

# Integrating ICT in Teaching and Learning: A Preliminary Study on Malaysian Private Preschool

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## Abstract

Over the past two decades, the rapid growth of ICT has become one of the important agendas discussed by many scholars in education. Undoubtedly, this is due to the ability of ICT in providing effective teaching and learning. Along with today's digital era, a study done by Copriady (2015) indicated that teachers were required to integrate of ICT in their daily teaching and replace them with the tools of traditional methods and modern amenities. Looking at this issue, therefore the purpose of this study was to investigate the use of ICT in teaching and learning among the preschool teachers in private preschools in Malaysia. A total of 60 preschool teachers from 10 private preschools in the district of Hulu Bernam, Selangor were randomly selected in this study. The findings indicated that the level of computer skills and knowledge of the preschool teachers is at low level ( $M = 1.92$ ). The findings also indicated the level of ICT integration in teaching and learning preschool children is at low level ( $M = 1.90$ ). The results also showed that the attitude of the teachers on important ICT in teaching and learning is encouraging ( $M = 2.66$ ) which can be considered as moderate level. The problem of using ICT in schools also needs to be addressed as the analysis mean score ( $M = 2.19$ ), which indicates the level of the problem is not encouraging.

**Keywords:** ICT, integration, preschool, teaching and learning

## 1.0 Introduction

According to Ibharm, Borhan & Yatim (2013) children nowadays grow up in the textual landscape in which they have a variety of ways to interact and play actively in the environment that is created by digital technology such as computer games, mobile phones and other devices. Previous studies regarding the use of ICT among early childhood shown that exposure to multimedia computers can motivate and encourage children to learn much better, faster

and effective. Accordingly, the use of ICT in teaching the young learners can foster critical thinking, enhance creativity, exploring various fields, apply knowledge and skills in situations, in addition to increasing interest and attention (Parker, 2008). As we can see today there are fundamental concepts in learning can be delivered effectively using multimedia computer program for teaching and learning the young children.

According to Alessi and Trollip (2001) learning through ICT has many advantages. Among its advantages are: a learner can achieve the learning materials at any time and wherever they are located; learning materials can be networked from additional resources available worldwide; management and update the material becomes easier and faster; and various forms of communication channels may be available for the use of learners and teachers. According to Jonassen (2003) facilities hypertext and hypermedia in ICT can provide a constructive learning environment. Using ICT it will make the searching process of information become more exciting and entertaining information. Interactivity that occurs enable training or teaching process is carried out according to the suitability and requirements of the learner.

It is the goal of National Preschool Curriculum Standard 2010 (KSPK) that Preschool education aims at developing the potential of children aged four to six years in a holistic and integrated in physical, emotional, spiritual, intellectual and social learning environment that is safe, nourishing and fun activities, creative and means (Ministry of Education (MOE), 2012). Based on the curriculum, Masnan (2014) stated that preschool teachers are urged to use a variety of approaches and activities in accordance with the development of the child, abilities, capabilities, talents and interests. Teachers need to carry out activities involving children actively so that learning becomes more meaningful, effective and enjoyable. Activities using ICT is recommended to help the process of teaching and learning; obtain information, interact with materials for self-study and with peers; and enriches the learning experience National Curriculum Development Centre (2007). To meet these requirements every school classes under the supervision of the MOE is supplied with two multimedia i.e computer for 25 children. There are various software that can stimulate a child's development is also supplied to the preschool classes. For preschoolers, they are given the freedom to choose their own software according to ability, age and interests. Those who are active will choose the form of software or arcade game moving. Thus, the software is expected to be able to meet the needs of education as an element of knowledge and featured tutorial (Rohani, Nani & Mohd Sharani, 2003).

Teachers today are increasingly knowledgeable and aware of the use of ICT in preparing teaching and learning process. According to Ghavifekr et al. (2014), in Western countries the use of ICT in teaching and learning in the classroom is encouraging since thirty years ago. In the era of rapid development of ICT, teachers need to focus on two main areas where the first field is involves learning using technology whereby teachers are exposed to various how the use of ICT skills aspects of personal matters until the professional. Teachers through the learning process related to ICT as they learn it in school. ICT competence is known as ICT literacy (Copriady, 2015) which includes knowledge about the basic concepts and operation of ICT. The aspects contained in ICT literacy including basic concepts of ICT, computer usage, word processing, spreadsheet, database, file management (Copriady, 2015), creating

documents, presentations, as well as information and communication (Norton & Wiburg, 2003).

According to Umar & Hassan (2015) there were several studies in Malaysian context in relation to the ICT integration in teaching and learning in preschool. Norton & Wiburg (2003) wrote the importance of technology can support student acquisition of literacy, content knowledge, problem-solving, participating in communities, and student utilization of information and systems of assessment and Umar & Hassan (2015) found that technology or computer usage among preschool teachers is a complicated process. After several years of using various technologies used in Malaysian preschool classroom, a study done by Puteh & Salam (2011) indicated that the level of readiness of teachers is at an average level (66.2%) while physical facilities were also at an average level (65.5%). Meanwhile, the suitability of resources is high (77.5%). This study also showed that preschool teachers are prepared to implement ICT usage in their teaching and learning process. A study done by Rahman, Nordin & Alias (2013) indicated that most preschool teachers in Malaysia were less likely to use ICT in the classroom because of the problems they face. Among the serious problems were negative attitudes that lack self-confidence and lack of computer-assisted teachers. The findings also revealed that teachers using traditional method in teaching and learning will not use ICT in the classroom. Furthermore, the study also showed that preschool teachers are reluctant to use ICT in the classroom is due to software design weaknesses, skepticism about the effectiveness of computers in improving learning outcomes, lack of administrative support, time and effort required to learn technology and how to use them to teach were among some of the identified problems.

Looking at this quite controversial issue, therefore this study would like to unravel the matter. Moreover, the Malaysian government through its agencies has allocated a large allocation for ICT to be used either public or private pre-schools. After a large allocation been given to increasing the use of ICT in schools, therefore it is important to investigate the level of skills and knowledge related to ICT among preschool teachers in Malaysia and do they use ICT in their teaching and if so, at what level ICT integration has been achieved. Another issue that needs to be reviewed is problems that hinder the implementation of ICT integration in preschool.

## **2.0 Methodology**

This was a cross-sectional study conducted at 10 private preschools in Hulu Bernam in the state of Selangor, Malaysia. The sample consisted of 60 preschool teachers, 34 female teachers and 26 male teachers. The researchers utilized the instrument modified from previous researches. The questionnaire is adapted from a study done by Albirini (2006) and it is regarding the teacher's level of knowledge and skills in using ICT tools and materials. Meanwhile, the questionnaires regarding the level of ICT integration, attitude and problems were adapted from Singh & Chan (2014). This study also refers to score mean score. From there, the researcher adapted interpretation of mean score from Kamaruddin, Che Abdullah & Idris (2016) to classify the level of ICT integration: High ( $M = 3.67 - 5.00$ ), moderate ( $M = 2.34 - 3.66$ ) and low ( $M = 1.00 - 2.33$ ).

### 3.0 Results

#### 3.1 Level of Knowledge and Skills on ICT

The knowledge and skills on the use ICT is based on the results of respondents' responses to 9 items regarding the use of ICT equipment as teaching aids is shown on Table 2. The response format for the questionnaire was incapable (1), fair (2), quite good (3) and very good (4). Besides, this study also refers to score mean and from there the researchers referred to Kamaruddin, Che Abdullah & Idris (2016) to determine the level of ICT integration as high (M = 2.68 – 4.00), moderate (M = 1.34 – 2.67) and low (M = 1.00 – 1.33).

Table 1:

Level of Knowledge and Skill

Instructional Tools and Materials	Score Mean	Competencies			
		*1	*2	*3	*4
		%	%	%	%
4.0 Interactive White Board	1.35	23.3	52.3	16.7	7.7
5.0 Overhead Projector	1.18	25.7	59.3	7.9	7.1
6.0 Television	2.92	-	7.1	16.4	76.4
7.0 Video	1.36	5.3	46.4	42.9	5.4
8.0 Digital Camera	1.43	3.6	46.4	35.4	14.6
9.0 Radio Cassette Recorder	1.18	-	7.1	25.0	67.9
10.0 Smart Phone	2.36	-	7.1	66.4	26.4
11.0 Computer	2.82	-	3.6	10.7	85.7
12.0 Internet	2.72	2.6	21.3	50.4	26.2
Overall	1.92				

\*1 = incapable, \*2 = fair, \*3 = good, \*4 = very good

Referring to the above table, the analysis shows that teachers have a very good knowledge and skills in the use television (76.4%; M = 2.92), radio cassette recorder (67.9%; M = 2.71) and a computer (85.7%; M = 2.82). Based on the interpretation of mean scores (M = 3.67 - 4.00) the use of these tools can be considered as at high level.

In addition, many preschool teachers are knowledgeable and skilled in using smartphones where 66.4% are good and 26.4 are very good. Furthermore, they are also have a good knowledge in using internet which comprises of 50.4% of them are quite good and 26.4 are very good as they can access internet, MS Word processing, MS Excel and PowerPoint. Based on interpretation mean scores the level of knowledge and skills of both electronic devices i.e smart phone (M = 3.36) and internet (M = 2.72) is at the moderate level (M = 2.34 – 3.66).

On the other hand, the use of interactive white board is at low competency as can be seen 52.3% are incapable and 23.3% fair knowledge and skills on it. The analysis also shows that overhead projector is at low competency as 52.3% are not capable and 23.3% are fair in using it. This may be because these tools are no longer popular and have been replaced by smart phones, computers and the internet which have better function.

To summarize discussing the level of knowledge and skills on ICT its finding is a shock because the overall mean score is 1.92. From the mean score result, we can classified the level of knowledge and skills on ICT is considered low.

### 3.2 ICT Integration in the Classroom

The second part of the questionnaire is about the integration of ICT in the classroom and it refers to what extent the preschool teachers use ICT tools in teaching and learning. Based on self-evaluation, the teachers were asked to rate their ICT Integration in Teaching and Learning from never (1), rarely (2), often (3) and always (4). This study also refers to score mean and based from that the researchers referred to Kamaruddin, Che Abdullah & Idris (2016) to determine the level of ICT integration as high (M = 2.68 – 4.00), moderate (M = 1.34 – 2.67) and low (M = 1.00 – 1.33). The results regarding the use of ICT in the classroom is shown in Table 2 below. The analysis indicates the level of ICT integration in teaching and learning in some circumstances is encouraging. The results show that more than 80% admitted that they use ICT to prepare lessons and report (67.9% often, always 15.1) in teaching and learning. It is almost the same in the items "the teachers use ICT to access the Internet to search teaching materials" (67.2% often, 29.5% always) and "the teachers use ICT communicate with students and parents" (68.9% often, 24.6% always). Accordingly, the analysis showed that the mean score of the three items are within the range (M = 2.68 - 4.00) and therefore we can classified the level of ICT usage in such items is high.

Table 2:  
ICT Integration in Teaching and Learning

I use ICT to..... in teaching and learning	Mean Score	Integration			
		*1 %	*2 %	*3 %	*4 %
prepare lesson and reports	2.68	2.3	14.7	67.9	15.1
access internet to search teaching material	2.71	1.6	1.6	67.2	29.5
communicate with students and parents	2.69	3.3	3.3	68.9	24.6
create teaching aids with the computer	1.53	14.8	52.6	31.3	1.3
to monitor and evaluate children progress or performance	1.18	57.4	31.1	11.5	-
to make presentation slides/ delivery	1.33	41.3	47.2	11.5	-
to provide and prepare online work or assignment	1.19	78.7	21.3	-	-
Overall	1.90				

\*1 = never, \*2 = rarely, \*3 = often, \*4 = always

However, the results on the item "the teachers use ICT to create teaching aids with the computer" (52.6% often, 14.8% want) shows a relatively satisfactory results. Based on the interpretation of the mean score this item is within the range (M = 1.34 - 2.67) therefore it can be concluded that ICT integration in such items is at average level.

On the other hand, the ICT integration in teaching and learning in some circumstances are unsatisfactory. This can be seen in the items "..... to monitor and evaluate children progress or performance (57.4% never, 31.1 rarely), "..... to make presentation slides/ delivery" (41.3% never, 47.2 rarely) and "..... to provide and prepare online work or

assignment" (78.7% never, 21.3 rarely). Based on the interpretation of the mean score this item is within the range ( $M = 1.00 - 1.33$ ) therefore it can be concluded that ICT integration in such items is at the low level.

To summarize discussing the ICT integration in teaching and learning, its finding is surprising because the overall mean score is 1.90. From the mean score result, we can classified the ICT integration in the classroom by preschool teachers is considered low.

### 3.3 The Attitudes of Preschool Teachers towards the Use of ICT

Table 3 refers to the response of preschool teachers towards the use of ICT in the classroom. The response format for the questionnaire is based on the perception of preschool teachers on the choice: strongly disagree, disagree, agree and strongly agree. Most of the respondents agreed with the proposed items except item No. 5 and 6. As can be seen, more than 80% of the preschool teachers (86.4% agree, 6.7% strongly agree) enjoy using ICT in teaching young children. Their positive attitude can also be seen in the statement ICT equipment is very important to perform a task (86.7% agree and 13.3 strongly agree), children's learning with computer is really fun (56.7 agree and 36.6 strongly agree), they are interested to use any ICT equipment in doing work (53.3% agree, 36.7% strongly agree).

Table 3:  
Attitudes towards ICT

Item	Score Mean	Response			
		*1 %	*2 %	*3 %	*4 %
1. ICT equipment is very important to perform a task	2.82	0	0	86.7	13.3
2. Children's learning with computer is really fun.	2.69	0	6.7	56.7	36.6
3. It is interested to use any ICT equipment in doing work	2.68	0	10.0	53.3	36.7
4. I enjoy using ICT in teaching young children.	2.81	0	6.7	86.4	6.7
5. The use of ICT equipment stresses me out.	2.18	29.7	61.6	5.4	3.3
6. Using ICT makes children's learning more active.	2.39	14.1	66.7	15.9	3.3
7. Any ICT equipment is a valuable tool for teachers.	3.03	0	0	90.0	10.0
8. ICT will change the way children's learning in the classroom.	2.36	0	13.4	73.3	13.3
9. ICT equipment helps students to understand more effective.	3.01	0	3.3	90.0	6.7
Overall	2.66				

\*1 = strongly disagree, \*2 = disagree, \*3 = agree, \*4 = strongly agree

In addition, majority of the preschool teachers are very positive the use ICT will change the way students learn in class (90% agree, 6.7 strongly agree). The statement ICT equipment

helps students to understand more effective is agreed by 90% and strongly agreed 6.7% respondents (preschool teachers). It is almost the same to the statement that any ICT equipment is a valuable tool for teachers as they agreed 90% and strongly agreed 10.0%. Almost all items are mean score (M = 3.67 - 4.00) and based on the interpretation of the mean scores the attitude of preschool teacher very positive that can be considered as at high level. However, more that 70% of the preschool teachers showed an unfavorable attitude in which the statement "Using ICT makes children's learning more active" seems to be disagreed (66.7%) and strongly disagreed (14.1%). It is almost the same with the statement the use of ICT equipment stresses me out as can be seen 61.6% disagree and 29.7% strongly disagree. Their attitude level is considered low as their mean score is within the range of (M = 1.00 – 1.33).

Lastly, to conclude the discussion the findings regarding attitudes of preschool teachers towards the use of ICT is quite favourable because the overall mean score is 2.66. From the mean score result, we can classified the level of ICT integration in teaching the young children is considered moderate.

### 3.4 The problems with implementing ICT Integration in the Classroom

Table 4 refers to the frequencies of score regarding the problems with implementing ICT integration in the classroom. The response format and the score for each item is strongly disagree = 1, disagree = 2, agree = 3 and strongly disagree = 4.

Table 4:  
Problems faced by the Preschool Teachers

Item	Score Mean	Response			
		*1 %	*2 %	*3 %	*4 %
Problem with technical support provided	2.73	0	5.0	66.7	28.3
Constraint of time in using ICT in teaching and learning	2.69	0	6.7	61.6	31.7
lack of knowledge about how to use ICT tools in teaching	2.71	0	19.2	66.7	14.1
The weaknesses in choosing appropriate teaching approach to integrate ICT in teaching	2.68	0	24.2	62.5	13.3
Lack of software or websites that support teaching and learning	1.17	23.3	63.3	13.4	0
Lack of ICT equipment in school e.g computer	1.9	21.3	68.3	10.4	0
Overall	2.19				

\* Score: 1 = strongly disagree, \*2 = disagree, \*3 = agree, \*4 = strongly agree

Majority of the preschool teachers, 66.7% (agree) and 28.3% (strongly disagree) and only 5.0% (disagree) that they have problems with technical support. Whereas, 61.6% agree and 31.7% strongly agree of the preschool teachers admitted that they have problems with the constraint of time in using ICT equipment in teaching the young children in the classroom. In addition, 66.7% of the preschool teachers do agree and 14.1% strongly agree that they have lack of knowledge about how to use ICT tools in teaching and only 19.2% disagree with the statement. Majority of the preschool teachers, 62.5% of them agree and 13.3% strongly agree

that their weaknesses in choosing appropriate teaching approach to integrate ICT is one of the problems in implementing ICT integration in the classroom

This situation is contrary to the problem of software and electronic devices. The results showed that 63.3% of the preschool teachers are disagreed and 23.3 strongly disagree that there is lack of software or websites that can support teaching. Referring to this statement only 13.4% disagreed. Most of the teachers, 68.3% of them are also disagree and 21.3% strongly that the school are not provided with computer or tool. Only 10.4% agree with the statement.

Lastly, to conclude the discussion regarding the problems faced by the preschool teachers in using ICT in teaching the young children, the research finding is not encouraging because the overall mean score is 2.19 which can be considered as there are problems that need to be addressed.

#### **4.0 Discussion**

As a whole, this study provides important information regarding issues related to the level of knowledge and skills of preschool teachers in ICT, the level of ICT integration in teacher teaching in the classroom, teachers' attitude towards the use ICT and the problems faced by preschool teachers. From the findings it can help to overcome the problems of ICT in private preschool and hoping that the preschool teachers become effective technology users.

The first part of the study is to explore the level of knowledge and skills of preschool teachers in relation to the ICT tools available today. The results revealed that the level of knowledge and skills of teachers on ICT is at average level since they only use certain applications such as television, radio and cassette recordings, computers, smart phones and the internet as these are the main application which is frequently and commonly been used by the teachers in the classroom. In this regard, this finding also reflects that most teachers are just normal users because these tools are often been used for personal purpose. The findings of this study seem to be similar to the results of the study done by Mohamed, Hassan & Abu Hassan (2012) revealed that teachers' minority groups of teachers are knowledgeable about ICT. The study conducted by Umar & Hassan (2015) also confirmed this study whereby they reported that preschool teachers were very knowledgeable only on certain applications such as word processing and internet browsing. This study provides information on what type of tools and materials that teachers need to master in order to increase the level of knowledge and skills related to ICT among preschool teachers. Undoubtedly, knowledge and skills are very important elements as it provides confidence to teachers in our efforts to witness the implementation of the National Preschool Curriculum Standard can be successful. Therefore, teachers' awareness on ICT is important because it can give added value to the implementation related to ICT in preschool.

Although it is not expressly specified in the study, but the findings reflect our concerns towards the integration of ICT in teaching and learning in preschool. As we can be seen from the finding only a small proportion of preschool teachers (i) use ICT to provide lessons and reports (ii) to use the internet to find teaching materials and (iii) to communicate with students and parents. Accordingly, the use of computers in teaching and learning are also not so encouraging as well as the use of ICT to monitor and evaluate the progress or achievement

of children is not satisfactory. The findings also show that the majority of teachers in private preschool never use ICT to provide and prepare online work or assignment to the children. Thus, this is the indicators that describe the level of ICT integration in the classroom in private preschool is considered low. This finding appears to contradict with previous finding such as Mohamed, Hassan & Abu Hassan (2012) and Umar & Hassan (2015) as their findings indicated that the level of ICT integration is moderate level.

The third part of the findings revealed the attitude of preschool teachers towards ICT integration in the classroom. This result shows that preschool teachers have a positive attitude towards the matter. These results support the findings obtained by Papanastasiou & Angeli (2008) and Moganashwari & Grains (2013) where they also study the majority of respondents have a positive attitude towards the use of ICT in teaching.

This study also examined the problems faced by teachers in using ICT. The majority of preschool teachers agree that their awareness of using ICT is very low. This problem may be related to the exposure of ICT to teachers and other problems such as lack of technical support, constraint of time to use ICT, lack of knowledge and skill. No doubt this issue could lead to their understanding on how to integrate ICT in teaching in the classroom is very low. However, quite different from the problem of software and electronic devices in which this is not a big problem. Majority of them disagree that do not provide the school with computer or tool. The statement is in line with substantial funds allocated by the Malaysian government for ICT integration in public and private preschool. Looking at these circumstances, it seems there is a need to produce preschool teachers with skills and knowledge in the use of technology in instructional design and delivery. It is time to equip and learn all the necessary skills. This study found that preschool teachers have a positive attitude towards the use of ICT in the classroom and this attitude surely this will encourage the teachers to use ICT effectively and improve the skills required (Moganashwari & Grains, 2013).

## **5.0 Conclusion**

Overall, this study found that private preschool teachers have a good basic ICT knowledge and skills. However, lack of knowledge and skills in handling ICT equipment will jeopardize ICT integration in turn will make teaching less attractive and children not motivated to learn. Since the 21st-century society cannot be separated from the development of science and technology therefore, preschool teachers are not supposed to have reason of not using ICT in their teaching. This is because the Ministry of Education regularly organizes short courses skills using ICT tools in order to preschool teachers received up to date ICT knowledge and skills. Preschool teachers also need to be aware of ICT will be an integral part of teaching and learning approaches in the present and the future. To ensure that ICT is used effectively preschool teachers need to be more creative and flexible in their teaching.

Preschool teachers need to be smart and innovative in using ICT in teaching young in the classroom. It should be remembered that the implementation should be in line with the National Preschool Curriculum Standard in developing the potential of children in a holistic and integrated in physical, emotional, intellectual and social learning environment that is conducive, enjoyable, creative and meaningful. Today, we need to look at technology as an efficient management tool and key enabler not only for creating effective teaching but enjoyable learning for young children.

Therefore, all those responsible parties for the education of children in preschool need to work together to equip the teachers not only with the knowledge but the skills related to ICT. This is because the changes and advances in technology have increased the demand task of a teacher who should not only address the problem of learners using ICT but also face to face with the learners so that they can acquire a high level of knowledge. Therefore, teachers must have a positive attitude and proactive in accepting and applying innovation and ICT skills that are constantly changing ICT challenges. Preschool teachers who master ICT skills are expected to maximize the benefits of technology to make learning more interesting, effective and enjoyable. Therefore, preschool teachers in Malaysia need intensive training in ICT usage to facilitate integration into the classroom. Therefore, preschool teachers in Malaysia need intensive training in ICT usage to facilitate integration into the classroom. For long term, it is recommended that teachers should be highly confident and knowledgeable with ICT integration in the classroom. They also should constantly improve their new skills and stay up to date through continuous professional development.

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