. 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 technology integration easiness in preschool. While there are no results shown for teachers who are 20 years and below. Teachers in the age group 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.

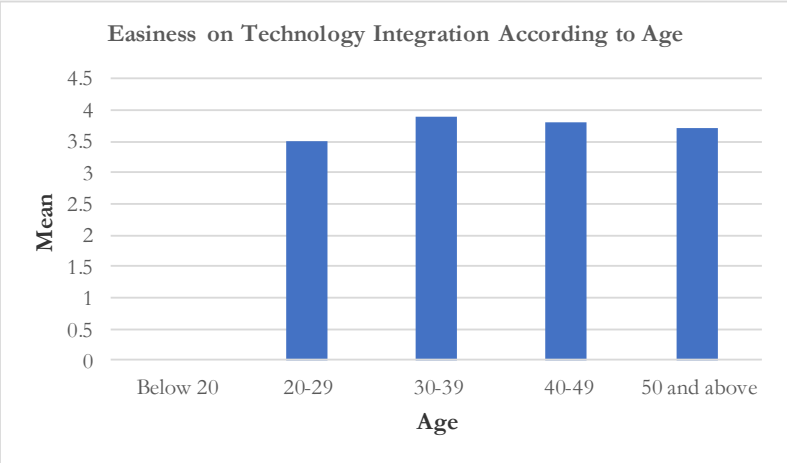

Figure 2. Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Age

4.2. 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 were not showed any perception of technology integration easiness. Those who are more than 20 years of experience and 11 to 15 years' experience has 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.

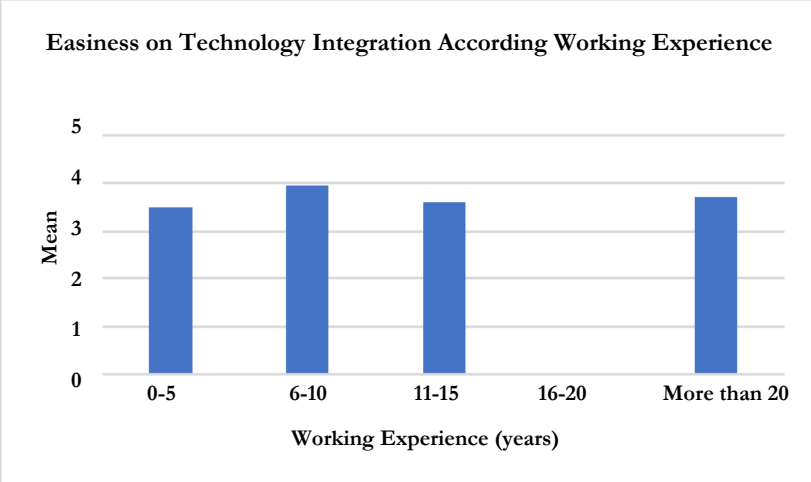

Figure 3. Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Working Experience

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

Teachers with bachelor qualifications have the highest perception of the technology integration easiness, followed by Sijil Pelajaran Malaysia (SPM) certificate holder and diploma holder. Teachers with Sijil Tinggi Pelajaran Malaysia (STPM) have the lowest perception of technology integration easiness in teaching and learning.

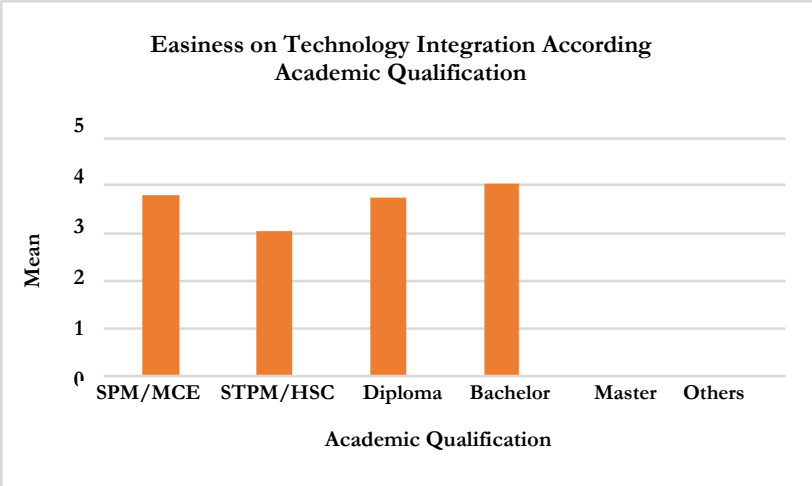

Figure 4. Teachers' Perception of Technology Integration Easiness in Teaching and Learning According to Academic Qualification

5. Discussion

The results of this study show that teachers aged 20 years and above have the highest perception of technology integration easiness in preschool. Sariçoban (2013) stated the attitude toward 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 use technology to communicate and adapt very well to technology. Pedró (2006) stated teachers in the age group of 30 to 39 and below are categorised as New Millennium Learner (NML) which was 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 have working experience between five 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 who have a high level of self-efficacy will be more committed and willing to spend more time and more frequently in classroom teaching Leftwich (2010). A good early childhood teacher must have the ability to be self-aware and intrinsic motivation to teach (Biddle et al., 2014).

Buabeng-Andoh (2012) stated that successful technology integration is 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 show that teachers' academic qualification is another factor that is assessed in this study. Teachers with a bachelor's degree have the highest perception of the technology easiness integration. The second highest is from the teachers with SPM qualifications followed by the 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 more knowledgeable peers or adults in ZPD (scaffolding), they can progress to higher-level knowledge gaining (Morrison, 2012). Thus, the teacher as the primary mediator plays a vital role in implementing and incorporating technology teaching into young

children 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 children in the use of technology to ensure their learning is an essential teacher role today (Morisson, 2015).

6. Conclusion

The finding of this study can be utilised to encourage positive perception among teachers through various efforts to transform to 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 skills (Daly & Beloglovsky, 2020). Thus, teachers have to make necessary changes in their teaching pedagogies and also the content of the curriculum because they are key people in determining how early education integrates with technology. Teachers' views on the technology would be affecting the technology teaching pedagogical in early childhood settings and therefore would influence the ways children learn and develop. As a result, teachers' perception of the technology implementation has to be known and identified in order to make sure the teaching and learning process with the use of technology has been carried out effectively and appropriately. The finding of this study will help different parties understand the importance of teacher perception and the drawback that needs to be overcome to encourage more technology integration easiness in preschool teaching and learning. More research should be carried out that focuses on the strategy, method, and technique used by teachers to engage children in learning through technology. Increasing numbers of early childhood researchers not only focus on knowing more about children's development but also includes the pedagogy of teaching for better results achieved.

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