

## CHAPTER II

### REVIEW OF RELATED LITERATURE

#### 2.1 Relevant Theories

In this chapter, there are several theories related to this research. They are relevance theories consist of : information communication and technology in education, non-manipulative factors influencing ICT in education, and manipulative factors influencing ICT in education.

##### 2.1.1 ICT in Education

Information Communication and Technology can be defined as the all of the technology that used to processing and delivering the information. The development of ICT has been changed the life style. The spread of information that apply the ICT such as advertisement, promotion, news, and games can be accessed through the computers and the ICT has been become a necessity in education. According to Sutopo (2012) stated that nowadays the education can not be separated with ICT because ICT has been helped in planning, managing, and being a source of learning. It can concluded that ICT has an important role in teaching and learning process.

##### 2.1.1.1 Concept of ICT in Education

The development of Information Communication and Technology expand to all of aspects in life, including education. Education is not antipathy to the development of science and technology, but vice versa its being a subject or

pioneer on its development. 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 learners are 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**

Based on the process, the meaning of education is communication between two components, those are the teacher as the communicator and learner as the communicant. According to Effendy (2005) stated that the differences between the communication and education just only on the purpose. The purpose

of the education is specific, that is to improve someone's knowledge about something and make them to master the knowledge. Meanwhile, the purpose of communication is general such as give the information, propaganda, and indoctrination.

The purpose of education can be achieved by using communication or also known as Information Communication and Technology as the media. Through the ICT, someone can meet the new person, shopping, take a course and all of facilities that can obtained (Shelly et al, 2009). The usage of ICT make people can access the information from whole world quickly. News, weather forecast, flight schedule, map, and all of the material of education everywhere and every time.

Based on Munir (2009) stated that there are three purpose of Information Communication and Technology:

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. The using of ICT in education expected can solve the gap problem in educational system such as equal opportunity distribution, quality improvement, relevancy and efficiency that caused by distance, place, and time. In conclusion, the purpose of ICT in education is to give the opportunity to the people who can not join the conventional learning or face-to-face learning.

#### **2.1.1.3 Characteristic of ICT in Education**

Information Communication and Technology in Education had been focused on the acquisition, storage, manipulation, management, transmission or reception of data required for the educational purpose. According to the Kamble (2017) stated that Information Communication and Technology is any hardware and software technology that contribute in the educational information processing. In the context of present era, Information Communication and Technology mainly comprises of computer technology with its hardware, like personal computer

machine, infrastructure required for setting up Internet facility and also thirty eight software like CD ROM including various program packages, e-learning, etc.

According to Soekarwati (2003) stated that the use of Information and Communication in education also known as *distance learning*. The specific characteristic of Information Communication and Technology in education are :

1. The separation between learn activity and learning activity.
2. The separation between teachers and learners.
3. The teachers and learner separate on the teaching learning process and communication had been supported by learning media such computer, internet, etc.
4. The service and facilities had been provided to teachers and learners.
5. The communication between teachers and learners can be one way communication or two ways communication such as tele-conferencing, video-conferencing, etc.
6. The learners make in groups to make them easy in teaching learning process.
7. The teacher's role as facilitator and the learners as the participants.

Meanwhile, Munir (2009) stated that the characteristics 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 teacher's 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.

#### 2.1.1.4 Kinds of ICT in Education

In recent years, the usage of computers and internet have been given the advantages to improve the efficiency and effectiveness in education on all of levels whether formal and informal. The usage of Information Communication and Technology makes there's a demand to develop them to the various media that can be use in education, and the kinds of Information Communication and Technology in Education, those are :

1. E- learning

E-learning is the educational program that based online. E-learning had been given the important effect and improved the students' interest (William & Sawyer, 2007). Although the e-learning usually tied to the college and training, but e-learning involved to all of levels of education for interaction and facilitation (Allen, 2006). E-learning also known as *Online Learning*. The learning based Web is the part of *e-learning* and refers to the learning that use browsers like Internet Explorer, Mozilla Firefox, Opera, Netscape, etc. The *e-learning* is difference with conventional learning. The *e-learning* demands on the infrastructure and the technology that provided such as computer, CD ROM, internet, etc. According to Emanuel, Witono & Handaya (2008) stated that in the beginning of e-learning, there are a necessity to choose the technology that will use in e-learning. There are two choice, those are the commercial technology and open source technology. In Indonesia, the technology that use in common is open source technology because the cost is free, the user can create and develop



the application, support by the other users and the technology can use in widely and mass.

## 2. Blended Learning

Blended learning is a learning model that combines the conventional learning with the *IT-Based education* (Munir,2009). It means that the blended learning combines the *face-to-face* learning and online course. Along the development of Information Communication and Technology especially the network like internet, generally the models of learning such as *face-to-face* learning, *off-line* learning and online learning. The model of online learning can be like the learning that use Web, blog, e-learning, etc. While, *off-line* can be like the learning that use CD, DVD, etc. The general purpose of blended learning is to find out the combination of the learning models effectively.

## 3. Distance Learning

Distance learning is the using of learning media that possibly make the interaction between teachers and learners. In the distance learning, the teachers and the learners are not *face-to-face*, the learning separate the teacher and the learner (Rudestan & Schoenholtz-Reed, 2010) in Sutopo (2012). To identify the distance learning system, the distance learning have some characteristics (Keegan on Smaldino, 2008), those are :

1. The separation between teachers and the learners.
2. The learning program that well-managed.
3. The usage of Information Communication and Technology.
4. Two ways communication.

The atmosphere of education in distance learning should same like in the classroom. The communication classroom should work-well to make the function of distance learning achieved. Those functions are :

1. The presentation of information.

The presentation of information is not only delivered by the teachers but centered on the learners such as presentation and demonstration by teachers and learners, texts and illustration, audio and video.

2. Practical and feedback.

The learning involved the students actively like question and answer, discussion, groups, and examination.

3. The sources of learning.

The source of learning can access easily like printed paper, audiovisual, database and library.

With the development of Information Communication and Technology nowadays, the application of distance learning have so many advantages such as effective cost, easy to use, and interactive.

#### **2.1.1.5 Integration of ICT in Education**

The development of information and communication technology has been given the effect to education system, especially learning process. According to Rosenberg (2004) with the development of information and communication technology, there are five transformations in the learning process, those are : (1) from training to showing, (2) from class to anywhere and anytime, (3) from paper

to online, (4) from physical facilities to network facilities, (5) from the time cycle to real time.

In daily life, there are so many works that doing by using computer. Computer are used in all of fields, such as communication, transportation, industry, health, art and agriculture even education. A tendency that can observe is the fact that computer is an effective and efficient media for delivering the instructional messages. The ability of computers to interact quickly and accurately, work quickly and precisely, and store large of amount data safely.

According to Panigrahi (2016) stated that the integration of information communication and technology in education means the high quality support to the teaching and learning process. Not only for the teaching learning process but also involved to the lecturers, students and the leaders. It shows that how the usage of the technology can give the meaningful effect in education.

Information Communication and Technology has the several advantages to the lecturers and the students such as source of learning, shared the learning, promoting and collaborative learning. It makes the communication between lecturers and students wider than before because they can communicate to one to another, to many and many through the communications channel and networking. Therefore, the information communication and technology and the integration in education makes the education more effective and efficient because it motivates students and the lecturers in one hand and also makes the classroom more interactive (Garg and Chaudhary, 2006) in Paranigrahi (2016).

## **2.1.2 Non-manipulative Factors Influencing ICT in Education**

According to Brummelhuis in Afshari, Bakar, Luan, Shamah & Fooi (2009) stated that there are two factors that influencing ICT, those are non-manipulative factors and manipulative factors. Non-manipulative factors are factors that could not be influenced by others. Manipulative data are the factors that can influence by others.

### **2.1.2.1 Lecturers' demographics**

Lecturers' demographics such as age, gender, and teaching experience influence the integration of Information Communication and Technology in teaching of English. So many research concerning teacher's or lecturer's gender and Information Communication and Technology have been found that female teacher have low ability to using computer because their lack of access and interest in technology (Volman & Van Eck, 2001). On the other hand, according to Kay (2006) found that the male teachers use more technology than female teachers. Markauskaite (2006), found that gender differences in self-reported ICT experience and ICT literacy among first year graduate trainee teachers. The study found that significant differences between males and females in technical ICT capabilities, and situational and longitudinal sustainability. Males' scores were high.

A report by the National Center for Education Statistics (2013) indicates that lecturers who have fewer years of experience are more likely to use computers in their classes than lecturers with a lot of years of experience.

This may be assumed that it is because of the fact that new lecturers who have been exposed to computers during their training and therefore have more experience in using the tool.

This research concerning lecturers' age can influence the integration of Information Communication and Technology in teaching of English. Most research have been reported there is more use of Information Communication and Technology by young lecturers compared to the older lecturers. Ruthven (2004) stated that the older fear or lack experience to use Information Communication and Technology. The older feels intimidated by the new technologies than the younger generation.

#### **2.1.2.2 Proper Training**

Teachers' or lecturers' Information Communication and Technology skills and access to professional development is important in integration of ICT. Research shows that when lecturers view Information Communication and Technology programs as either satisfying their own needs or their students' needs, it is likely they will integrate it in subjects (Hennessy, 2010). A needs assessment is important to find out what Information Communication and Technology skills and knowledge teachers need at schools or campus. Designers of teacher education programs should know the teachers or lecturers perceptions of ICT and their attitudes towards ICT integration into curriculum (Murphy, 2000).

New ICT tools and teaching approaches call for the training of teachers or lecturers (Osborne & Hennessy, 2003). When teachers are

insufficiently trained they will not be confident enough to carry out full integration of ICT in the classroom. With proper training on how to implement ICT, teachers or lecturers can offer crucial advice on how to select, integrate and evaluate computer tools to support teaching and learning as they are the backbone in any curriculum innovation (Clark, 2000).

According to Becta (2004), lack of ICT concentration in initial training is a barrier to teachers or lecturers use of ICT in integrating it in the subject matter. Therefore, when there is no effective training on ICT, teachers will not be able to use ICT resources for integration purposes. Becta (2004) also stated that many teachers or lecturers who do not consider themselves to be well skilled in using ICT feel anxious about using it in front of a class of students who perhaps know more than they do. Effective integration will depend to a larger extent on trained and supported teachers (UNESCO, Bangkok, 2003).

### **2.1.3 Manipulative Factors Influencing ICT in Education**

#### **2.1.3.1 Facilities of ICT**

The availability of facilities of Information Communication and Technology is the important thing in the integration of ICT in Education. According to Ajayi (2008) in Apugu & Wakili (2015) stated that the effective utilization of Information Communication and Technology in teaching and learning process depends on the availability of these facilities and teachers or lecturers competence in using them.

The various Information Communication and Technology facilities that used in the teaching and learning process, according to Ofodu (2007) include

radio, television, computers, projectors, internet, slides, etc. The using of these facilities involves various methods such as video conferencing, audio conferencing, etc. It should be stressed that the effective using of various method depends on the availability of the facilities.

For the teachers or the lecturers and the students, the availability of modern computers, devices, networking and resources on teaching and learning process is an essential part to produce the better learning output. The availability of Information Communication and Technology resources can enhance learning by making education less dependent on differing teacher quality and by making education available at home throughout the day (Mbwesa, 2002).

Davis (2000) stated that increased availability of Information Communication and Technology is useful for students and allows the teachers to prepare suitable tasks for an individual needs and each individual more effectively. Information Communication and Technology provide a positive impact on learning and students performance when it becomes an integrated elements in teaching and learning process.

#### **2.1.3.2 Lecturers' Workload**

Many studies have revealed that the lecturer's workload influence their acceptance of technology in teaching. According to Guha (2000) stated that the lecturer's workload and time management was influence to the implementation of Information Communication and Technology in teaching and learning process. A research carried out in Malaysian Smart schools in 2010 indicate that many teachers felt time was an important factor in Information Communication and

Technology integration. The problem of lack the time for teacher exists because some aspects of their works as it affects their ability to complete task (Becta, 2004).

While, in the college of Indonesia, there is *Tri Dharma Perguruan Tinggi*, that contains three main duties of lecturers, those are : (1) education and teaching, (2) research and development, and (3) community services. With all of the duties, the lecturers do not have time to prepare the Information Communication and Technology as the media.

The time factor could be divided into: lecturer's free time, time to prepare lesson and time for teaching. Lecturers felt that free time is too short to use Information Communication and Technology to integrate it into the lesson, time to prepare for the lesson . The higher the number of lessons to the lecturer's per week, the less the number of free lessons resulting into lecturer's workload.

### **2.1.3.3 Lecturers' Attitudes**

Lecturers' attitude towards the use of the information communication and technology is one of the main factors in integration of ICT in education. According to research of Buabeng-Andoh (2012) found that the successful of implementation information communication and technology in education, it depends on how the teachers' support and attitudes. The experience of lecturers in using technology can make the lecturers have positive attitudes to using technology in their teaching learning process.

The lecturers' attitude can be measured by the level of confidence in using of ICT. According to Piper (2008) stated that human will be spend more



time with what their interest and enjoyment and vice versa. Likewise, if the lecturers are competent and confidence to use the technology in their teaching and learning process, they will be use technology every time and the result is they will be have the positive attitudes to technology.

So many research found that the effective use of technology in education is dependent on the lecturers' attitude. Lecturers' attitude towards the using of the ICT has the big impact to their acceptance of the usefulness of technology and its integration in education.

Once the attitude is positive, teaching and learning process will become comfortable and good experience for the lecturers and the students. The result is the teacher will create the well-informed citizens who are have the critical decision based their social, political and culture information (Lufungulo, 2015). It can be concluded that if the lecturer has the positive attitudes towards the using of ICT , they will easy to integrate the technology into the teaching and learning process. On the other hand, if the lecturers have the negative attitudes towards the ICT, it can be an obstacle to integrate the technology in education.

## **2.2 Relevant Studies**

There are some past studies done by other researchers about factors influencing integration of Information Communication and Technology. These past studies are references for researcher on doing this research so the writer can enrich the theory used in this research.

First, the research from Shiboko (2015) entitled Teacher Factors Influencing Integration of Information Communication and Technology in

Teaching of English in Public Secondary Schools in Mumias Sub-Kenya. This research used a descriptive survey with qualitative and quantitative approaches. The target population was 3320 participants involved English teachers, head teachers and students. The research instruments of this research were the questionnaires for the English teacher and students and interview for the head teachers. Data analysis used the descriptive statistic. The finding of this research showed that the teachers' demographics such as age, gender, teaching experiences and number of subject are not the only factors that influencing ICT for English lesson in Mumias sub- county. There are other factors that included such as student attitudes, support from the head teachers (school) and number of teachers trained in ICT. The researcher recommended that all of secondary schools should be provided with ICT infrastructure and the teacher should be given the training of ICT.

Second, the research from Gode (2013) entitled Factors Influencing Integration of Information Communication and Technologies in Public Primary Teacher Training Colleges in Central Region of Kenya. This research used descriptive survey. In this research, there was four public primary teachers' training college had been investigated. The total of the respondent was 176 respondents. The research instruments were questionnaires and interview. The data analysis was descriptive statistic that presented in frequency table. The finding of this research showed that the factors that influencing the integration of ICT in the primary teacher training colleges were adequacy of internet connectivity, computer hardware and software, maintenance of ICT, the training

of ICT, teacher demographics, teacher workload and funds. The researcher recommended that primary teacher training colleges should develop the strategies, teacher training should be provided to integrate ICT.

Third, the research from Twinomujuni (2011) entitled Problems in ICT Implementation in Selected Institutions of Higher Learning in Kabale District. This research used cross sectional survey design. The sample were 60 lecturers and 173 students. The research instruments were questionnaires, interview, observation and documentary. The finding of the research showed that cost of training ICT did not influence the implementation of integration of ICT but the skills development and administrative support did. The researcher recommended to encourage stakeholder to explore the development of training on ICT .

Fourth, the research from Tenai (2017) entitled Teacher Factors Influencing Integration of ICT in Teaching of English Language in Secondary Schools in Eldorest-East Sub-County, Kenya. This research used descriptive survey design . The sample of this research were 17 public secondary schools and 51 English language teachers. The research instrument was questionnaire and the data analyze using descriptive and inferential statistics. The finding of the research showed that there is a significant relationship between attitude on ICT and technology literacy, between training and technology literacy, teaching experiences and technology literacy. The researcher recommended the both male and female teachers need to encourage the development of ICT through training and computer hardware should be available during the teaching and learning process.

Fifth, the research journal from Afshari, Bakar, Luan, Samah & Fooi (2009) entitled Factors Affecting Teachers' Use of Information And Communication Technology. This journal reveal a number of factors influencing teachers' decision to use ICT in the classroom. The success of implementation of ICT can not depends on the availability of one individual factors but it depends on the factors that are interrelated each others.

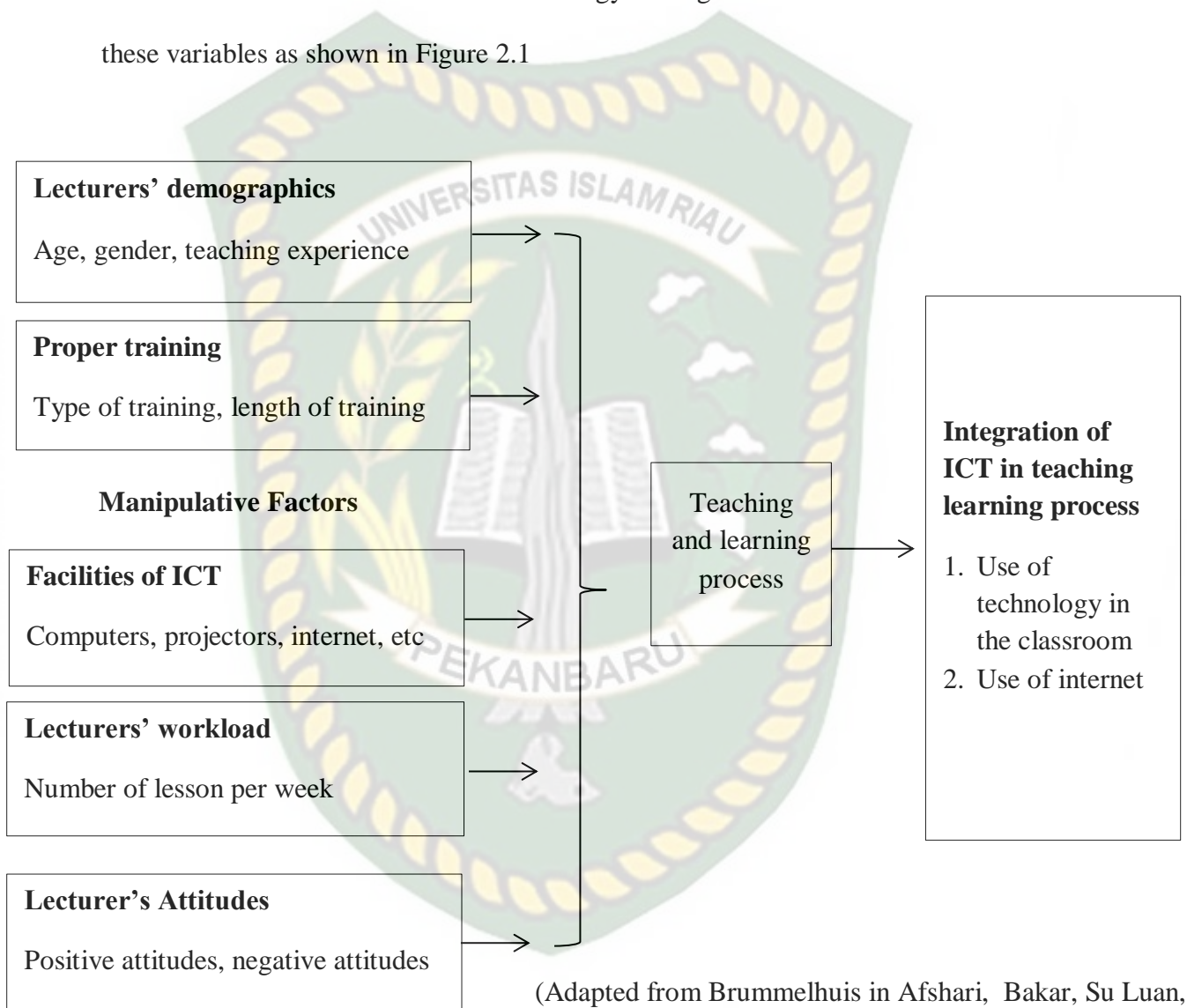
Sixth, the research journal from Chen (2008) entitled Factors Affecting The Integration of ICT in Teaching English in Taiwan. This research used the qualitative research design. The total of respondent was 22 teachers, 11 male teachers 11 female teachers. The research instruments was interview. The finding of this research showed that the teacher in Taiwan need the support, particularly continuing professional development on ICT to make them can confront and accept the challenges ahead.

Based on these past studies above, the researcher can conclude that the factors that influencing integration of ICT in education depends on the development skills and ability of teachers or lecturer that supported by the training of ICT. The availability of ICT facilities also has the important role to make the teachers or lecturers can practice all of training that has given.

### **2.3 Conceptual Framework**

In this research, the researcher identified a number of factors that influence the integration of Information Communication and Technology in teaching and learning process. The independent variables in this research were: lecturers'

demographics, proper training, facilities of ICT, lecturer's workload and lecturers' attitudes. The dependent variable for this research was integration of Information Communication and Technology in English of FKIP UIR. Each of these variables as shown in Figure 2.1



(Adapted from Brummelhuis in Afshari, Bakar, Su Luan, Shamah & Fooi, 2009)

**Figure 2.1 Factors Influencing Integration of ICT in teaching**

From figure 2.1, the lecturers' demographics have a positive impact on integration of Information Communication and Technology in teaching. Effective integration of Information Communication and Technology affected by the

proper training that gave to the lecturers that can makes them enthusiastic and confidence in using technology. The availability of facilities of ICT has the impact on the applying of ICT in teaching and learning. The facilities will support the theory and the training of ICT. The proper training and the availability of ICT facilities will make the lecturer 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 methods as the lecturer is able to use the technology and internet as learning media.

#### **2.4 Assumption**

The assumption underlying the research is non-manipulative and manipulative are the lecturers' factors that influence the integration of ICT in English of FKIP UIR.