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INTEGRATION OF ICT IN TEACHING PRACTICES, LEARNERS' DEVELOPMENT, AND TEACHERS' SKILLS

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MAZEDAN EDU. REVIEWS AND TEACHING METHODS

e-ISSN:

Article id-MERTM0102004

Vol.-1, Issue-2

Received: 3 May 2021

Revised: 30 May 2021

Accepted: 15 Jun 2021

Citation: Zambas, J. L., Cayabas, M. D., & Esrael, J. D. (2021). Integration of ICT in Teaching Practices, Learners' Development, and Teachers' Skills. *Mazedan Educational Reviews and Teaching Methods*, 1(2), 25-29

Abstract

This study explored the correlation between ICT integration practices of teachers and the skills development of preschool learners under District II and District V, Kidapawan City Division for School Year 2020-2021. It used quantitative research with descriptive-correlation design in analyzing and interpreting the collated data with the use of a self-made survey questionnaire from respondents taken through purposive sampling technique with complete enumeration of preschool teachers. The findings showed that the teachers practiced the use of power point, smart TV and videos in integrating ICT in teaching that developed the literacy, numeracy, cognitive, and socio-emotional skills of learners. Smart TV has a significant relationship with the mathematical skills of learners. While the use of PowerPoint and socio-emotional skills of students were significantly influenced by the ICT integration practices.

In conclusion, the ICT integration practices had contribution to the enhancement of learn kindergarten pupils' learning on the mathematical and socio-emotional skills. Hence, the higher the frequency in the use of smart TV and PowerPoint, the higher is the learning performance of the preschoolers.

Keywords: ICT Integration, Preschool Learners, Skills Development, Master's Thesis, Philippines.

1. INTRODUCTION

People's cultures have been transformed by advances in information and communication technology. In the new normal environment, transformation entails integrating ICT into the classroom and increasing its use in the delivery of learning content to pupils (Suhaimi, Rose Alinda, Othman, & Azizah, 2017). Thus, every teacher and learner's potential in using ICT in the classroom must be evaluated.

Many tools were employed to improve teaching and learning quality to prepare students for life in the twenty-first century (Hamidi, Meshkat, Rezaee, & Jafari, 2011; Hussain, Morgan, & Al-Jumeily, 2011). It is hoped that through learning and mastery of ICT skills, preschoolers are ready to face future issues with adequate knowledge and skills (Grimus, 2000). Although, technology is being utilized in K-12 education, many teachers are still struggling on how to go about the processes of IT integration in teaching and learning. The common challenges teachers are experiencing includes technology misuse, cost, and the rapid technological upgrading. Hence, there is a need to improve ICT-based curriculum to ensure that technology investment decisions are optimized in the system (Suhaimi, Rose Alinda, Othman, & Azizah, 2017). Integrating technology in education is a complex task due to its dynamic nature that caused this study to determine the ICT integration practices in education. Also, it sought to examine its influence on the skills and learning development of preschool learners.

2. STATEMENT OF THE PROBLEM

This study focused to explore the ICT Integration Practices of teachers and the skills development of preschool learners. Hence, this study sought answers for the stated problems.

1. What is the extent of ICT Integration Practices of Preschool teachers in terms of the use of PowerPoint, Smart TV, and Videos?
2. What is the level of skills and learning development of preschool learners in terms of literacy skills, mathematics skills, cognitive skills, and socio-emotional skills?
3. Is there a significant relationship between the extent of ICT Integration Practices of Preschool teachers and level of skills and learning development of preschool learners?
4. Is there a significant influence of the extent of ICT Integration Practices of Preschool teachers on the level of skills and learning development of preschool learners?

3. THEORETICAL FRAMEWORK

Piagetian theory and, more importantly, Vygotsky's social constructive perspectives have strong linkages to developmental appropriateness. "Creating meaning" is a process that relies heavily on community, according to

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Vygotsky's theories (1978). According to socioculturalists, learning is a social activity in which interactions are fundamental to the production of meaning (Mitchell and Myles 2014).

Vygotsky believes that without education in abstract sign systems, children cannot acquire entirely abstract models of mind. Vygotsky introduces an important notion in his theory, the zone of proximal development (ZPD), which is closely related to this argument (Vygotsky, 1986).

For students to understand new information, they need advice and aid from a teacher or a more experienced peer (Shabani, Khatib, & Ebadi, 2010). A child's ability to function alone or without adult assistance is measured by the Zone of Proximal Distance, or the distance between their ability to function independently or without adult assistance and their ability to function independently with the assistance of adults or more competent peers (Vygotsky, 1978). It is possible to provide sufficient' scaffolding' to a student who arrives at the ZPD for an activity by giving suitable support once the student arrives.

In contrast to the previous assertions, learning involves more than a one-way communication process in which teachers pass on information to students. Young infants do not learn by themselves, according to Vygotsky's thesis. Instead, they learn through interacting with others, such as peers and adults. Teamwork and collaboration are fostered in small-group ICT learning, resulting in the establishment of positive peer connections (Infante, Weitz, Reyes, Nussbaum, Gomez, and Radovic, 2010). People, their behavior, and the social environment all benefit from active learners.

4. CONCEPTUAL FRAMEWORK

This study presents a framework that comprised of the independent and dependent variables. The independent variable is the ICT Integration Practices of Preschool teachers in terms of the use of PowerPoint, Smart TV, and Videos which may have contribution to the learning of preschoolers to prepare them to face future issues with adequate comprehension (Grimus, 2000).

The study conceptualized the direct relationship between the extent of ICT integration practices of preschool teachers and level of skills and learning development of preschool learners. The dependent variable includes the skills and learning development of preschool learners (Grabe & Grabe, 2017). The development was measured in terms of literacy skills, mathematics skills, cognitive skills, and socio-emotional skills. The ICT has the potential in preparing the learners for 21st century. Through the integration of ICT in teaching learning process, the preschoolers develop the competencies needed for the current globalization. It was considered as the key element for the improvement and development. It can be used to train the learners in skills which they need in the future education as an ongoing learning process throughout the rest of their lives. It can support and potentially transform the learning and teaching process (Ghavifekr, S. & Rosdy, W. A. W. 2015).

The use of ICT empowers the teachers and learners by transforming the teaching and learning processes from being highly teacher-dominated too student-centered. This transformation will result in increased learning gains for students.

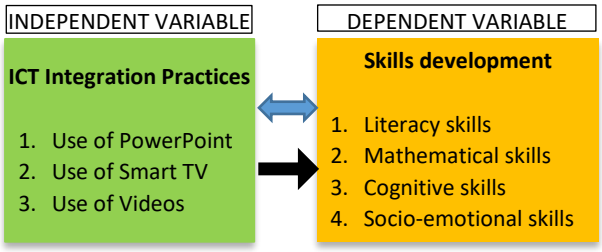


Figure 1 Schematic presentation of the variables of the study

5. METHODS

Research Design

A quantitative research design, particularly descriptive-correlation, was utilized in this study. Descriptive method (Creswell 1994) was used to determine the extent of ICT Integration Practices of Preschool teachers in terms of the use of PowerPoint, Smart TV, and Videos. Also, it sought to determine the level of skills and learning development of preschool learners in terms of literacy skills, mathematics skills, cognitive skills, and socio-emotional skills.

The correlation method (Pearson 1886) was used to determine the relationship and influence between extent of ICT Integration Practices of Preschool teachers and level of skills and learning development of preschool learners.

Data Gathering Methods

Before the conduct of data-gathering, the researcher observed established protocols. She first prepared a letter-request for the conduct of the study noted by her adviser and the Dean of the Graduate School of Cotabato Foundation College of Science and Technology. This letter was then transmitted to the Schools Division Office of Kidapawan City for the approval of the Schools Division Superintendent. Upon approval, the researcher furnished copies of the approved letter to the concerned public schools district supervisors and school heads for them to be informed about the research to be conducted in their areas of responsibility.

Before the survey-questionnaires were administered to the teacher-respondents, the researcher conducted a brief orientation through online means and other platforms. If necessary, the questionnaires will be personally delivered by the researcher to the residences of the respondents. In all the activities to be undertaken, health and safety protocols were observed, too.

Finally, the researcher personally gathered the questionnaires, collated and tabulated the results.

6. PARTICIPANTS OF THE STUDY

The respondents in this study were the Preschool teachers and school heads/principals from all Elementary schools in Kidapawan City Division, as shown in the table 1.

Statistical Tools and Data Analysis

The data gathered were tabulated, analyzed and interpreted using the weighted mean (Cochran, 1977), Pearson r Moment Correlation (Pearson, 1886) and Multiple Regression (Freedman, 2009).

Table 1 List of District II Preschool Teachers

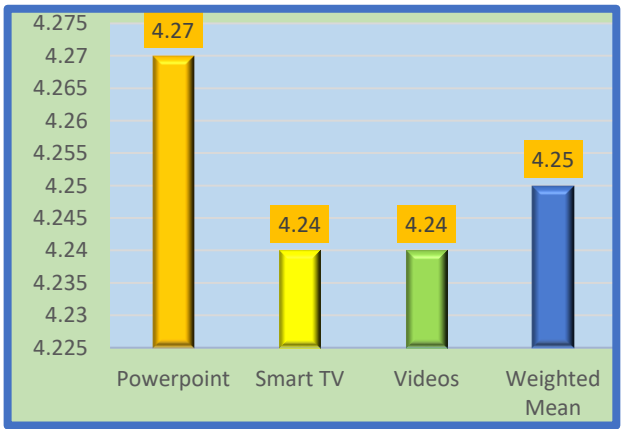
District II	
Name of Schools	Number of Teachers
DISTRICT II	
Balabag ES	1
Cayetano A. Javier MES	1
Datu Ongcas IPS	1
Datu Igwas IP IS	1
Datu Umpan IPS	1
Ginatilan ES	1
Gulanay Maangue MES	1
Lake Agco IS	1
Lapan ES	1
Meohao ES	1
Mua-an ES	1
Manongol Cental Elementary School	2
Perez ES	1
Sayaban ES	1
Sibug MES	1
Sumayahon ES	1
Total	17
List of District V Preschool Teachers	
District V	
Name of Schools	Number of Teachers
Amas CES	3
Amazion ES	1
Binoligan ES	2
Gayola ES	1
Katipunan ES	1
Malinan ES	1
Onica ES	1
Patadon ES	3
Puas Inda ES	2
San Isidro ES	1
San Roque ES	1
Total	17

7. RESULTS AND FINDINGS

Summary of Results and Discussions

Research Problem No. 1

Extent of ICT Integration Practices of Preschool teachers in terms of the use of PowerPoint, Smart TV, and Videos

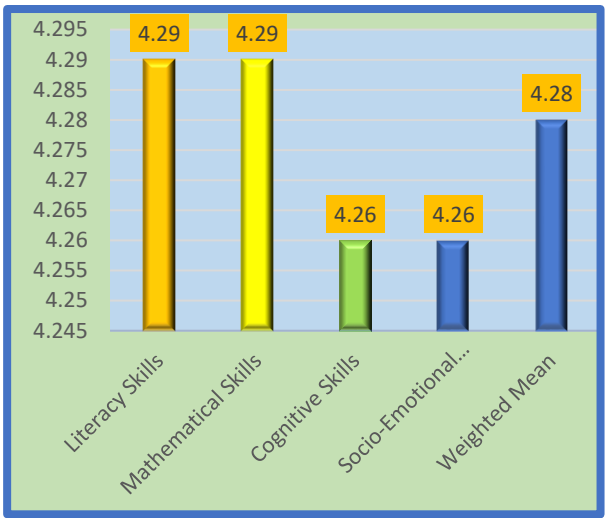


Level	Range	Description
1	4.21 – 5.00	Highly Practiced
2	3.41 – 4.20	Practiced
3	2.61 – 3.40	Moderately Practiced
4	1.81 – 2.60	Slightly Practiced
5	1.00 – 1.80	Not Practiced

To sum up the level of ICT Integration Practices of Preschool teachers, PowerPoint obtained the highest weighted mean with the value of 4.27 with a description of highly practiced, followed by Smart TV and Videos, with highly practiced description. The general weighted mean for the ICT Integration Practices of Preschool teachers is 4.25 interpreted as highly practiced.

Research Problem No. 2

Level of skills and learning development of preschool learners in terms of literacy skills, mathematics skills, cognitive skills, and socio-emotional skills



Level	Range	Description
1	4.21 – 5.00	Highly Practiced
2	3.41 – 4.20	Practiced
3	2.61 – 3.40	Moderately Practiced
4	1.81 – 2.60	Slightly Practiced
5	1.00 – 1.80	Not Practiced

To summarize the level of skills and learning development of preschool learners, literacy skills and mathematical skills obtained the highest weighted mean of 4.29 interpreted as highly practiced followed with cognitive skills and socio-emotional skills which got 4.26 interpreted also as highly practiced. The level of skills and learning development of preschool learners obtained a weighted mean of 4.28 interpreted as highly practiced.

Research Problem No. 3

The correlation matrix in Table 10 reveals the ICT integration practices and skills development of the learners. The results indicate that among the ICT integration practices, only the use of smart TV was negatively correlated with the skills development of learners specifically on mathematical skills (r= - 0.372* and p=0.028). Having a probability value that is less than the set 0.05% level of significance, the hypothesis in this part of the study is rejected. It is noted that there is a negative significant correlation between the utilization of smart TV with the skills development of learners. The negative influence would also mean that smart TV is not commonly utilized or that other teachers do not even use it, while other schools do not even have it. This result implies that technology materials represented by smart TV are very necessary in enhancing the children's attitude in focusing to learning experiences that increase the attention of kiddies in learning. Nevertheless, the absence of the said material tends to reduce children's interest in learning.

Other variables, such as the use of PowerPoint and video, were not linked to any of the learners' skill growth. As per

statement of Raj K., (2012), the use of smart TV has a significant relationship with learners' mathematics skills. Because smart TV provides students with many different modalities to process information, students are more likely to retain and recall material.

Research Problem No. 4.

Using a smart TV (0.018*) was found to be the strongest negative predictor of gaining mathematical abilities. However, because of the inadequacy of the contents, the negative substantial influence would mean that smart TV is not commonly utilized or that other teachers do not even use it, while most schools do not even have it. However, integrating ICT into the classroom can help students improve their mathematical skills. When a learner uses smart TV devices to learn, their mathematics skills will improve. The findings show that when ICT integration is used regularly, such as through the usage of a smart TV, learners' mathematics skills improve. The usage of PowerPoint (0.043*) among other things, was found to be the negative best predictor of learning socio-emotional skills. However, the negative significant influence would imply that Ppt is not usually utilized or that some teachers do not use it at all due to inadequacy of materials, while other schools do not have it at all. Application should be done all along with other method of teaching. ICT integration, on the other hand, adds to the development of learners' socio-emotional abilities. When learners employ Ppt gadgets in their learning, they will achieve better results in their socio-emotional abilities.

The findings suggest that ICT integration practices have had a significant impact on learners' socio-emotional skills, which is consistent with the findings of Corbeil (2017) that students exposed to PowerPoint presentations generally prefer them than textbook presentations that improved their learning when their interest is captured through highlighting, color, font, and video effects. Reynolds and Baker (2012) argued that using a computer to display content increases attention and learning, and learning increased as attention increased.

Table 2 Correlation matrix showing the relationship of the ICT integration practices of preschool teachers and skills development of preschool learners

ICT Integration		Literacy skills	Mathematical skills	Cognitive skills	Socio-emotional skills
Use of power point	Pearson r	-0.091	0.180	-0.113	-0.161
	Probability	0.605	0.300	0.519	0.356
	N	35	35	35	35
Use of smart TV	Pearson r	-0.092	-0.372*	-0.142	-0.099
	Probability	0.599	0.028	0.415	0.570
	N	35	35	35	35
Use of video	Pearson r	-0.074	0.161	-0.129	0.057
	Probability	0.674	0.355	0.460	0.746
	N	34	34	34	34

Table 3 Influence of ICT Integration Practices on the Skill and Learning Development

ICT Integration Practices		Skills Development of Preschool			
		Literacy Skills	Mathematical Skills	Cognitive Skills	Socio-emotional Skills
Use of Power Point	t-value	-0.570	1.528	-0.753	-1.592
	probability	0.572	0.137	0.457	0.043*
Use of Smart TV	t-value	-0.463	-2.497	-0.733	-0.521
	probability	0.647	0.018*	0.469	0.606
Use of Video	t-value	-0.498	1.398	-0.839	0.175
	probability	0.622	0.172	0.408	0.862

8. CONCLUSIONS

Based on the outcomes of this study, it can be stated that teachers used ICT integration in the form of PowerPoint presentations, smart TV, and movies. The teachers' abilities were also enhanced. Only the use of smart TV has increased the teachers' and students' abilities. Furthermore, the more teachers employ smart TV in the teaching-learning process, the better the mathematical skills of students are strengthened. Moreover, teachers' ICT integration methods contribute to students' mathematical and socio-emotional skills. As a result, the more frequently teachers incorporate ICT into the classroom, the more the students' mathematical skills would increase.

9. RECOMMENDATIONS

Based on the findings, the researcher offers the following recommendations:

1. Schools may consider encouraging all teachers to utilize ICT in all teaching-learning activities.
2. Utilization of ICT in a teaching-learning process should be embedded in teaching methods.
3. Teachers may strategize more ways to use information technology to meet learners' needs.
4. Consider planning out a capacity building activity for teachers though in-service training (InSeT) focusing on ICT utilization for Mathematics.
5. Teachers may consider devising an intervention plan based on the result of the study presented in Figure 2 illustrates the interaction of the ICT integration practices. Only the use of smart TV was significantly correlated correlated with the skills development of learners specifically on mathematical skills and learners' socio emotional skills. The use of smart TV and PowerPoint helps preschoolers learns mathematics. As they are

provided with the opportunity to apply their knowledge, they creatively come up with the variety of learning number concepts and develop informal mathematical skills.

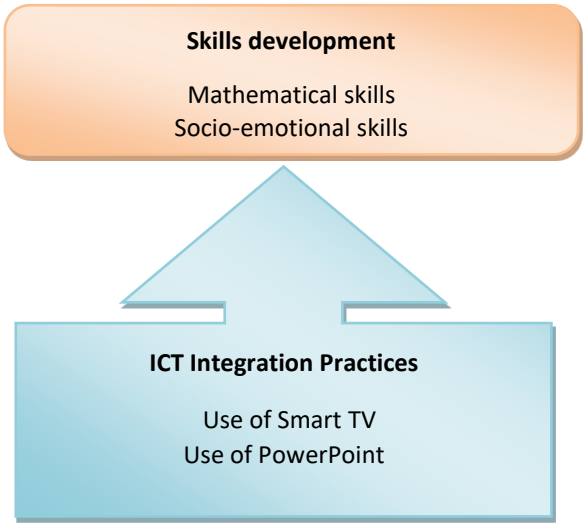


Figure 2 Modified Framework of Study

The use of smart TV and PowerPoint helps preschoolers learns mathematics. As they are provided with the opportunity to apply their knowledge, they creatively come up with a variety of learning number concepts and develop informal mathematical skills.

6. Based on the finding and observed results of the study, a proposed intervention program can be used to address the problems encountered by the respondents in the implementation of the ICT Integration Practices of Teachers and Skills Development of the Preschool Learners was made. The proposed intervention program addressed the problems encountered by the teachers.

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