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**An Analysis of Teachers' Perceptions toward the Role of ICT Based Media in Teaching and Learning Process among Primary Schools' Teachers**

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## AN ANALYSIS OF TEACHERS' PERCEPTIONS TOWARD THE ROLE OF ICT BASED MEDIA IN TEACHING AND LEARNING PROCESS AMONG PRIMARY SCHOOLS' TEACHERS

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### **Abstract**

*Development in technology assists teachers and educators to reach goals in teaching and learning easily. Along with advancement of technology in teaching, teachers were expected to utilize this technology such as ICT-based media to improve quality of their teaching. This paper was a survey research which tried to investigate attitudes and perceptions of 73 elementary school teachers toward the use of ICT-based media especially video in teaching learning process. Both quantitative and qualitative data were used to display teachers' perception. The result of this study shows that almost all teachers considered that using media is very important in teaching. The data from questionnaires shows that most teachers (95,1%) agreed that ICT-based media made teaching and learning process more enjoyable and effective. They also believed that the role of media together with teacher is essential in teaching since the collaboration between teachers and media allow students to understand and memorize materials given easily. However, besides teachers responded positively toward ICT-based media, they also encountered some barriers in applying this technology in teaching, such as : teachers lacked the skills or basic concepts about ICT, (felt were old enough) to use ICT based-media in the future, lacked of eyes vision, inconvenience feeling of using ICT in the classroom, and lacked of ICT facilities at school. This indicates that professional development program is essential for teachers to promote the use of technology in daily teaching practices.*

**Keywords:** *Teachers' Perception, ICT Based Media, Video, Teaching; Learning Process*





## A. Introduction

In modern ages, today's society has been bound rapidly with a developed technology amenities (Daniels, 2002). Therefore, Information, Communication and technology (ICT) proficiency has been considered as one of fundamental skills beyond other skills such as reading, writing and numeracy. Hence, the teaching and learning process and research cannot be separated from the influences of ICT (Yusuf, 2005). It is undeniable that every activities related to education field, such as school activities, and teaching and learning development as well as work life have been assisted by the implementation of ICT and it has been believed that through ICT usage, those works have been accomplished quickly and effectively. (Davis and Tearle, 1999; Lemke and Coughlin, 1998; cited by Yusuf 2005). ICT based media is one of the components in teaching that has a great influence on students' learning. It enhances students' learning which in turn will assist them to achieve better grades.

Arsyad (2011) argued that media is a component of learning sources including instructional materials found in students' environment that can stimulate students' learning. Learning process is a process of communication in a system. It is argued that instructional ICT based media play an important role in the learning process. If instructional process carried out without using ICT based media, then the learning process as communication process will not happen optimally. This indicates that instructional media is an integral part of the learning system. The belief of this has led many governments to develop policies to promote learning and the use of digital technology throughout education system for learning (Hew & Brush, 2006; Julie, Leung, Thanh, Posadas, Sacritan & Samenov, 2010; Vale, Julie, Buteau & Ridgway, 2010).

Nowadays, teachers more focus on applying the best method in teaching. Meanwhile, media as supporting tools are as important as teaching method itself; for example using media video in teaching. Some experts explained the advantages of using video as instructional media, they are: Uno and Lamatenggo (2011) mentioned some advantages of using video as instructional media such as video can manipulate time and



place. Therefore, students will feel as if they exist in the place even though they are in the class. Video also shows small, big, dangerous objects, and even the objects that cannot be visited by the students. Moreover, Daryanto (2010) and Yarning (2015) mentioned advantages of using instructional media in learning such as pictures of video are flexible and can be changed as needed, and video add new dimension in learning.

Using of relevant and appropriate media in teaching learning can optimize the process of students' learning. For teacher, media can help the teacher to make the concepts or ideas become real. Besides, media can increase students' motivation to learn. Furthermore, for students, media help them to think and act critically. Thus, media help teacher and students to achieve standard competence that was determined. Therefore, to achieve this goal, it is important to develop various media in teaching learning.

Therefore, this research tries to investigate the teachers' perception toward ICT-based media in teaching process at elementary schools in Banda Aceh especially media video. The researchers wanted to know how important media is for the teachers. Moreover, this study tries to find out how often the teachers use various media in teaching and obstacles they faced in incorporating ICT-based media in their daily teaching practice.

## **B. Method**

This paper reports on one component of our designing research project on video based instruction model to improve teacher instruction quality conducted in 2017. The objective of this study was to reveal primary teachers' perceptions of using ICT in classroom, and whether, in any way, the use of ICT aids them to conduct instruction effectively. A descriptive study was used to explore primary school teachers' beliefs related to intention and to investigate the dynamics of teachers' intention change. Data obtained from the responses given to the open-ended question were categorized into themes by using qualitative analysis methods.





### *Participants*

The study group for the research comprised a total of 73 teachers from 17 primary schools in Banda Aceh. A convenient but reasonably representative sample of teachers was obtained. After getting research permit from local education authority, approximately 20 schools were visited to distribute the questionnaire for teachers. Research permit letters were sent first to school principals to explain in detail about the aim of the study then school principals asked teachers in their school to volunteer to complete and return the filled questionnaire.

### *Data Collection Instrument*

The questionnaire, which was prepared by the researcher and used as a data collecting instrument, consists of two parts. The first part of the form comprised 18 statements modified from (Taiwo, 2009) questionnaire called Media Perception Evaluation Scale (MPES). The last part of the form are open-ended questions related to applying ICT-based media especially video in teaching and learning process. The aim of the open-ended question was to give participants the opportunity to express their idea and emotions freely. "Thus, the thematic variety was increased to a maximum" (Guner: 510). In addition, to support the data collection, questionnaires were equipped with some questions such as gender, period of teaching, and name of respondent's school.

### *Data Analysis*

After collected, the data were then reviewed by the researcher. Questionnaires, where the demographic or the open-ended question was not answered, were excluded from the data set. The questionnaire, where all the questions were answered was coded and the related data were transferred to SPSS for further analyses. The responses given to the open-ended questions in the second part of the questionnaire were read and typed on word processor. Three main themes were determined based on qualitative data. After the identification of the themes, researcher read all answers of open ended question and assigned them to respected themes.



### C. Results and Discussion

Results are reported in the following three sections. Data of three sections are outline as follow: discussion of the demographic characteristics of the teachers who participated in the survey; teachers' perceptions of using ICT media in teaching; and the last section explores teachers' experiences and barriers faced in using ICT based media. The data of the first and the second sections collected from questionnaires and the data of third section comes from open-ended questionnaires.

#### 1. Demographic data: Characteristics of Teachers and Their Teaching Periods

Teachers who responded the survey ( $n = 73$ ) came from 17 different primary schools in Banda Aceh. The schools chosen as the sample were reasonably representation both types of schools: government and private schools. In addition, 70% of these schools are placed in metropolitan area. In this study, 98,63% teachers were female and only 1.36% teachers were male. The greatest proportion of teachers 36.9% was 21 to 30 years of age and 40% of these were 55 or over.

Table 1. Teaching Period

Years of teaching	Frequency	Percent
less than 5 years	6	8.2
5-10 years	20	27.3
11-20 years	15	20.5
21-30 years	27	36.9
More than 30 years	5	6.8
Total	73	100.0

The table above shows the teachers' teaching period from less than 5 years to more than 30 years. Based on the table, it can be seen that 36.9% teacher had been teaching for 21 to 30 years. While 8.2% of the teachers in the sample had been teaching for less than five years, 6.8% teachers had been teaching more than 30 years, 27.3% teachers had been teaching for 5-10 years. The rest of teachers 20.5% teachers had been teaching from 11 to 20 years.



## 2. Teachers' perceptions of ICT based Media

To obtain the data about teachers' perception toward using ICT-based media in teaching process, the teachers were asked to answer some questions derived from questionnaires which consist of 18 questions related to their perception about displaying ICT-based media in teaching. The results of the questionnaires were divided into three themes: teachers' perception about advantages of using ICT; teachers' perceptions about the role of ICT media in teaching, and teachers' perceptions about using ICT media together with a teacher or without a teacher in class. The perceptions of teacher are presented within three categories: negative, neutral and positive. These categories were obtained by recoded the original scale (a five-point Likert scale ranged from strongly disagree, disagree, uncertainty, agree to strongly agree). Positive perception represents the teachers' response between strongly agree and agree, while negative perception represents the teachers' response between strongly disagree and disagree. Besides, neutral perception represents teachers' uncertain answer on the item. The results of the questionnaires are presented as below:

### a. Teachers' Perceptions about Advantages of Using ICT in Teaching

The first part of teachers' perception investigated is about the advantages of using ICT media in teaching. There are five questions that need to be answered by the teachers. Below are the teachers' responds:

Table 2. Teachers' Perceptions about Advantages of Using ICT in Teaching

Teachers' survey			
Advantages of using ICT in teaching			
Statement	Negative	Neutral	Positive
Teacher considers ICT-based media as a solution if he/she is lack of materials	2.4	4.9	90.3
The main goal of using ICT -based media is helping teacher to increase effectiveness in teaching	-	7.3	92.7
The use of ICT-based media make	2.4	2.4	95.1

students learn more pleased and more meaningful			
ICT-based media can be used to connect materials given with facts in the real life	2.4	2.4	95.1
The use of ICT-based media should be maintained because this kinds of media help teachers in teaching	7.3	2.4	90.3

Based on the teachers' responds through questionnaires about advantages of using ICT media above, it could be indicated that 95.1% teachers considered that ICT-based media make students learn more pleased and more meaningful and ICT-based media can be used to connect materials given with facts in the real life. While 90.3% teachers considered ICT-based media as a solution if he/she is lack of materials and ICT-based media should be maintained because this kinds of media help teachers in teaching. Moreover, 92.7% teachers considered that the main goal of using ICT -based media is helping teacher to increase effectiveness in teaching.

*b. Teachers' perception toward the role of using ICT Media in teaching*

The second part of questionnaire that must be answered by the teachers is related to the role of ICT media in teaching. The roles of ICT media in this study were divided into positive and negative. The teachers' responds could be seen as below:

Table 3. The Role of ICT-media in Teaching

Teachers' survey			
The Role of ICT-media in Teaching			
Statement	Negative	Neutral	Positive
ICTs- based media limit teachers' activities	87.8	4.9	2.4
Teacher should limit the use of ICT-based media because it threaten teachers' position	92.2	2.4	4.8
The use of ICT -based media makes teacher lost function in teaching	95.1	4.9	-



ICT-based media are partner of teachers in teaching	12.2	7.3	80.5
Teacher believe can teach well by using ICT-based media	14.7	2.4	82.9

The first three statements above are the negative roles of using ICT media in teaching. Meanwhile, the fourth and the fifth statements are positive roles of using ICT media. Most teachers (87.8%) did not agree that ICTs-based media limit teachers' activities; and 92.2% teachers responded negatively toward the statement *Teacher should limit the use of ICT-based media because it threatens teachers' position*. Same as two responds in the previous, the teachers (95.1%) also responded negatively toward the statement the use of ICT makes teacher lost function in teaching. While 80.5% teachers considered ICT-based media are partner of teachers in teaching and 82.9% teachers believe can teach well by using ICT-based media.

c. *The Teachers' Perceptions toward using ICT - media together with a teacher or without a teacher in class.*

This section dicussed mainly about the teachers' perceptions toward using ICT - media together with a teacher or without a teacher in class. The teachers' responds toward the theme are presented as below:

Table 4. *The Teachers' Perceptions toward using ICT - media together with a teacher or without a teacher in class*

Teachers' survei The Teachers' Perceptions toward using ICT -media together with a teacher or without a teacher in class			
Statement	Negative	Neutral	Positive
Students learn better while using ICT- based media together with teacher instead of using it alone	17	9.8	73.2
The use of ICT-based media helps students to understand materials more easily than to get materials through speech conveyed by teachers directly	12.2	4.9	82.9



Both media and teacher are necessary	7.3	2.4	87.8
The successfulness of teaching depends on teachers and ICT-based media	29.3	4.9	68.2
Teachers can easily determine students understanding when ICT-based media are used together with teachers instead of using ICT-based media alone.	4.8	7.3	85.3

According to the teachers responds, 73.2% teachers believed that students learn better while using ICT- based media together with teacher instead of using it alone and 82.9% teachers responded positively of the use of ICT-based media helps students to understand materials more easily than to get materials through speech conveyed by teachers directly. Furthermore, teachers (87.8%) positively agreed that both media and teachers are necessary in teaching. Then, 68.2% teachers believed that the successfulness of teaching depends on teachers and ICT-based media. While 85.3% teachers agreed that students can easily understand when ICT-based media are used together with teachers instead of using ICT-based media alone.

### 3. Teachers' Experiences and Barriers Faced in Using ICT- Based Media

This section discussed about experiences and the barrier the teacher encountered during teaching using ICT- based media. The data obtained from 10 teachers who had been teaching more than 20 years and returned the questionnaire completely. The following table presented the questions used in open-ended questionnaire:

Table 5. Open-Ended Questionnaire

Questions	Responses
Q1. Do you use various kinds of ICT while teaching in the class?	4
Q2. What kind of ICT media usually do you use?	4





Q3. Have you ever displayed video in teaching?	2
Q4. Have you ever developed your own teaching video? if not what are the barriers you found?	10
Q5. Have you ever participated in training of using learning media?	5

For the first question, 4 teachers answered yes, they have used ICT in classroom and the rest teachers answered never used it. In the second question, 4 teachers who answered yes in the previous questions mentioned the media that they have ever used in teaching. Below are the teachers' answers.

T1: I usually use mobile phone when teaching in the class.

T2: Since the facilities in our school are complete, I usually use computer and multimedia for my students such as video, YouTube, or Google and power point.

T3: I use video or CD but not often

T4: I use interactive media

The third question asks teachers' experiences of using video in teaching. From 10 teachers *selected* as the sample, only two teachers who once used learning video in teaching. In the next question, the teachers were asked about their experiences in developing their own learning video and the barriers faced. 7 teachers do not know how to make video, In other words, the inability of the teachers in developing a learning video because they (are) lack of knowledge of ICT concepts and theories. While three teachers explained that making learning video waste to much time. Moreover, other teachers also said that they have been old enough, so that they lack of good vision to use video in teaching. In addition, lack of ICT facilities at school also becomes barriers of the teachers to develop learning video. In the last question, 5 teachers wrote that they have participated in training of using learning media and ICT either held by educational authorities or held by other agencies.

Based on the result obtained from questionnaire either in form of Likert scale or in form of open-ended questionnaire, the discussion



divided into three parts: 1. Teachers' perceptions toward applying ICT-based media in teaching, 2. Teachers' experiences in using ICT, and 3. Barriers in using ICT.

*Teachers' perceptions toward the use of ICT-based media*

Data from questionnaire showed that teachers responded positively toward the use of ICT-based media. It is obtained from the Likert Scale showing that 92.7% teachers agreed that the main goal of using ICT-based media is helping teacher to increase effectiveness in teaching. Beside it has good effect to the teachers, ICT-based media also has good effects to students in learning. It is indicated by teachers' responses (95.1%) positively toward the statement the uses of ICT-based media makes students learn more pleased and more meaningful. It is based on Amin's statement (2017, p.3), "Teachers generate meaningful and engaging learning experiences for their students, strategically using ICT to enhance learning. Students enjoy learning and the independent enquiry which innovative and appropriate use of ICT can foster".

Moreover, all teachers regarded that ICT was important to be applied in teaching. Although some teachers had not used ICT yet, they were eager to use it in the next lesson. It is because they knew the benefit of using ICT in class, for example: increase student's learning interest, show the examples of outside world clearly, improve student's understanding, and connect learning materials with real life easily.

*Teachers' experiences in using ICT-based media*

The further findings form open-ended questionnaire show that 4 from 10 teachers who become respondents have used ICT in teaching. They have used various kind of ICT such as computer, notebook, and head projector. Yet, 6 teachers have never used ICT at all. They admitted that they have never followed training or coaching related to the use of ICT in education. In other words, it could be concluded that all this time they have not mastered and understood the skills and concepts in



operating ICT media. Therefore, mentoring and training are needed by teachers in order to improve the quality of teaching in the future.

#### *Barriers faced in the use of ICT-based media*

Even though the use of ICT-based media has good impact on in teaching and learning according to the teachers' perceptions, yet, 6 teachers from 10 teachers never used ICT media in teaching. This indicated that the teachers wanted to use ICT based media during teaching but there are some barriers in using it. Based on open ended questionnaire, three teachers who did not want to use ICT media in teaching mentioned some barriers in applying ICT-based media such as: they were lack skills or basic concepts about ICT, felt were old enough to use media in the future, lack of eyes vision, inconvenience feeling of using ICT in the classroom, and lack of ICT facilities at school. These barriers is the same as barriers classified by Becta (2004) who divided the use ICT barriers in form of teachers-level-barriers and school-level-barriers, and Pierce and Ball (2009) who found that teacher lack of technological skill so that they need to be equipped with ICT skill through teacher professional development program.

#### **D. Conclusion**

Seventy three teachers who taught primary schools in Banda Aceh have responded positively toward the using of media in teaching. This is based on the data collected through from questionnaire in which almost all teachers have positive perceptions towards media help teacher to increase effectiveness in teaching, media are partner of teachers in teaching, without media the quality of teaching is bad, and media can increase students understanding. On the contrary, almost all teachers responded negatively toward the statement about teacher does not need any other media in all situation, using media makes teacher lost function in teaching, and media video limits teachers' activities.

Moreover, based on the data obtained from questionnaire, only few teachers had experienced using ICT-based media in their classroom. It



was happened because the teachers participated in few trainings about the use of ICT in teaching. Besides, the lack of facilities of ICT at schools also becomes the problems in enhancing teachers' quality of teaching in this modern era. The responses to this survey confirm that professional developments for teachers need to address perception and attitude as well as technological skill development.

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