



## DEVELOPMENT OF EARLY CHILDHOOD TEACHER EDUCATION COMPETENCIES IN THE FIELD OF DIGITAL TECHNOLOGY IN TERNATE CITY

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### Abstract:

This study uses a qualitative research approach. The research method uses research and development on Borg and Gall. Respondents of Early Childhood Education teacher research in the sub-district of Central Ternate city. The study aimed to improve the competence of PAUD teachers in the field of digital technology and measure the effectiveness of digital training models in developing learning materials. The use of technology in learning is still low. Mastery of technology for PAUD teachers is a necessity to help develop learning. Based on the results of the study obtained data that there is an increase in the ability of competencies to develop digital-based learning material. An effective digital training model is used to improve the competence of PAUD teachers. It is recommended that PAUD teachers always develop digital-based learning

**Keywords:** *digital training model, teacher competence, technology in learning*

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## INTRODUCTION

The growth and development of information and communication technology at this time is darting. The use of smartphones in the society is one proof of this progress. Every teacher in both big and small cities have a smart phone. The use of smart phones at this time is still limited to means of communication such as telephone, Whatsapp, line, instgram, facebook, and the like. The use of the camera is limited to perpetuating the occurrence of daily activities. The application in a smartphone has not become one source of learning material and media .

PAUD teachers in learning still tend to use conventional media and learning materials through printed materials. Teachers through smartphones can design learning materials and media by using applications found on smartphones. The limited competence of teachers to explore digital technology is one of the obstacles.

## LITERATURE STUDY

### 1. Teacher Competencies Teachers

at this time are required to be professional in learning. Mastery of technology in learning is one indicator of professionalism. Mastery of technology becomes a necessity in line with the development and growth of technological progress. Spencer, McLellanf, and Spencer (in Yulaelawati, 2004, p. 16) states that competencies are divided into three categories, namely knowledge, skills and personal characteristics. Knowledge competence relates to knowledge of facts or procedural knowledge of a discipline. Skills are cognitive or behavioral skills such as building understanding and making detailed orinetations. Personal characteristics competence is the nature of the individual in the ability to adapt, solve problems, initiatives, independence, integrity, and interpersonal awareness.

Parkay & Stanford (2011, p. 207) state that quality training for teachers on the use and use of technology in learning has an important role. Because skills in new technology are needed in the workplace, technology literacy is also needed in the classroom. So, mastery of skills in a variety of technologies that are always undergoing evolution and developing the ability to evaluate *softwear* and *websites* must be part of professional development. Evaluation of the use of technology is important to be done by the teacher so that it matches the characteristics of the material to be delivered.

McCain & Jukes as quoted by Parkay and Stanford (2011, p. 186) state that the multiplied power of technology during the 1990s turned us into a high-speed and high-tech society. As a result, we all experience increasingly rapid changes at a speed that has never been experienced in human history. Most of us involved in education are not ready for this, and as a result, we have not been able to respond to the technology as fast as the world outside of education. We must quickly pursue it or face the possibility of becoming irrelevant.

### 2 Technology in Learning

Mastery of teacher competence in the field of technology is now a necessity. The use of technology can help teachers develop learning materials and media. Maldino, et.all (2011, pp. 173-174) states that there are advantages in using technology in learning, namely individualized, special needs, monitoring, multisensory experience, and student participation.

Learning in early childhood by using media and technology-based learning resources can help develop children's abilities optimally. The objects that are displayed through the tool become easier to learn. Buckingham was quoted as saying by JessikaK. Parker (Schrum, 2013, p. 99) that digital media provides a new way to connect and represent the world in communication. The most common problem with the use of such media in education is that it is a means of conveying information - when in fact, as a neutral tool or "teaching aid".

Media and learning resources using technology are one of the tools so that teachers must still make or provide material in accordance with the Basic Competencies to be taught. Beck as quoted by Parkay and Stanford (2011, pp. 192-193) states that learning objects are digital sources that can be reused to support learning. Learning objects are small digital sources that are *self-continued*- each learning object can be used independently, can be reused ie one learning object can be used in many contexts for various purposes, can be aggregated ie learning objects can be combined into one content group, including traditional learning structure, and is characterized by metadata ie each learning object has descriptive information that allows the object to be found easily through *search*.

The teacher is important to master the characteristics of the technology that will be used in accordance with the characteristics of the material. Each technology has advantages and disadvantages that need to be chosen so that in accordance with the objectives to be achieved. Doering, et.al (2010, p.98) states that there are four characteristics of integration between computers and learning systems. These four characteristics are; (1) *instructional objectives specified, with each lesson tied to those objectives*; (2) *lesson integrated into the standard curriculum*; (3) *software that spans several grade levels in comprehensive fashion*; and (4) *a management system that collects and records results of students' performance*. The use of technology in learning can be done with specific learning materials. Integrating the material must also pay attention to curriculum standards so that there is continuity between the material to be conveyed with the learning objectives. In learning material that is procedural use and use of technology is very important because a lot of material if described can lead to different interpretations but with technology media such as film can give the same perception between teachers and students. The use of technology in the form of multimedia this material can be repeated with intensity and same quality

## **RESEARCH METHODOLOGY**

This study aims to improve the ability of teachers in mastering digital technology in learning and knowing the effectiveness of digital technology mastery in developing learning materials.

The research respondents of PAUD teachers in the district area of Central Ternate City were 30 people. The research method uses research and development developed by Borg and Gall. The study was conducted for six months starting in July until December 2018. The research data were obtained through expert testing, *one to onetest*, small group test, and large group test. Data analysis technique was using descriptive analytic.

## **RESULTS AND DISCUSSION**

research and development was carried out for one semester involving as many as 30 teachers. Based on the research and development steps of Borg and Gall there were 10 stages. Based on the results of the research the following data were obtained.

First, at the time of gathering and identifying the needs obtained data as much as 80% of teachers have not used the simplest technological aids in learning and 20% have used but not often. Preliminary research also shows 100% of teachers have a smartphone. Based on preliminary research, a training model for developing digital-based learning materials and media is developed.

Second, a training module based on the 2013 PAUD curriculum was compiled. This training module emphasizes the material and media that will be used in accordance with the Basic Competencies to be taught.

Third, conducting an expert test is a module assessed by three experts to obtain the module readability data and the suitability of the material with Basic Competence. Based on the expert test, input and suggestions are obtained to simplify the objectives of each module so that it is more easily understood by the teacher.

Fourth, together with the expert test, one to one test was conducted by 3 teachers. The purpose of this test was to obtain readability data and the suitability of the material with Basic Competencies. The results of input and suggestions namely digital technology used focus on the use of smartphones because all teachers have .

Fifth, based on expert and one-to-one input, a revision of the training module is then carried out. The revision result is completed and the next step is a small group test.

Sixth, a small group test was conducted by 7 teachers. In this small group test the teacher practiced making learning materials and media using the telephone. The following is an example of using a smartphone on the theme of Myself.

Table 1 development of learning material

Theme	Material
Myself	Self- A Friend's ExpressionExpression
	Laughing Photo Laughing Photo
	Sad photo Sad photo
	Hilarious hilarious

Expression Photo taken by teachers through the smart phone friend dimiliki. Ekspresi done by children using smart phones owned by guru. Anak photographing each other in accordance with the instructions given by guru. Hasil these photos at the same time aired through the teacher's laptop. Schools that have LCDs are then displayed through the screen so that it can be clearly seen by children. The teacher then discusses self-expression and friend's expression based on the photo shows they see.

The results of input and suggestions on the module content during the small group test namely learning objectives and indicators are clearly differentiated making it easier for teachers to measure the level of competency achievement. Constraints faced by each type of smartphone can produce clear photos so that when enlarged through a laptop the photo object becomes broken or less clearly seen.

Seventh, a digital training module was revised according to the findings and input during the small group test. The revised module was then re-conducted in the large group trial.

Eighth, namely conducting large group trials conducted by 20 teachers. In this large group test conducted through *Focus Group Discussions*. Learning simulations are conducted by teachers and some become students. Simulations are still using self-expression material. The teacher takes photos of each other according to the expression in the module. The photos are then displayed as learning material. The teacher who acts as a teacher then discusses expression and is associated with the five senses. In the FGD there was no input because according to the teacher it was in accordance with Basic Competence and the instructions were easy to understand.

Ninth, the module was revised mainly in the editorial which was not appropriate. After the module was printed it was limited as a document that was ready to be used.

The use of smart phones by teachers in learning is still very limited. The teacher assesses that digital-based learning is considered complicated but after following the training there is an open insight into technology in learning. Smart phones are also one of the digital technologies that can be utilized for developing learning materials and resources. The teacher has so far not understood the use of a smartphone that can be utilized in learning so that it interests the child.

Practical training in the use of technology in learning needs to be designed in a simple way so as to make it easier for PAUD teachers to develop their competencies. Training in the use of digital technology for teachers is one means of opening up insights on the importance of learning by using technological aids.

Learning in early childhood using technological aids is more interesting because it clearly displays learning material. Children who have a smartphone can explore through photos of surrounding objects. Children can photograph flowers in various colors. Photograph leaves

in various shapes. Children can find material and concepts of knowledge both individually and in groups. .

## **CONCLUSION**

Based on the results of the tests at the time of the FGD, 95% of teachers were able to develop learning materials and media through digital technology. Digital-based training modules are effective for improving teacher competency. Based on the results of this study it is recommended that schools develop the learning material designed together with students. Technology equipment such as laptops, LCDs, need to be provided in classrooms so as to facilitate teachers in developing learning material.

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