CHAPTER II

REVIEW OF RELATED LITERATURE

2.1   Relevant Theories

This chapter presents review of related literature on factors influencing integration of ICT in English Senior High School in Pekanbaru**.** This chapter consists of relevant theories which are divided into: concept of ICT in English education, purposes of ICT in English education, types of ICT in English education, characteristics of ICT in English education, the advantages of ICT in English education, Non-manipulative factors influencing integration of ICT in English education, Manipulative factors influencing integration of ICT in English education and integration of ICT in English education .The relevant studies, conceptual framework and assumption are also will be discussed.

2.1.1   ICT in Education

Information and Communication Technology (ICT) that comprise of computers, internet, projectors, educational portal, audio and video conferencing are widely used in education nowadays. Information and Communication Technology can be defined as the all of the technology that use to processing and delivering the information. According to Sutopo (2012) stated that nowadays the education cannot be separated with ICT because ICT has been helped in planning, managing, and being a source of learning. It can conclude that ICT has an important role in teaching and learning process. Process of learning by using ICT

can be held any time and everywhere. Based on ICT, teaching and learning process no longer depends on printed materials such as book.

2.1.1.1 Concept of ICT in English Education

The development of Information Communication and Technology expand to all of aspects in life, including education. Education is an academic process that has purpose to improve social value, culture, moral, religion and prepare the learner to face the challenges and experience in their real life (Munir, 2009). So, education is the important thing in human's life because education had been teach the human about challenges and problems in life and made them can solve it when they get the problems in their real life.

The learner capable to develop their competence to find out, manage, evaluate the information and knowledge to solve the problem in their real life and join actively on the social activity. Therefore, the teaching and learning process need the effective and efficiency ways to makes the learner can accept the information and the knowledge.

According to Miller and Akume (2009) in Shiboko (2015) stated that the Information Communication and Technology refers to the process of gathering, accessing and disseminating data for an enhanced learning. It means that the teaching and learning process has been made simple through the application of electronic media, internet among others.

The learning should be oriented to the learner as the individual who has the potency, ability, interest, motivation that can extract and develop through the learning process. The source of learning is not only oriented to the teacher but also on the wider setting (Munir, 2009). The learning oriented to the wider source or also known as *broad based learning* such as the usage of technology instrument as a tools to support the learning to speed up and expand the learner's information and knowledge.

The technology can be assumed as a science that should be master by students as a tools on teaching and learning process. Hence, the teachers should integrate technology on the planning, applying, developing and evaluating the learning.

The utilization of technology on the educational system can be created the learning based the technology as the result of technology. The learning based Information Communication and Technology (ICT) has been changed the conventional system or traditional system to the learning based media such as computer and internet which had been called *e-learning*. On this learning system, the learners can choose the learning material based on their interest and it makes the learning more fun, not boring, full of motivation and spirit, and eye-catching.

According to Munir (2009) stated that the learning based Information Communication and Communication is a guidance from the teacher to facilitate the learner's learning effectively. It gives the learner's to develop their learning ways based on their characteristic, needs, passion and interest.

2.1.1.2 The Purpose of ICT in Education

According to Meenakshi (2013), the main purpose for ICT implementation in education is to provide the chance and tendency of integrating information and communication technology (ICT) into the general educational activities.

Meenakshi (2013) stated that there are 8 purposes of ICT to implementation in education:

1. To implement the principle of life-long learning / education.

2. To increase a variety of educational services and medium / method.

3. To promote equal opportunities to obtain education and information.

4. To develop a system of collecting and disseminating educational information.

5. To promote technology literacy of all citizens, especially for students.

6. To develop distance education with national contents.

7. To promote the culture of learning at school (development of learning skills, expansion of optional education, open source of education, etc.)

8. To support schools in sharing experience and information with others.

Meanwhile, according to Munir (2009) there are three purposes of ICT in education:

1.   Cognitive aspects

Information Communication and Technology had been improved the knowledge and students' interest about technology, students' thinking ability and prepare the student about education, work and their role in the society in the future.

2.   Affective aspect

Information Communication and Technology had been improved the creative, active, appreciative and independent attitude on using technology. Moreover, build the respect to the copyright in Information Communication and Technology.

3.   Psychomotor aspect

Information Communication and Technology had been improved the ability on using technology in the teaching and learning process. Build the ability and students' interest about technology. The scope of Information Communication and Technology included hardware and software aspects to gathering, storing, manipulation and presenting the information.

The purpose of learning by using the Information Communication and Technology also to gain the all of education in all level independently by using the various sources that related on the learning program. Based on the explanation above, the researcher can conclude that the using of ICT are expected to solve the problem in educational system. The purpose of ICT in education is give the opportunity for the people from the conventional teaching and learning process to gain the better knowledge through the using of ICT.

2.1.1.3 Types of ICT in Education

According Sutopo (2012), there are three types of ICT in Education:

1.   E-Learning

Rosernberg (2001) stated that E-learning is learning using internet technology in the delivery of learning in a wide range. E-learning is often associated with higher education and corporate training but actually E-Learning

includes learning at all levels in education, both formal and non-formal (Allen, 2006). E-Learning is also known as Online Learning. Web-based learning is part of E-learning and refers to learning using such browsers such as Internet Explorer, Mozilla Firefox, Opera, and Netscape.

2.   Blended Learning

Blended learning is a learning model that tried to combine several kinds of learning models that already exist. Some examples of blended learning are face-to-face learning, offline learning, and online learning.

3.   Distance Learning

Distance learning is a learning that using a media to make an interaction between teachers and students. In distance learning, teachers and students are not directly face to face, the learning separate between teacher and student (Rudestan and Schoenholtz-Reed, 2010).

According to Desmond Keegan cited in Smaldino (2008), to identify the distance learning system, there are four characteristic that must be fulfilled: Physical separation between teachers and students. There is also a well-managed learning program and the usage of ICT. Last, there are two-ways communication.

Learning communication system should be good for distance learning function can be achieved. Those functions are:

1.   Presentation of Information

The presentation of information is not only presented by the teacher, but also centered on the students. The examples of presentation of information include

presentations and demonstrations by teachers, presentations by students, text, audio, and video.

2. Practical and Feedback

The learning process need active student participation, such as question and answer activities, discussion activities, group activities, and examination.

3. Sources of Learning

Sources of learning can be easily accessed, such as printed materials, audiovisual materials, and library.

With the development of ICT at this time, the implementation of distance learning has many advantages such as effective cost, interactive and easy to use.

2.1.1.4 Characteristics of ICT in Education

ICT becomes a symbol of the development of a nation. It is not surprising that ICT are an important thing that teachers and students must master today. As we know that some educational institutions have provided and placed ICT tools in schools to encourage the development of teaching and learning. According to Lefebvre et al. (2006), modern technology offers many ways to improve teaching and learning in the classroom. It means that ICT is one of the modern technology that support teaching and learning process through utilize the ICT's tools such as computers, internet, audio conferencing, video conferencing, LCD projectors and etc as a media.

Meanwhile, Munir (2009) stated that the characteristic of Information Communication and Technology in education are :

1. The learning program had been arranged based on the levels and kinds of education. The time should appropriate with the program. This program has a purpose to improve the students' knowledge, interest and attitude.

2. On the teaching and learning process, there is no *face-to-face* between teachers and learners. The meeting of teachers and learners just happened when there is a important problem or discuss particular material.

3. There is a separation between teachers and learners. There is no *face-to-face*learning like conventional learning.

4. The students should be independent. The using of Information Communication and Technology focuses on how the students learn independently.

5. The learning materials delivered through the learning media like computers, internet, etc.

6. Through the learning media, there is a two ways communication between teachers and learners.

7. The teachers role as the facilitators who helps the learners on learning.

8. The sources of learning are the materials that develop based on the needs and curriculum.

It can be concluded that the characteristic of Information Communication and Technology had been focused on the separation between teachers and learners on teaching and learning process, there is no *face-to-face* learning and to connected the teacher and learners on the teaching and learning process, the usage

of Information Communication and Technology such as computer, internet, are needed.

2.1.1.5 The Advantages of ICT in Education

The advantages of ICT are related to its usefulness and effectiveness. According to Munir (2009), the use of ICT makes teaching and learning process will be easier, more useful, and enhancing the productivity of teaching and learning. While, the effectiveness of ICT will be develop the performance of teachers and students.

Munir (2009) states that there are six advantages of ICT in Education:

1. Fast. It means that ICT tools can operate to support teaching and learning process more fast than human.

2. Consistent. It means that ICT tools are capable of doing consistent repetitive work.

3. Appropriate. Through the use of ICT, it seems to minimize errors in teaching and learning process.

4. Trust. It means that in the presence of speed, consistency, and suitability, then we can estimate that the resulting decisions are reliable and the same results can be obtained repeatedly.

5. Increase the productivity.

6. Creating the creativity.

2.1.2   Non-Manipulative Factors Influencing Integration of ICT in English Education

Brummelhuis cited in Afshari, Abu bakar, Su Luan, Abu Samah&Fooi (2009) said there are two factors that influencing integration of Information and Communication Technology (ICT). The factors are divided into non-manipulative and manipulative factors. Non-manipulative factors are factors that can not be influenced directly by others. On the other hand, manipulative factors are factors that can be influenced by others.

2.1.2.1 Teachers' Demographic

Personal characteristics like gender, age, educational qualifications and teaching experience of the teachers play an important role in effective implementation of ICT in the classrooms (Buabeng-Andoh, 2012).

a.   Gender

Gender is one of the demographic factors which affected the attitude towards computers. As Volman et al. (2005) stated that female show a lower attitude to learning ICT based skills from secondary school which later is reflected in the lack of confidence in computer use. Similarly, Jamieson-Proctor, Burnett, Finger and Watson (2006) reported that female teachers are less likely to use ICT than male teachers because of a lower level of confidence. Furthermore, Markauskaite (2006) said that gender differences in self reported ICT experience and ICT literacy among first year graduate trainee teachers. The study showed there was significant differences between males and females in technical skills of

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ICT which males' scores were higher than female. The study was in agreement with Jamieson-Proctor, Burnett, Finger and Watson (2006) that conducted a study on teachers' integration of ICT in schools in Queensland State. The results from 929 teachers showed that female teachers are less in integrating technology into their teaching than male teachers.

On the other hand, the situation was different in mid-western US basic schools where Breisser (2006) found that females' self-perceptions about technology competence increased while males' self-perceptions about technological unchanged. This study confirms report by Yukselturk and Bulut (2009) that gender gap has reduced over the past years, presently, a greater number of females than males have used internet and technologies.

Another research studies conducted by Kay (2006) found that male teachers used more ICT in their teaching and learning processes than female teachers, but there was no difference between male teachers and female teachers about computer attitude and ability after the implementation of the technology. Moreover, Kay (2006) mentioned that quality preparation on technology can help to decrease gender inequalities.

b.   Age

Alampay's (2006) reported that the use of ICT in Philippines is more pronounced among the young generation. Similarly, most research have reported that ICT more use by young people than older people. According to Ruthven et al. (2004) cited in Shiboko (2015), the older people be afraid or lack of experiences

to use ICTs and they feel intimidated by the new technologies than the younger generation.

c.   Level of Education

The level of education had the strongest influence on the use of ICT as most of the people that use ICT are mainly educated people (Olatokun, 2009). Similarly, United Nations Development Program (2011) cited in (Mansour, 2016) reported that academic qualification as a main determinant of ICT use.

d.   Years of Experience

The relationship between years of experience of teachers and ICT use was also investigated by various researchers with the results showing variations in findings. Mueller, Wood, Willoughby, Ross, and Specht (2008) was investigated the differences variables between teachers who fully integrate computers and teachers with limited integration and found no significant relationship between teaching experience of teachers and their use of ICT in teaching. Similarly, Lau and Sim (2008) conducted a study related to ICT adoption among 250 secondary school teachers in Malaysia. Their findings showed that older teachers often use computer technology in the classrooms more than the younger teachers. The main reason could be that the older teachers having rich experience in teaching, classroom management and also competent in the use of computers. So they can easily integrate ICT into their teaching. The result is in agreement with Russell, Bebell, O'Dwyer, and O'Connor, (2003) who found that new teachers who were highly skilled with technology more than older teachers did not put ICT in their teaching. From the explanation above, there are two reasons: new teachers only

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focus how to use ICT and did not apply ICT in their teaching. Secondly, new teachers had challenges in their first few years of teaching and spend most of their time to arrange the classroom management.

However, Granger, Morbey, Lotherington, Owston and Wideman (2002) cited in Abbas (2013) conducted a qualitative survey on factors contributing to teachers' successful implementation of ICT in Canada. As 60 respondents was interviewed from 12 schools. The findings showed no relationship between teachers' teaching experience and experience in the use of ICT.

2.1.2.2 Proper Training

Teachers' ICT skills and access to professional development is critical to implementation of ICT in school. Some studies such as reported by Bingimlas (2009), Unwin (2005), Galanouli, Murphy and Gardner (2004) have pointed out the importance of teachers' training programs for integrating ICT successfully in education. Teachers' training programs not only help in building technology literacy, but also motivate teachers to use ICT in the classrooms (Abuhmaid, 2011). Lack of in-service training is cited as one of the major barriers for integrating ICT in the classroom by many studies (Yildirim, 2009).

Moreover, Lau and Sim (2008) stated that teachers need training which should be offered continuously and not only once. So that their IT knowledge is upgraded over time. They further proposed the need to put in place measures to ensure that good access for technical support is provided. According to them, a

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teacher with ICT competency be appointed as ICT coordinator in each school to provide technical and pedagogical support to teachers.

2.1.3 Manipulative Factors Influencing Integration of ICT in English Education

2.1.3.1 Facilities of ICT

The availability of ICT facilities in the school is play an important role to support teaching and learning process. As Ajayi (2008) cited in Apagu and Agamu (2015) stated the effective utilization of ICT in teaching and learning depends on the availability of the facilities and teachers ability in using ICT. According to Plomp, Anderson, Law, & Quale (2009) cited in Andoh (2012), access to ICT infrastructure and resources in schools is an important requirement to the integration of ICT in education.

According to Bandele (2006), Bolaji (2003), Bryers (2004), and Ofodu (2007) cited in Apagu and Adamu (2015), the ICT facilities used in the teaching and learning process includes radio, television, computers, overhead projectors, CD-ROM, internet, slides, digital multimedia and so on. It seems that some of these facilities are not provided enough for teaching and learning in the school. This might be the reason why teachers are not using of ICT in their teaching. The researcher can conclude that the effective use of ICT facilities in teaching and learning depends on the availability of the facilities and teachers competences in using ICT.

2.1.3.2 Teachers' Attitude

The successful implementation of educational technology in schools depends on teachers' support and attitudes. Teachers' attitude towards technology greatly influences their acceptance of the usefulness of technology and its integration in teaching. It is believed that if teachers perceived the technology program does not fulfill their needs and their students, they may not integrate the ICT into teaching and learning process. According to Buabeng-Andoh (2012), the more experience teachers have with computers, the more likely they will show positive attitudes towards computers. As Keengwe and Onchwari (2008) cited in Buabeng-Andoh (2012) stated that among the factors that influence successful integration of ICT into teaching are teachers' attitudes and beliefs towards technology. If teachers' attitudes are positive toward the use of educational technology then they can easily provide useful insight about the integration of ICT into teaching and learning process.

Teo (2008) conducted a survey on pre-service teachers' attitudes towards computer use in Singapore. A sample of 139 pre-service teachers was assessed for their computer attitudes using questionnaire with four factors: affect, perceived usefulness, perceived control, and behavioral intention to use the computer. He found that teachers were more positive about their attitude towards computers and intention to use computer than their perceptions of the usefulness of the computer and their control of the computer.

2.1.3.3 Teachers' Workload

Some of studies have stated that the teachers workload influence their technological acceptance in teaching. Neyland (2011) conducted a research on factors influencing the integration of online learning in high schools in Sydney. The study involved 26 computer coordinators. In an interview, one computer coordinator in a schools stated that increased workload of teachers was worrying. Similarly, Abuhmaid (2011) conducted research on the conduct and effectiveness of ICT training courses in the Jordanian education system. The sample population was 115 teachers and 12 school principals. Interviews, questionnaires, direct classroom observations, and field-notes of classroom practices were used for data collection. Based on the research, one principal reported that teachers are already overloaded because of the pressure from ICT training. Moreover, a teacher stated that teachers are overloaded to learn, prepare and practice what they learn. According to Fullan (2003) cited in Buabeng-Andoh (2012), for teachers to realize the aims of educational system as well as implementing new initiatives, it necessary to lessen the workload of teachers.

2.1.4 Integration of ICT in English Education

Mastering information technology and understanding basic skills and concepts of ICT are now highly respected by many countries (Rampersad, 2011). Rather and Kuraishy (2015) said that the use of Information and Communication Technology has changed education industry and the way of knowledge will be delivered from teachers to students. ICT has the power to change the daily practices of teachers.

The integration of ICT in teaching and learning processes is not a new concept. With the rapid development of emerging technology, ICT integration has increasingly attracted the attention of educators, administrators and policy makers. Normally, ICT is not a part of the curriculum but it is a separate subject. Because of this, policies are very important for ICT integration in education. According to Assan and Thomas (2012), the integration of ICT in teaching and learning has been proven useful. ICT integration is defined as a process of using any ICT tool (including information resources on the web, multimedia programs in CD-ROM, learning objects, or other tools) in school to improve student learning (Wang and Woo 2007). Information and Communication Technologies have the potential to accelerate, enrich, and deepen ICT skills to motivate and engage students, to help relate school experience to work practices for tomorrow's workers, as well as strengthening teaching and helping schools change (Yusuf, 2005).

Moreover, Lowther et al. (2008) have reported three important characteristics that are needed to develop good quality of teaching and learning with Information and Communication Technology. These features are: autonomy, capability, and creativity. The students become the independent learners and they control their learning through the use of Information and Communication Technology. The students have more opportunity to build the new knowledge and become more confident to take risks and learn from their mistakes.

Realizing that Indonesia was left behind with respect to the use of ICT in education and this could become a vital issue in making policies about education, The Department of National Education devised a Strategic Plan about ICT in

2005. Through this Strategic Plan, The Department of National Education informed educators and teachers all over the country that the attempts to improve the quality, relevance and competitiveness of education should be made by strengthening several programs, and one of these programs was the use of ICT in education. The concrete activities to realize this program was developing ICT-based educational systems, teaching methods and instructional materials. In addition, the Department of National Education developed the information network system in schools, the infrastructure and the human resources to support the implementation of the program in education management and teaching-learning processes.

2.2   Relevant Studies

There have been previous studies in relation to the test validity. The information about each of study can be found in the following explanation:

The first previous study was done by Gichovi in 2013. In this thesis, he has been analyzing about factors that influencing Integration of ICT, entitled "Factors Influencing Integration of Information and Communication Technology in Teaching and Learning in Public Secondary Schools in Kenya : The Case of Kirinyaga East District, Kirinyaga County". The objectives of his research are to determine the influence of availability and access to ICT infrastructure on ICT integration in teaching and learning process by public secondary schools and to assess the Level of ICT Literacy among the teachers and its influence on ICT integration in teaching and learning process by public secondary schools. Then,

the method of the research is descriptive survey design. The findings indicate that younger teachers and teachers with less teaching experience are more likely to have higher levels of ICT competence. The study revealed a general state of low level of training in ICT, inadequate ICT Infrastructure and general low proficiency in the use of ICT.

The second research is about " Teacher Factors Influencing Integration of Information and Communication Technology in Teaching of English in Public Secondary Schools in Mumias Sub-County, Kenya (Shiboko, 2015). The objectives of the research are to investigate the extent to which the teachers' demographics influenced integration of ICT in teaching of English and to establish the extent to which teacher training influences integration of ICT teaching of English. The method of the research is descriptive survey design. The result of this research showed that teacher demographic factors such gender, age, academic qualification, years of experience are not the only factors that establish the adoption of ICT for English lessons in Mumias Sub-County. There are also some factors that include students attitude, support from the head teachers and teacher training in Information and Communication Technology.

Based on two studies above, they are closely related to the research that the researcher will do. In this research, the researcher will establish the Factors Influencing Integration of ICT in English Senior High School in Pekanbaru.

2.3   Conceptual Framework

The researcher identified a number of factors that influence the integration of Information Communication and Technology in teaching and learning process. Factors influencing integration of ICT divided into two factors, those are non-manipulative factors and manipulative factors that adapted from Brummelhuis cited in Afshari, Abu Bakar, Su Luan, Abu Shamah & Fooi (2009). The independent variables in this research were: teachers' demographics, proper training, facilities of ICT, teachers' attitude and teachers' workload. The dependent variable for this research is integration of Information and Communication Technology in English Senior High School in Pekanbaru. Each of these variables as shown in Figure 2.1

Based on figure 2.1, teachers' demographic factor such as age, gender, level of education and years of experience influence the integration of ICT in teaching and learning process. The effective integration of Information ICT in Senior High School can be support by the proper training that gave to the English teachers. Proper training will make the English teacher more excited and confident in using technology of ICT. Moreover, the availability of facilities of ICT at the Senior High School also influence the usage of ICT in teaching and learning. The facilities of ICT will support teaching activities and also the training of ICT. The proper training and the availability of ICT facilities will make English teachers will be adequately prepared to handle their teaching workloads. The lecturers' attitudes also influence the integration of ICT because the positive and negative attitudes will give the impact to the utilization of ICT in teaching learning process. The result is the change in teaching activity and methods as the English teachers are able to use the technology and internet as learning media.

2.4   Assumption

Non-manipulative and manipulative factors are the teachers' factors that influence the integration of ICT in English Senior High School in Pekanbaru.