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Use of Media and Technology among Preschool Teachers

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Abstract

Current needs in children's development require preschool teachers to use technology and media in two-way learning sessions between teachers and students in the classroom. This study was conducted to identify the level of media and technology use among private kindergarten preschool teachers in two different areas. The study was conducted using a quantitative method that uses a questionnaire instrument. The study respondents are from 40 kindergartens in the Nilai area and 23 kindergartens in the Sepang area that are registered in the Malaysian Ministry of Education's (KPM) e-Preschool System. Descriptive and inferential analysis was used to test the research questions using SPSS software version 17.0. This study show that preschool teachers need to improve their use of media and technology in the classroom. Furthermore, preschool teachers should not be too comfortable but always strive to challenge themselves to become better in line with their teaching experience, not the other way around. In conclusion, this study shows that the level of media and technology use among preschool teachers in the professional settings can yet be improved, such as by providing better equipments or training for the teachers.

Keyword: Media and Technology, Preschool Teacher, Media in Classroom, Technology Use, Teaching Experience

Introduction

Education in Malaysia has steadily moved towards digitization, with various teaching materials used in online learning sessions. This effort is based on the development of the world of education which highlights VUCA (Volatility, Uncertainty, Complexity and Ambiguity) aspects in education in Malaysia. The uncertainty and unpredictability of the future requires a complete preparation including in the early education of children. Computers have been made a recommendation for use in school and become something important in education for future generations (Yelland, 2001).

The use of media and technology can give teachers opportunities to ensure that their teaching is always relevant with the changing times. Current needs in child development require the role of preschool teachers to use technology and media in two-way teaching and learning (P&P) sessions between teachers and students in the classroom. Previous studies by Hong et al (2021); Dore and Dynia (2021) to identify the level of media and technology use among preschool teachers were carried out in foreign countries and did not focus on the comfort and

confidence of teachers in the use of media and technology and the application of P&P in the classroom.

The issue nowadays is that children (aged 6 and under) are more tech and media savvy than adults. Preschool teachers in particular need to familiarize themselves with the use of media and technology in order to keep up with the students. This can also bridge the gap between teachers and children during the P&P process.

Finally, the use of media and technology must always be applied in the teaching and learning process (P&P) as aform of training for the teachers to prepare for the fast-changing world. .

The need for preschool teachers to get used to and apply the use of media and technology is a challenging matter. Dore and Dynia (2020) stated that children have been exposed to media and technology since a young age but its use in the classroom is still unclear. This study is necessary to identify the purpose, views, characteristics of teachers and the implementation of activities in the classroom in the use of media and technology.

Previous studies (Hong et. al., 2021) show that preschool teachers are learning to accept this change and are highly focused when learning media and technology. Nevertheless, there will be challenges and resistance in getting all the teachers behind the use of media and technology, especially those who are comfortable with traditional teaching methods.

Teachers are still learning new things especially in online education which has suddenly changed many of their ways of working (Rafique et al., 2020). This requires them to change the way of thinking, the way of teaching, and the way of applying media and technology according to the needs. The application of this technology is dependent on the teacher's ability as well as the motivation to do things outside the comfort zone for the benefit of the students. Furthermore, a study to see the use of media and technology among preschool teachers needs to be done to improve the work culture and see the factors or causes or issues that arise especially among preschool teachers.

This study was conducted to identify the level of media and technology use among private kindergarten preschool teachers in two different areas, namely in Sepang, Selangor and in Nilai, Negeri Sembilan, Malaysia. These are the objectives of this study;

i) Identify the approach that preschool teachers use in terms of using media and technology in the classroom.

ii) Identify preschool teachers' views on the use of media and technology in the context of early childhood education.

iii) Measure the level of preschool teachers' use of media and technology in the personal sphere as well as professional, and its relation to the level of teaching experience.

Method

This study uses descriptive analysis Statistical Package for the Social Sciences (SPSS) to analyze respondents' information, practices and respondents' approaches in the use of media and technology in the classroom. In addition, ANOVA analysis was used to see the relationship between teachers' teaching experience and the level of media and technology use in the classroom for preschool teachers.

Participants

The study population involved are preschool teachers or early childhood education teachers for private institutions in the districts of Nilai, Negeri Sembilan and Sepang, Selangor, Malaysia. The minimum number of one teacher from each institution was involved, only from institutions registered under the Malaysian Ministry of Education (KPM). There are 40

kindergartens in the Nilai area and 23 kindergartens in the Sepang area that are registered based on the Ministry of Education Malaysia's (KPM) e-Preschool System. The number of samples required for preschool teachers in the Sepang area is 23 people based on the population n=23 and for the Nilai area it is 36 people based on the population n=40.

Data Collection Tools

The instrument for this study is in the form of a questionnaire that were published online using the google form application. This questionnaire was adapted from a previous study (Zaki, 2013) which emphasized the use of the internet in preschool environments between two countries, namely Australia and Malaysia. The researcher consulted two experts and carried out a pilot study for the validity and reliability of the research instrument.

The entire questionnaire can be completed within 15 minutes. This questionnaire includes 23 main questions divided into three parts: (1) demographic information, teaching background and teacher's internet access; (2) information about teacher access and use of media and technology in the classroom; and (3) teachers' views on young children's learning using media and technology.

Section 1 (About Respondent) collects basic demographic information on teachers, including the location of the center where they work, their gender, age, highest academic qualification, and experience teaching with children (under 4,5 and 6 years old). This section also gathers information about teachers' use of media and technology at home, their knowledge of various search engines on the internet and the types of mobile gadgets they own. There are 14 questions about their comfort level using media and technology.

Part 2 (Use of Media and Technology in the Classroom) are about the materials based on media and technology in the classroom and the rate of their use for P&P. These include the availability of computers, including desktop computers, laptops, netbooks, tablets, televisions and internet access in the classroom. Teachers were also asked to provide details about the use of media and technology through computer-based activities in the classroom, such as educational games, web searches, and drawing programs. The questions at the end of this section focus on the frequency of media and technology use in the classroom. This includes discussions about searching for information on the Web as well as the interactions that occur when children do these activities alone or with adults.

In the last part, which is the third part (Children's Learning in the classroom) are about teachers, where some questions were asked about their views on the use of media and technology in the classroom with children. The answers received will help researchers to analyze the relationship between teachers' teaching experience and scores on teachers' attitudes in the use of media and technology.

Data Analysis

The research used the "Statistical Package Social Science" software known as SPSS to process the data obtained from the questionnaire. Descriptive analysis is used to provide information about the teacher's age, education level and years of teaching, as well as information about the use of media and technology at home and in the classroom, their views when it comes to online activities, and teaching approaches or practices towards the use of media and technology in the preschool classroom. Inferential analysis was used to examine the relationship between the variables of teaching experience and the level of media and technology use for preschool teachers. Analysis of group differences, (analysis of variance,

ANOVA) was used to study the relationship between preschool teachers' teaching experience and the comfort level of using media and technology personally and professionally.

Result

The following are the findings of the study based on the objectives of the study.

Table 1

Interpretation of mean scores of descriptive analysis

Mean score	Interpretation of mean scores
1.00-2.33	Low
2.34-3.66	Medium
3.67-5.00	High

Source: Sumarni (2000); Jamil (2002)

The Approach That Preschool Teachers Practice in The Classroom By Using Media And Technology

All Items show a low scale in the frequency of activities in the classroom in the use of media and technology.

Table 2

Frequency of activities in the classroom

Item	Mean	Standard Deviation	Interpretation
Frequency of use of technology applications in the classroom - Playing educational games	1.81	.639	Low
Frequency of use of technology applications in the classroom - Web search by teacher	2.23	.660	Low
Frequency of use of technology applications in the classroom - Web searches by children	1.70	.728	Low
Frequency of use of technology applications in the classroom - Youtube	2.33	.619	Low
Frequency of use of technology applications in the classroom - Word processing by teacher	1.83	.725	Low
The frequency of use of technology applications in the classroom - Word processing by children	1.47	.666	Low
Frequency of use of technology applications in the classroom - Program drawn by teacher	1.64	.675	Low
Frequency of use of technology applications in the classroom - Drawing programs by children	1.42	.586	Low

Frequency of use of technology applications in the classroom - Other programs	1.84	.718	Low
Frequency of classroom activities - Whole-class discussions the teacher leads on how to find information on websites/websites	1.73	.597	Low
Frequency of classroom activities - Small group discussions the teacher leads on how to find information on websites	1.75	.591	Low
Frequency of classroom activities - Specific teaching of web search skills	1.55	.641	Low
Frequency of classroom activities - Child-led demonstrations of technology use	1.42	.586	Low
Frequency of activities in the classroom - Child-initiated discussions with teachers about how to find information	1.48	.617	Low
Frequency of activities in the classroom - Children and adults interact together using computers	1.64	.627	Low
Frequency of activities in the classroom - Children and adults interact together doing web searches	1.59	.610	Low
Frequency of activities in the classroom - Children interact together using the computer	1.61	.633	Low
Frequency of activities in the classroom - Children interact doing web searches	1.47	.590	Low
Frequency of activities in the classroom - Children work individually on the computer	1.34	.570	Low
Frequency of activities in the classroom - Children work individually doing web searches	1.33	.565	Low
Frequency of activities in the classroom - Combining different sources of information seeking	1.87	.724	Low

Preschool Teachers' Views on The Use of Media and Technology in The Context of Early Childhood Education

The results show that the scale involved for these items is moderate and low. There are 11 items that have a medium scale and 8 items that have a low scale. For the medium scale that has the highest mean score = 2.80 is the item "I worry about children spending too much time with technology". While for the low scale that has the lowest mean score = 1.55, the item of "internet use in the classroom is an unnecessary learning resource".

Table 3
Teachers' views on early childhood learning

Item	Mean	Standard Deviation	Interpretation
View - I am concerned that children are spending too much time with technology	2.80	.540	Medium
View - The use of the internet in the classroom is one of the other sources of learning	2.78	.519	Medium
View - The practicality of computer login and password access caused me to stop using the internet in the classroom	1.78	.723	Low
View - I like to encourage children to bring their web search results from home	2.13	.745	Low
View - The use of the internet in the classroom is an unnecessary learning resource	1.55	.754	Low
View - It is important to build on the children's existing experiences with technology	2.69	.560	Medium
View - Having one or more computers in the classroom is part of the learning requirements	2.55	.688	Medium
View - Concerns about security led me to stop using the internet in the classroom	1.92	.719	Low
View - It's good to use technology to nurture children's interests	2.69	.560	Medium
View - Giving children access to the internet is my priority	1.98	.724	Low
View - My main task in the technology aspect is to ensure that the hardware and software work	2.44	.639	Medium
View - It is good for early stage children to have experience with computers at home	2.31	.732	Low

View - I find my main job in the technology aspect is to help children when they need help	2.67	.536	Medium
View - Early stage children learn literacy skills through the use of computers	2.25	.756	Low
View - I find my main task in the technology aspect is to initiate ideas and actively engage children with the internet	2.42	.638	Medium
View - Using technology in the classroom is part of everyday learning	2.48	.690	Medium
View - I like to show how to search for information through the internet	2.34	.695	Medium
View - Early stage children do not have the literacy skills necessary for web searching	2.22	.701	Low
View - Computers allow learning opportunities to interact with each other	2.55	.615	Medium

The Level of Preschool Teachers' Use of Media and Technology Personally and The Context of Early Childhood Education Professionally According to Teaching Experience

Anova Inference Analysis (Teacher Teaching Experience and Personal Use of Media and Technology)

Table 4

Results of Scheffe's Post Hoc Test of teachers' teaching experience on personal use of media and technology

(I) Teaching experience	(J) Teaching experience	Mean Difference (I-J)	Std. Error	Sig.
Under 5 years	6 - 10 years	-2.28451	1.62489	.501
	11 - 15 years	.68182	2.08914	.988
	16 - 20 years	1.61364	3.07513	.953
6 - 10 years	Under 5 years	2.28451	1.62489	.501
	11 - 15 years	2.96633	2.02363	.464
	16 - 20 years	3.89815	3.03101	.575
11 - 15 years	Under 5 years	-.68182	2.08914	.988
	6 - 10 years	-2.96633	2.02363	.464
	16 - 20 years	.93182	3.30322	.992
16 - 20 years	Under 5 years	-1.61364	3.07513	.953
	6 - 10 years	-3.89815	3.03101	.575
	11 - 15 years	-.93182	3.30322	.992

Based on Table 4 it was found that there was no significant difference in the mean score of teachers' teaching experience based on the level of personal use of media and technology. The null hypothesis is accepted that there is no significant difference between the teacher's experience and the teacher's level of personal use of media and technology.

ANOVA Inferential Analysis (Teachers' Teaching Experience and Professional Use of Media and Technology in the Classroom)

Table 5

Results of Scheffe's Post Hoc Test of teachers' teaching experience towards the professional use of media and technology in the classroom

(I) Teaching experience	(J) Teaching experience	Mean Difference (I-J)	Std. Error	Sig.
Under 5 years	6 - 10 years	-4.69360	3.36553	.508
	11 - 15 years	-13.63636*	4.32711	.013
	16 - 20 years	-3.29545	6.36934	.955
6 - 10 years	Under 5 years	4.69360	3.36553	.508
	11 - 15 years	-8.94276	4.19143	.154
	16 - 20 years	1.39815	6.27795	.996
11 - 15 years	Under 5 years	13.63636*	4.32711	.013
	6 - 10 years	8.94276	4.19143	.154
	16 - 20 years	10.34091	6.84177	.437
16 - 20 years	Under 5 years	3.29545	6.36934	.955
	6 - 10 years	-1.39815	6.27795	.996
	11 - 15 years	-10.34091	6.84177	.437

*. The mean difference is significant at the 0.05 level.

Based on Table 5 it was found that there is a significant difference in the mean score of teachers' experience and the level of professional use of media and technology in the classroom $F(df=3,60, P < 0.05) = 3.327$. The null hypothesis is rejected. The results of the Post Hoc test showed a significant difference between the mean scores of teachers' teaching experience of 11-15 years and the mean scores of teachers' teaching experience under 5 years, 6-10 years and 16-20 years. The highest mean score is for the 11-15 year old teacher group and the lowest mean score is for the under 5 year old group.

Discussion

The Approach Preschool Teachers use in terms of using media and technology in the classroom.

Based on the research conducted, the majority of teachers only use media and technology to solve matters involving the teacher's duties in the use of computer software such as Microsoft words and PowerPoint in the classroom at a moderate level. Prestridge and Utama (2018) show that the teacher will function professionally if the teacher successfully performs formal tasks to increase his level of knowledge and skills.

However, the use of media and technology in learning that involves children is still at a low level. This is because preschool teachers still find it difficult to explain the use of technology to children. A study also showed that preschool teachers feel forced to master the skills and use of media and technology quickly even though they are still unfamiliar with it (Hodges et al, 2020; Rapanta et al., 2020).

This study also found that one of the reasons teachers are less inclined towards using media and technology is because there is no existing equipment such as desktop computers, tablets, netbooks, and electronic boards in the classroom. This is the main constraint for teachers in applying the media and technology approach in the classroom. Learning approaches that use media and technology skills cannot be improved for learning purposes in the classroom when teachers cannot access online applications in the classroom (Hairia'an and Dzainudin, 2020). The presence of appropriate equipment or tools will help preschool teachers to prepare and practice appropriate approaches. The study also found that the number of students exceeding 15 people in a classroom requires the availability of more than one appropriate media and technology equipment so that the teacher's approach in the classroom has a greater impact on student learning. Therefore, teachers need to be innovative and change the traditional approach by combining the use of media and technology so that it fits the preschool environment (Ora and Anat, 2021).

Studies show that the frequency of individual or group activity approaches in the classroom in the use of media and technology is at a low level. Teachers are unable to combine learning with media and technology due to equipment constraints and the teacher's low comfort level in using media with children. The statement that teachers refuse to use information technology in their teaching curriculum even though they are aware of its benefits (Siti and Kamariah, 2021) needs to be seen from various aspects, including the availability of equipment and training.

Preschool Teachers' Views on the Use of Media and Technology in the Context of Early Childhood Education

The findings from this study shows that the teachers do not have a particularly positive outlook on the idea of using media and technology in children's education. Preschool teachers in particular feel that it is still too early for students to use media and technology for a prolonged time. Teachers are justifiably worried about the risk of too much exposure towards media and technology among children.

However, studies have shown that teachers are not really worried about the issue of student safety in the learning environment, but rather the threat of social media. The Canadian Paediatric Society (2019) indicates that concerns will exist if children are seen to be unable to act critically when faced with the threats of using these media and technologies including inappropriate content and situations that endanger themselves on social media.

Teachers also agree that the use of the internet is one of the learning resources that benefit children. Neuman (2018) shows the benefits that children get including improving cognitive functions such as memory, visual skills, thinking visually, analogy, abstract, forming logical thinking for math mastery skills, creative thinking, metacognition, development of language, literacy and the development of eye and hand coordination.

Not only that, the use of multimedia materials based on media and technology can help and encourage children to continue learning better, faster and more effectively (Burnett et.al, 2010). This shows the difference between the times and the sophistication of media and technology in the diversity of knowledge sources. Furthermore, the use of media and technology will build on students' existing experiences from different perspectives, giving them chance to see things that are otherwise limited by the logistical and technical constraints.

Teachers also agree that media & technology are able to foster students' interest in learning. Arnseth and Hatlevik (2010) show that the use of media and technology in the classroom can

have a dynamic and proactive learning effect. Students' interest in learning will increase with the use of media and technology.

Not only that, teachers are also seen as facilitators in the use of media and technology with students. This will teach students to learn with their own ability and give students the opportunity to learn and try something new. This also increases interaction with each other which will improve students' social skills.

Teachers should not prevent but teach or adapt the use of technology and media correctly for children to derive its benefits. The positive impact on learning the use of technology at school or in the classroom is affected by the appropriate way and conditions for the technology to be used accurately (McFarlane, 2019).

This study also shows that teachers are increasingly open to accepting things related to media and technology in the learning of preschool children because these things are the best medium for the development of children as a whole and creatively if used in the right way. One of the interesting and fun activities is teachers using media and technology in the classroom as a reward for children (Pila et al, 2019).

The Level of Preschool Teachers' Use of Media and Technology in the Personal Sphere as Well as Professional, and its Relation to the Level of Teaching Experience

The use of media and technology for preschool teachers personally and professionally according to the period of teaching experience in this study shows different findings. There is no significant difference in the mean score for the duration of the teacher's teaching experience on personal media use. The study of Debeljuh et.al (2019), showed that preschool teachers have placed limits in the use of modern media professionally and personally, especially in the need to communicate with parents.

This shows that the two elements to be evaluated do not show any significant changes or differences. This is because personally everyone uses the internet almost every day and access to the internet at home has become a habit. Teachers are no exception and the level of teaching experience does not affect the personal use of media and technology.

Personally, every teacher has their own device that has access to the internet in their daily lives. This matter is a necessity for humans to communicate with each other and interact virtually in life. Not only that, teachers have no constraints to use media and technology personally because the rate of use depends on the individual himself without any external factors.

The level of teacher acceptance has shown behaviour that starts from a moderate level to a high level that affects the teacher's attitude towards the use of technology that is closely related to the ease of using media and technology, work, computer skills and views on things beyond control (Zhang and Liu, 2021). For example, teachers have smartphones and laptops for their personal use. Some teachers use media and technology only to access social media or software that facilitates work and so on. The purpose of its use also varies according to the needs of the individual.

In addition, teachers can use media and technology more creatively and often according to the teacher's ability in providing suitable devices for personal use. This shows that each teacher is not evaluated based on their teaching experience in using media and technology personally because this matter is difficult to measure and the various factors that affect it do not represent a career as a preschool teacher. Nevertheless, teachers' beliefs and abilities in using digital media influence the way teachers combine digital media in classroom activities with children (Vidal-Hall et al., 2020).

Next, this study shows that there is a significant difference for the mean score F(df=3,60, P < 0.05) = 3.327 for the duration of the teacher's teaching experience regarding the professional use of media in the classroom. This shows that teachers who have taught for 11-15 years are among the teachers who more frequently use media and technology in the classroom compared to other groups.

The results of Dore and Dynia's (2021) study on the use of media and technology stated that the majority of teachers have actively used media and technology through various devices for different purposes in teaching for preschool environments. This shows that the preschool teachers are in the group of teachers who are experienced but still have a high work ethic to improve the level or quality of their teaching.

Teachers' work motivation affects the level of media and technology use in line with teaching experience. The study has shown a significant difference between the mean scores of teaching experience of teachers aged 11-15 years and the mean scores of teaching experience of teachers under 5 years, 6-10 years and 16-20 years. The highest mean score is for the 11-15 year old teacher group and the lowest mean score is for the under 5 year old group.

Young teachers (less than 10 years of teaching experience) are still learning to master techniques or skills in teaching. If they want to use media and technology in the classroom, they need to thoroughly master the learning content first. Redmond et al. (2021) stated that the majority of preschool teachers who were respondents in their study did not have skills in the use of media and technology in the classroom, especially elements in the digital curriculum and pedagogy.

The method of combining learning content with media and technology is highly encouraged. However, not all teachers succeed in producing effective and planned learning. The approach of preschool teachers in recognizing the background of their students will help teachers to provide more effective learning sessions. This cannot be achieved without extensive experience (11 years and above) in techniques and tips for managing children. As we know children who are 4-6 years old are those who are still learning to master the basic skills of self-management.

This requires experience, passion, motivation and sacrifice for preschool teachers to combine the use of media and technology in learning in the classroom.

Durodulu (2016) has conducted a study on UTAUT which states that if users show confidence while using technology there is an increase in personal self-control, not being rigid and obtaining information effectively. This will create good practice and increase the level of media and technology mastery in a positive way.

The use of media and technology in the classroom without control can interfere with the level of holistic development of children. They need concrete experiences to explore the environment and at the same time provide space for them to explore the world without boundaries under the teacher's supervision in the classroom. All of these require preschool teachers to use judgment and wisdom to manage them well.

Conclusion

Table 6

Conclusion

Objectives	Result	Analysis
Identify the approach that preschool teachers use in terms of using media and technology in the classroom.	Low usage of technology	Not enough equipment and devices
Identify preschool teachers' views on the use of media and technology in the context of early childhood education.	Low to medium views	Positive view on technology but feels their students are too young
Measure the level of preschool teachers' use of media and technology in the personal sphere as well as professional, and its relation to the level of teaching experience.	More prevalent use of technology in the classroom among teachers with 11-15 years' experience. No significant difference on technology usage at home.	Technology usage in the classroom requires a comfortable amount of teaching experience and exposure to technology

This study is significant as it provides an insight on the perception of teachers on the usage of technology in preschool classrooms, which will help policy makers in steering the Malaysian education system forward. The study also reveals how familiar teachers are with education-related technology, which will help in creating a proper program to improve their skills. This study will be beneficial for both policy makers and related educational institution or school. In general this study shows that a lot of effort can be make to improve the usage of media and technology among preschool teacher in Malaysia.

Suggestions

The next study requires future researchers to look back at the level of use of preschool teachers in the use of media and technology with a larger sample size. The researcher only used two small areas namely Nilai and Sepang in Malaysia for private institutions only. In addition, in future studies the researcher can conduct a comparative study between private and government institutions in the same area to see if there is a significant difference.

Not only that, future researchers can use different research methods to analyze the data to see more than one dependent and independent variable. For example, looking at the relationship between teaching experience and the age of the teacher and the comfort level of using media and technology personally and professionally. This information is very important to help preschool teachers improve their work culture and further provide solutions to superiors to manage issues that arise effectively.

Next, additional things that can be done in the next study are the effects of media and technology on preschool students if teachers implement media and technology in the classroom. The involvement of students in teaching and learning sessions has an impact on the teacher's reflection whether the learning achieves the objective or otherwise.

Future studies can also be done with different demographics, such as comparing respondents from the city to those in the countryside There are plenty of improvements that can be done by future researchers to improve this study so that its effects can improve the profession of preschool teachers.

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