

Self-efficacy and Attitude of the Teachers of SMAN Kuansing District towards the Utilization of ICT

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Abstract. The development of Information and Communication Technology (ICT) has a very big influence on education. With the enactment of the 2013 Curriculum, a technology-based curriculum, teachers as learning agents must continue to equip themselves with knowledge related to ICT. This descriptive study aims to describe and analyze self-efficacy and attitudes of the teachers of SMAN Kuansing District towards the utilization of ICT in learning activities. Obstacles faced by the teachers in utilizing ICT and the efforts that have been done to overcome the obstacles are also discussed. The research data was collected in August 2018. By using stratified random sampling technique, 55 teachers were determined as the sample. The instrument used was a questionnaire. Then, the questionnaire was analyzed through descriptive statistics to obtain frequencies and percentages. Finally, it can be concluded that the average score of self-efficacy of the teachers of SMAN in Kuansing District in utilizing ICT is 80.6% and the average score of their attitudes is 92.8%. It means that their self-efficacy and attitude are in very good levels. Although there are many obstacles faced by teachers in terms of facilities, infrastructure and human resources, the teachers have their own strategies to solve those obstacle.

Keyword: *Attitude, ICT, Self-efficacy*

1. Introduction

In 2013 the Government of the Republic Indonesia through the Ministry of Education and Culture launched a new curriculum for elementary and high school students, which was named the 2013 Curriculum. This curriculum is a technology-based curriculum. Government Regulation No 14/2005 concerning teachers and lecturers states that the main task of teachers is to educate, teach, guide, train, and evaluate students in early childhood education as well as additional tasks that are relevant to school functions. Through the use of Information and Communication Technology (ICT), it will be easier for teachers to present good quality learning activities. This is

in line with the opinion of Miarso (2004) who says that utilization of ICT in learning activities is one of the factors that support the realization of a quality learning process to achieve educational goals

The term of ICT became popular in Indonesia in the late 1970s. According to Daniel (2012), ICT is a combination of information technology and communication technology. ICT is a tool to get added value in producing fast, complete, accurate, transparent and up-to-date information. Therefore, ICT can be interpreted as everything that makes it easy for humans to channel information quickly and effectively both in the form of programs and tools or equipment. The development of ICT has a great influence on the education world in Indonesia, especially in the learning process. Through technological development, interaction between teachers and students is not only can be done through face-to-face relationships but also through communication media such as telephone, video conference, e-mail, and so on. The teacher can provide services to students without having face to face meeting. In addition, teachers and students can obtain information or learning materials from various sources of cyberspace with the help of computers or the internet. Furthermore, teachers and students can search, explore, analyze, and exchange information effectively and efficiently.

With the enactment of the 2013 Curriculum teachers as learning agents must continue to equip them with knowledge related to ICT. The problems that occur in the field are that most teachers are hesitant or afraid of learning ICT because they are afraid they cannot master it well. Whereas the doubt or shame will not solve the problems. Ideally, teachers who do not understand ICT are more motivated to continue learning because the ability to be able to utilize ICT in learning activities can provide added value in improving the quality of learning. According to Government Regulation No 14/ 2005, in carrying out professional duties the teachers and lecturers are obliged to improve and develop their academic qualifications and competencies in accordance with the development of science, technology and art. Based on that statement it is necessary to find out the extent to which ICT are used in learning activities, especially in Kuansing District. Kuansing District government is actively trying to improve the quality of education, infrastructure and human resources for the better.

Based on initial observation, it appears that the learning process in several public senior high schools (SMAN) in Kuansing District already equipped with computer, projector, internet, etc. and some schools already have school website pages. Some teachers have also utilized ICT such as computers and projectors as a means of supporting learning activities. However, the utilization of ICT by the teachers is not optimal. The teachers frequently utilize power point presentation to avoid writing a lot on the board, not to create interesting media that might improve students' motivation. Some teachers say that they cannot utilize ICT due to lack of

knowledge and ability to utilize computers and internet as media and learning resources. Therefore, it is necessary to explore fundamentally the problems regarding the utilization of ICT by the teachers.

Self-efficacy and attitude are two variables that have a big contribution as a driving force for the teachers to be able to manage teaching and learning activities in formal or virtual classrooms. Self-efficacy is a person's belief in his ability to master the situation and produce something beneficial (Santrock 2007; Ibrahim et al., 2018). Furthermore it is said that teachers who have high self-efficacy are more prepared to accept innovation, believe in their own abilities, commitment to work and show better work performance. Thus, teachers who have high self-efficacy are also more optimistic in dealing with 2013 Curriculum. The flow of globalization does bring big changes in the field of education. To be able to follow the flow of globalization, teachers are required to innovate in the implementation of learning. Besides being required to have high self-efficacy, teachers are also required to have a positive attitude towards the use of ICTs in learning activities.

The term self-efficacy was introduced by Bandura (1997). Self-efficacy may measure a person's thoughts, feelings, and actions, further can affect how someone acts. Self-efficacy also functions as the main motivating force and considered as a mediator of an effort. Further Bandura (1997) says that self-efficacy is not related to the skills or abilities possessed, but are related to individual beliefs about what can be done with the skills or abilities that they have, no matter how large. Self-efficacy emphasizes the components of self-confidence that a person has in dealing with future situations. Bandura (1997) also mentions that there are four factors forming self-efficacy in a person, namely: (1) Mastery experiences. This is related to a person's past experience in doing something; (2) Vicarious experiences. One's level of self-efficacy can be influenced if someone compares the achievements he achieved with the achievements of others; (3) Social persuasion. Social persuasion is also one of the factors that can have an impact on self-efficacy. The impact can be positive or negative depending on the credibility of the person who gives the persuasion in the eyes of the person who receives the persuasion; (4) Physiological and emotional states. This aspect is related to a person's emotional state such as: fatigue, pain, anxiety, stress, and the like.

Self-efficacy felt by someone is a key role in motivation and behavior change; that is, the higher a person's self-efficacy is, he tends to set higher goals, has greater achievement efforts, is more persistent in facing challenges, able to deal with failure. Schunk and Pajares (2009) explain that self-efficacy is the main determinant of one's motivation, learning, self-regulation, and achievement. This has a direct impact on a person's behavior because self-efficacy determines the extent to which he wants to make an

effort to survive when faced with obstacles, and must be resilient when facing adverse situations. So, Self-efficacy is not only determined the level of effort, but also its quality as well as how productive the effort is deployed. Selwyn, Dawes, and Mercer (2001) argue that teacher beliefs about the use of ICTs play an important role in shaping their responses to instructional reforms, including technology integration. Some examples of teacher beliefs are their beliefs about how technology must be used in teaching and beliefs about their ability to use technology.

Based on the explanation, it can be synthesized that teachers who have high self-efficacy in the utilization of ICT in learning activities are teachers who have confidence in their ability to plan, organize, carry out learning activities and carry out assessments by utilizing ICT to achieve a learning goal that has been outlined. Also followed by efforts to use ICT optimally and self-resilience when face obstacles or difficulties, and never give up. Self-efficacy can be seen from: (1) Belief in the abilities and knowledge possessed; (2) Belief in the ability to integrate ICT in learning activities; (3) Belief about the results to be achieved; and (4) Belief in the ability to face obstacles / difficulties.

Attitude is an evaluative statement - both pleasant and unpleasant towards objects, individuals, or events. Attitude is also a reaction or response in the form of an assessment that arises from an individual to an object. The success of integrating ICT in learning activities will be greatly influenced by the attitudes, knowledge, talents and desires of the teacher in applying the use of ICTs. According to Peters and Slovic (2007) attitude consists of three elements: (1) Affective element, related to individual emotions, like or dislike someone or object; (2) Cognitive elements, refers to individual knowledge about a person or an object; and (3) Behavioral elements refer to someone's open behavior directed to someone or object. These three elements must be considered to determine the right understanding of one's attitude. To apply the 2013 Curriculum, the positive attitude of teachers toward the integration of ICT in learning activities is very important. Positive attitudes can be main drivers that play an important role in the integration of technology in schools and in classrooms (Teo, 2008). This opinion is also supported by Parilah (2015) who says that the utilization of ICT in classroom learning activities is very important to provide opportunities for students to learn in the current information age. Based on the description, the research problems of this research are are: (1) What is the self-efficacy of the teachers of SMAN Kuansing District towards the utilization of ICT in learning activities?; (2) What is the attitude of the teachers of SMAN Kuansing District towards the utilization of ICT in learning activities?; (3) What are the obstacles faced by the teachers of SMAN Kuansing District in utilizing ICT in learning activities and what are the efforts that have been done to overcome the obstacles faced? Then, the purposes of the research are to discuss (1) self-efficacy of the teachers of

SMAN Kuansing District towards the utilization of ICT in learning activities; (2) Attitude of the teachers of SMAN Kuansing District towards the utilization of ICT in learning activities; and (3) Obstacles faced by the teachers of SMAN Kuansing District in utilizing ICT in learning activities and the efforts that have been done to overcome the obstacles faced.

2. Methodology

As stated before, 55 teachers were determined to be the sample of this research. Among them, 19 were male teachers, and 36 others were females. A total of 38 teachers were civil servants and 17 teachers were non-civil servants. When viewed from their teaching experience, a total of 12 teachers have taught for less than 5 years, 16 teachers have taught between 5-10 years, 17 teachers have taught between 11-15 years, 6 teachers have taught between 16-20 years and 4 other teachers have taught for more than 20 years. Judging from the latest education, 46 teachers have bachelor degrees, and 9 other teachers hold master's degrees. Below will be displayed the teachers teacher response to the questionnaire.

Teachers' Self-efficacy

The first Research Questions is: What is the self-efficacy of the teachers of SMAN Kuansing District towards the utilization of ICT in learning activities? The following Table is the result of data analysis.

Table 1: Teachers' Self-Efficacy

No	Statemens	Teachers' Response (%)			
		SDA	DA	A	SA
1	I believe that I have enough ability and knowledge to apply the overall utilization of ICT in learning activities.	0	7.3	76.4	16.4
2	I am sure that at my school I am one of the best teachers in utilizing ICT in learning activities.	0	50.9	34.4	16.4
3	I believe that I am able to search, evaluate and choose ICT devices that are appropriate to support my learning activities.	0	20.0	65.5	14.5
4	I feel confident when utilize ICT in learning activities.	0	1.8	74.5	23.6
5	I believe that I am able to adopt and adapt ICT-based learning activities.	1.8	23.6	52.8	16.4
6	I believe that I am able to create opportunities to utilize appropriate ICT tools in accordance with learning approach.	0	29.1	60.0	10.9
7	I believe that I am able to utilize Presentation Software such as: Microsoft word, Power point or excel in learning activities.	0	5.5	67.3	27.3
8	I believe that I am able to utilize ICTs such as				

	movies, animation, CD / VCD, e-mail, blogs, smart phones etc. in learning activities.	0	7.3	60.0	32.
9	I believe that I am able to organize ICT-based learning activities in a computer laboratory / language laboratory.	0	49.1	34.5	16.4
10	Although there are obstacles in utilizing ICT in learning activities, I believe that I can find ways to solve these problems and obstacles.	0	3.6	72.7	23.6
11	I believe that I am able to adopt and adapt the utilization of ICTs to assess students' learning and provide direct and constructive feedback.	0	14.	69.1	16.4
12	I believe that I am not able to utilize a word processor to create, edit or format documents for a learning activity.	0	41.8	45.5	12.7
13	In learning activities, I believe that I am able to guide students to use technology for enrichment and remedial.	0	27.3	43.6	29.1
14	In learning activities, I believe that I am able to guide students to use technology to be able to work independently and work collaboratively.	0	1.8	72.7	25.5
15	I am satisfied that I have applied the utilization of ICT in my learning activities.	0	30.9	45.5	23.6
16	I like to utilize ICT in my learning activities because I can see good results and benefits.	0	0	63.6	36.4
17	I am sure, if I continue to utilize ICT in learning activities, students' learning achievement will be better.	0	3.6	67.3	29.1
18	Although there are obstacles in the utilization of ICT in learning activities, I can find ways to solve these obstacles.	0	25.5	65.5	9.1
19	The more challenges and obstacles I face, the more excited I am to apply the utilization of ICTs in learning activities.	0	23.6	54.5	21.8
20	I believe that I am able to find new ideas so that the students can learn by utilizing ICT.	0	27.3	58.2	14.5
21	I believe that I can continue to integrate ICT in my learning activities in the future.	0	5.5	76.4	18.2
22	I am not stress to overcome the obstacles that I encounter when carrying out learning activities.	0	23.6	58.2	18.2

Note: 1 = Strongly Disagree/never; 2 = Disagree/ sometimes; 3 = Agree/often; and 4 = Strongly Agree/very often.

Table 1 illustrates that the average score of teacher's self-efficacy related to their confidence in ability and the knowledge they possessed is 73.9%, in terms of the ability to utilize ICT in learning activities is 81.2%. Teachers' self-efficacy related to beliefs about the results to be achieved in utilizing ICT in learning activities is 87.9% and related to the aspect of confidence in the ability to face obstacles is 78.9%. Overall, the average score of self-efficacy of the teachers of SMAN in Kuansing District in utilizing ICT is 80.6%.

Teachers' Attitude

The second Research Questions: What is the attitude of the teachers of SMAN Kuansing District towards the utilization of ICT in learning activities? The following Table is the result of data analysis

Table 2: Teachers' Attitude

No	Statements	Teachers' Response (%)			
		STS	TS	S	SS
1	The utilization of ICT in learning activities is very important to achieve the goals of learning.	0	3.6	65.5	30.9
2	The utilization of ICT can overcome the needs of the learning system in schools.	0	0	67.3	32.7
3	ICT is useful in obtaining and distributing accurate and fast information.	0	3.6	52.7	43.6
4	ICT provides more learning experiences because it can help students understand the concept of learning in more effective ways.	0	0	63.6	36.4
5	Students will learn more through ICT than through books.	0	10.9	56.4	32.7
6	The utilization of ICT in learning activities can create conducive atmosphere.	0	3.6	70.9	25.5
7	The utilization of ICT in learning activities can create effective communication between teachers and students.	0	0	78.2	21.8
8	The utilization of ICTs provides opportunities for teachers and students to learn more.	0	1.8	65.5	32.7
9	The utilization of ICT by teachers can accelerate students' understanding.	0	0	72.7	27.3
10	Learning things related to utilization ICT is fun.	0	21.8	65.5	12.7
11	The utilization of ICT in learning activities makes the students more motivated to learn.	0	1.8	67.3	30.9
12	I feel comfortable with the idea of using ICT in learning activities.	0	20.0	63.6	16.4
13	I think the utilization of ICT is not good.	0	23.6	58.2	18.2
14	I think the utilization of ICTs allows students to express their thoughts in a better and different way.	0	3.6	70.9	25.5
15	I think the utilization of ICT can save time in creating fun learning activities.	0	3.6	69.1	27.3
16	I am satisfied with the utilization of ICT in the learning activities that I do.	0	16.4	54.5	29.1
17	The utilization of ICT is more beneficial than the utilization of other media.	0	21.8	65.5	12.7
18	I wish to continue utilizing ICT in the future.	0	21.8	65.5	12.7

19	I have ICT devices that I can utilize in learning my activities	0	12.7	74.5	12.7
20	Utilizing ICT tools in learning activities is a fun thing	0	3.6	78.2	18.2
21	The conditions of ICT facilities in schools made me reluctant to use them in my learning activities	0	20.0	74.5	5.5
22	I utilize computer and the internet such as presentation slides, CD / VCDs, movies, e-mails, blogs etc. as a learning media.	0	9.1	76.4	14.5
23	I also utilize a smartphone as a learning medium.	0	25.5	70.9	3.6
24	I utilize computer and the internet as learning resources.	0	10.9	63.6	25.5
25	I utilize computer and the internet to assess students' learning outcomes.	0	5.5	81.8	12.7
26	The utilization of ICT in learning activities change my teaching strategies / methods.	0	3.6	74.5	21.8
27	I also train students to utilize ICT to seek information and enrich knowledge.	0	3.6	80.0	16.4
28	If I have time and opportunity, I will learn more about the utilization of ICT	0	3.6	70.9	25.5

Note: 1 = Strongly Disagree/never; 2 = Disagree/ sometimes; 3 = Agree/often; and 4 = Strongly Agree/very often.

Table 2 illustrates that the average score of teachers' attitude on cognitive aspects is 95.7%; on the affective aspect is 84.2%; and on the behavioral aspect is 98.6%. Overall, the average score of attitudes of the teachers of SMAN in Kuansing District in utilizing ICT is 92.8%.

Obstacles faced by the teachers and the efforts that have been done to overcome the obstacles

The obstacles faced by the teachers of SMAN Kuansing District in utilizing ICT in learning activities can be summarized as follows:

1. Lack of available ICT facilities such as: computers and projectors at school.
2. Poor quality of internet network that often caused problems.
3. Frequent electrical disturbances.
4. The school does not have a computer laboratory.
5. The school does not have a language laboratory.
6. Teachers have limited time to design or find interesting learning media through the internet due to lots of teaching load.
7. Limited knowledge of the teachers.
8. It is difficult to get learning materials, pictures, films or videos that are in accordance with the topics that will be taught.
9. Has never been joined training about the utilization of ICT.

The efforts that have been done by the teachers of SMAN Kuansing District to overcome the obstacles are:

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1. Realizing the lack of school facilities such as computers, projectors, etc. at schools, the teachers try to own and utilize their private property.
 2. Using private smart phone for internet connections.
 3. Ask friends and learn from them who have more knowledge about the utilization of ICT in learning activities.
 4. Learn independently through YouTube.
 5. Copy paste learning media from friends or the internet.
 6. Join the training about the utilization of ICT independently.

As mentioned before, the average score of teachers' self-efficacy is 80.6%.and the average score of the teacher's attitude is 92.8%. It means that self-efficacy and attitudes of teachers of SMAN Kuansing District toward the utilization of ICT in learning activities are in very good level. In general, teachers feel interested, happy and enjoy the utilization and integration of technology in learning activities, both now and in the future. This fact is certainly a very positive thing because it will affect the students' success, in accordance with what Teo (2006) says, the success of students' learning by using computers will depend on the teacher's attitude and the teacher's willingness to "embrace" technology. The teacher's positive attitude towards computer utilization can provide useful insight into the acceptance and use of technology in their teaching and learning. Similar opinion was expressed by Huang and Liaw (2005), where among the many factors that influence the success of computer use in class is the teacher's attitude toward the computer.

Generally it is believed that a teacher who has a positive attitude towards ICT is more motivated to integrate it into his learning activities (Albirini, 2006; Cavas et.al, 2009). Researchers also explain that attitudes towards technology can vary from very positive to very negative depending on a combination of factors that can influence attitudes. Self-efficacy, knowledge of ICT, gender and age are among the factors that are considered important (Mustafina, 2016). Similar opinion was expressed by Yamamoto and Yamaguchi (2016), that a positive institutional attitude towards ICT is related to the teacher's self-efficacy. A positive attitude can be embedded in policies, implementation systems, and/ or encouragement in school culture. Therefore, it is important for principals, education officer and teachers or other related institutions to generate, maintain and improve teachers' self-efficacy and positive attitudes towards the utilization of ICT.

From the standpoint of self-efficacy theory, the ideal method for increasing teachers' self-efficacy for computer use is to give them training and support in order to have the knowledge to work with computers in their classrooms. Analysis of this research data shows that only 24 teachers or 43.6% of the 55 teachers had attended training on the use of ICT in learning activities. Of course this fact can be an obstacle for teachers to be able to utilize ICT in

their learning activities. According to Mustafina (2016), the lack of knowledge that teachers have about ICT is one of the obstacles faced by teachers in utilizing ICT in learning activities. This happens especially for older teachers who have had experience of teaching more than 20 years.

In addition to obstacles related to the teachers' knowledge and ability, other obstacles faced by teachers of SMAN in Kuansing District are still a classic problem, namely technical problems such as electricity that often goes out or unstable internet connections. These problems are actually not problems faced by teachers in Kuansing District only, but also problems that occurs in various places in Indonesia and even abroad such as in Kazakhstan (Mustafina, 2016).

The urgent obstacles to be solved are the lack of supporting facilities for the implementation of ICT utilization by teachers, including inadequate number of lap top, projectors, and CD / VCDs learning in schools. Problems related to limited number of lap top availability have been solved by the teachers. Lots of teachers utilize their personal lap top because they already have theirs. However, the availability of projectors and CD / VCD learning is still lacking. Each school only has three or four projectors, so if the teacher wants to use the projector, he/ she usually books the projector a day before teaching. The lack of available CD / VCDs learning usually overcomes by the teacher by searching for self-learning videos via the internet. When the principals are asked for information about the limitations of the facilities, they said that the availability of funds from the school were very limited. Every year each school can only buy one or two projectors and there is also a possibility that the available projector will be damaged during the year. This situation is not only experienced by the teachers in Kuansing District, but it is also happening in Tanzania (Nyarusy, 2006).

Although the teachers face various obstacles in utilizing ICT, they recognize that many benefits can be obtained through the use of ICT in learning activities. By using interactive PowerPoint, and video learning, the teachers can explain concepts and subject matters faster. Teachers can also visualize material that is not possible to be presented in class by using videos or images that have been downloaded from the internet. Teachers can also use e-mail facilities for gathering tasks, so that class activities can be more focused on other activities to increase students' understanding. The next problem is that teachers have limited time to prepare computer-based learning media as well as to find additional information. Afamasaga (2008) revealed his findings that the internet is widely used by teachers to seek information before teaching. Finally, it can be said that the successful use of ICTs in learning activities is strongly related to the attitudes developed by teachers towards computers (Sorgo et.al. 2010). Further, positive or negative attitudes of a teacher are also determined by the teacher's self-efficacy.

3. Conclusion

Self-efficacy and attitudes of the teachers of SMAN in Kuansing District towards the utilization of ICT in learning activities are in very good level. Although there are many obstacles faced by teachers in terms of facilities and infrastructure, the teachers have their own strategies to solve them. Therefore, maintaining and improving their high self-efficacy and attitudes can be an important policy strategy for the government which in turn can create good quality of education as it is expected. This is not a simple task. Serious efforts from the teachers, the principal, education practitioner, policy makers, and financial and/ or technical support from the government are needed.

Implication and Suggestions

If it is viewed from the results of the questionnaire analysis, it appears that the level of self-efficacy of teachers is in very good category. The teachers feel confident that they have the ability and knowledge about ICT, confident in the ability to utilize ICT, confident in the results to be achieved when utilizing ICT and confident in the ability to deal with obstacles faced. But, when they want apply the use of ICT in learning activities, teachers face obstacles related to limited capacity, facilities and infrastructure. Only 50.9% of teachers were able to organize ICT-based learning activities in computer and/or language laboratories. 58.2% of teachers say unable to use a word-processor to create, edit or format documents for learning purposes. The principal, education practitioner, policy makers or other relevant parties can make policies to further enhance the ability and knowledge of teachers in utilizing ICT, while continuing to equip the facilities and infrastructure needed for the achievement of learning objectives as outlined in the 2013 Curriculum.

The suggestions that can be given are as follows: (1) In accordance with the expectations of the government and society, the teachers are expected to be ready to integrate ICT in daily teaching and learning process; (2) The principal, education practitioner, policy makers or other relevant parties should be able to build teachers' trust in their abilities to utilize ICT by giving them opportunities to join training, at least to acquire basic skills on the utilization of technology; (3) Students are expected to be able to follow the learning strategies applied by the teachers by utilizing ICT in learning activities.

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