

# Implementation of Information and Communication Technology in Language Teaching

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**Abstract**—This study aims to gain an in-depth understanding about Implementation of Information and Communication Technology (ICT) in language teaching related to concepts and objectives, types, implementation processes, constraints and solutions in language teaching. This research was conducted in SMA N 18 Jakarta from April to June 2017 and used ethnography method. The data were collected through interview and document analysis. The data sources are Indonesian, English, Japanese, and German language teachers. The data were analyzed qualitatively by ethnography method. The stages of data analysis as suggested by Spradley consist of domain analysis, taxonomy, components, and cultural themes. The results of this study indicated that all participants have understood well about the concept of ICT in language teaching, even though only some types of ICT media are applied. The implementation of ICT in language teaching has positive impact on developing students' abilities and teacher competencies in language teaching.

**Keywords**— *ICT, Language Teaching*

## I. INTRODUCTION

Information and Technology Communication (ICT) has an important role in language teaching. It functions as a medium used in the learning process. In general, the use of ICT helps teachers to explain abstract concepts, attracting attention, increasing interest, motivation and students' creativity. In addition, the use of ICT can also increase students' learning participation, cognitive abilities, skills and conducive learning environment.

ICT also facilitate students to obtain learning materials in accordance with learning needs. As stated by Narbutas (2010) that learners can access the material in their own time, work through the material at their own pace, choosing topics and subject areas to match their own interests. The teacher will have the four main roles, such as (a) planner and facilitator of situations and suitable learning contexts, (b) developer, adapter and creator of materials and resources, (c) assessor, guide and knowledge facilitator, and (d) evaluator.

In line with the above arguments, Pena (2011) explains that ICT provides opportunities for creativity and collaboration with peers and flexibility in time and location and increases motivation and engagement in authentic communication in the target language in comfortable learning environments, provide a great variety of new

learning and teaching experiences and options, enhance English language teaching and learning, improve teaching methods (Mafuraga & Moremi, 2017). Although some teachers used ITC is more for recreation than for learning ESL (Thang, S. M., et al., 2016).

The use of ICT also helps scenario of individual learning and understand learning materials (Puerto & Gamboa, 2009; Barbulet, 2013). However, the school challenge is on the mastery of technology and the availability of ICT-based learning facilities. Language teachers should be able to operate digital technology, especially internet, computers / laptops, computer labs, and multimedia equipment. They should understand how to design the material in power points, sending emails, using learning apps, and more.

Application of technology in learning can be conducted in three ways namely macro, meso and micro. In the macro aspect, ICT is implemented at the curriculum level. In the meso aspect, ICT is only used to teach some learning topics, while in the micro aspect, teachers use technology to support the learning process in order to achieve specific learning objectives.

There are five categories of ICT that can be implemented in learning (Wong, at all, 2010: 141-142), namely (1) one-computer classroom, (one computer connected with LCD projector and connected to internet), (2) computer laboratory (40 computers in the classroom and students can access them), (3) shared netbooks in class; (4) one-to-one computing environments (each student has access to full-time notebook computers), (5) mobile computing (used computer outside the classroom within the school, linked to cultural and historical topics in the country).

Even though it is important to implement ICT in the learning process, there are several challenges in the implementation process. The study from Salehi & Salehi (2012) about Integration of ICT in language teaching: Challenges and barriers indicated that insufficient technical supports at schools and little access to Internet and ICT prevent teachers to use ICT in the classroom. Moreover, shortage of class time was another important discouraging factor for the teachers to integrate ICT into the curriculum. This statement strengthens the argument that schools need to provide internet facilities and ICT devices for teacher learning needs.

A number of ICT-based media that are always used in the learning process are power point presentation through computer / laptop, LCD and instructional video. ICT can also be applied through Computer-Assisted Language Learning (CALL) as a learning model. CALL applications are usually done on the language teaching process. In essence, the main use of computers in this lesson is directed to create a language learning tutorial program (Hartoyo: 2006). The development steps are to create the initial planning, determine the goals, choose the type of program, material, software, determine the task and design the program structure.

Another learning model that involves ICT media in the teaching process is blended learning. This learning model is a combination of face-to-face learning and computer-based learning. Integrating face-to-face learning, computer-based learning (offline) and online (internet and mobile learning). The media used are computer, handphone or the iPhone, satellite television channels, video conferencing, and other electronic media. The goal is to provide opportunities for students to learn independently and sustainably. Warschauer, at all (2000: 76-77) explains that on-line teaching materials are not only based on certain skills but on the level of learner knowledge and skills.

Especially for the use of the internet as an ICT-based learning media, Sa'ud (2008: 201) argues that there are three models of Internet-based ICT learning, namely Web Course, Web Centric Course and Web Enhanced Course. Web Course is a way of learning by using the internet, ranging from discussions, consultations, assignments, exercises, and exams. In Web Centric Course, some of the learning materials, discussions, consultations, assignments and exercises are delivered via internet, while the exams and other activities are conducted through face-to-face, although the percentage of face to face learning process is low. The Web Enhanced Course model utilizes the class as a learning space. Internet facilities are only used to provide learning resources. Students are informed about the website address or linking to the appropriate learning resources that can be accessed online.

Other benefits of using the internet (Rusman, 2011: 341) is the unlimited time in the learning process, the determination of teaching materials that are appropriate to the needs, and learning is done interactively.

Mustafa Altun (2015) from Ishik University, Iraq presented his research on Technology Integration in Foreign Language Learning involving 99 students of English study program. It was found that traditional methods are considered useful for language students; however ICTs contribute greatly to the teaching and learning process. Eisa Amiri (2012) has even stated that language and literature learning does not only happen in the classroom and should not stop after students leave the class. So, technological devices should always be applied by students and teachers. The above argument is also reinforced by the research from Ghavifekr, S. & Rosdy, W.A.W. (2015) involving 101 primary and secondary teachers who also concluded that ICT integration in learning is very effective.

At present, the use of ICT in language teaching has involved mobile phone devices and virtual learning environments (de la Cruz Cabanilla, 2012). An Article about

introducing mobile technology for enhancing teaching and learning in Bangladesh: teacher perspectives (Shohel & Power, 2010) show that new mobile technology has facilitated access to learning, as well as improving the quality of teacher. iPod does have a number of advantages for teachers to use it for their professional development in English-language teaching and learning in a constrained environment.

Based on the above background, this study aims to explain how the process of implementation of Information and Communication Technology (ICT) in language teaching (Indonesia, English, Japan and Germany) at SMA Negeri 18 in DKI Jakarta. This study focused on understanding of the concepts, implementation, impacts, constraints and solutions in the process of ICT implementation in language teaching.

## II. METHOD

This study involved 8 teachers of SMA Negeri 18 Jakarta, consisting of 3 Indonesian language teachers, 3 English teachers, 1 German language teacher and 1 Japanese language teacher. The study was conducted from April to June 2017, and used ethnography method (Spradley, 2006: 165; Emzir, 2010). The data were collected through interview and document analysis, and analyzed qualitatively by the stages of ethnography method. Stages of data analysis are domain analysis, taxonomy, components, and cultural themes.

## III. RESULTS AND DISCUSSIONS

### A. ICT Concept in Language Teaching

The results of interview data analysis show that although ICT has become a media in the learning process, the participants' understanding about ICT concept is still very diverse. ICT is only stated as computer and internet based learning, and the goal is to do variations on the learning model. Meanwhile, the types of ICT that are known are computers and the internet.

As stated by Participant 2 (P-2), ICT based learning is a process to find out the recourses from internet. The goal is the students do not lose information. ICT media that is always employed in teaching process is power point presentation (ppt). Participant 3 (P-3) argued that ICT-based learning is a learning that uses computer as learning media and to facilitate the teaching process, encourage students to be more enthusiastic in learning, and feel happier. The types of ICT media which is often applied are power point presentation (ppt) and video. This understanding is in line with the concept of ICT-based learning concluded by participant 4 (P-4), indicated that ICT is a computer media of learning in order to facilitate the teacher in delivering the material and create the teaching process more interesting while participant 5 (P-5) who sees the implementation of ICT in language learning as a model of learning by using power point presentation. The objective is to create learning situation more interesting. The types of ICT are laptops, LCDs, power point presentations and movies (video). Overall understanding of ICT implementation and its purpose in language teaching by 8 participants can be seen in table 1.

TABLE I. UNDERSTANDING OF ICT CONCEPT IN LANGUAGE TEACHING

P*-1**	Instruction process based on ICT is a process of learning through computer and internet. The goal is to vary the learning model. So that, students not only focused on text book. The types of ICT identified by the participant are computers and the internet.
P-2	ICT-based learning is find out materials on the internet. The goal is the children are not outdated. The most commonly used of ICT media is power point presentation.
P-3	ICT is a computer-based learning model. The goal is to facilitate the teaching process, to activate students more interested and happier in learning. The types of ICTs that are applied in teaching and learning are power point presentation and video.
P-4	ICT is a computer that is used as a medium of learning. The goal is to facilitate the teacher in delivering the material and make the teaching process more interesting. The type of ICT known is power point presentation.
P-5	ICT is a learning model using power point presentation. This is done to create an interesting learning process. The goal is to encourage students to be interested to take the learning process. Types of ICT understood by the participant are laptop, LCD, power point presentation, film (video).
P-6	ICT is a tool that facilitates the teacher in delivering the subject matter. The most commonly used type of ICT is power point presentation.
P-7	ICT is an innovative learning model. It comes from the internet. The goal is to foster the learning process and make learning more interesting. Types of ICT that are often used are power point presentation, Website, Computer, and Video conversation.
P-8	ICT is an instruction model based on digital program applied through internet. The goal is to utilize current technology available today. Types of ICT known by participant are laptop, smart phone, LCD, video, internet, and power point presentation.

<sup>a</sup>. (\*Participants; \*\*1 number of participants)

The overall results of interview data analysis above can be explained in the taxonomy below.

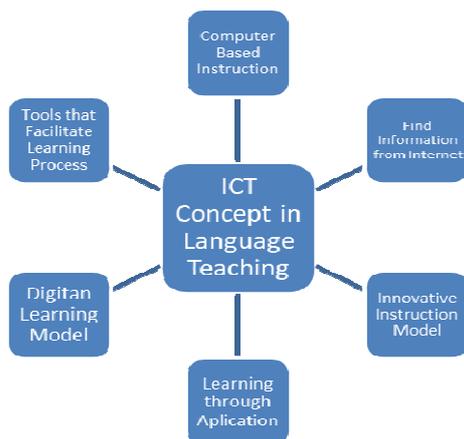


Fig. 1. Taxonomy of ICT Learning Concepts in Language Teaching

**B. Implementation of ICT in Language Teaching**

The results of data analysis show that teachers have applied ICT in learning even though the number and type are varieties. The types of ICT that have been applied are Power Point, Video, Internet, Website, CD, Laptop, Smart Phone, and Social Media. This utilization is in accordance with the needs and character of teaching material to be taught. For

example, if the students are many, video becomes the first alternative media in teaching. Through video, children feel happy and free from psychological barriers in the learning process. It also carried out when teachers ask students to work on peer-to-peer dialog assignments. Students record the dialogue assignments, and then submit to assess

Videos are also used to introduce students the original communication context. For example, the teacher used short videos to teach procedures for receiving guests in restaurants. This learning method encouraged students to understand about how to receive guests in German culture context.

The data also indicated that websites and smart phone become good media in finding learning materials especially from internet. Students explore their knowledge to understand the subject matter individually or in groups. The effect of smart phone is the creation of a fun learning model and learning environment. Another ICT media in teaching language is power point presentation (ppt). Language teachers often create power point presentation as a major medium in teaching.

Meanwhile, the data from syllabus and lesson plan showed that there are eight items of information, communication and technology (ICT) which always applied in teaching process, namely the power point presentation, laptop, LCD, OHP, CD, Audio CD, Internet and website. This type of ICT is considered as the most familiar and easy to do in the classroom. Furthermore, data on the use of ICT from document analysis results can be seen from table 2.

TABLE II. DATA OF ICT UTILIZATION IN SYLLABUS AND LESSON PLAN

Courses	ICT Media					
Indonesian Language	ppt	Laptop	LCD	OHP		
English Language	ppt	Laptop	LCD	Video	CD	Internet
Japanese Language		Laptop	LCD	Video		
German Language		Laptop	LCD	CD	VCD/ Audio	Internet/ Website

**C. Impact of ICT Implementation in Language Teaching**

The data shows that ICT has a positive impact in language teaching. It creates learning process more interesting, and enthusiastic students in taking the learning process. These impacts have good implications for increasing speaking and listening skills.

First, in the learning process, all participants stated that the use of ICT is very effective, especially in listening and speaking subjects. Second, ICT improves students' ability in speaking skills, especially in foreign language learning (English, Japanese and German). For examples, communication obtained through youtube.com very helpful to train the students' skills.

Third, ICT is considered very helpful for students to be more focused in learning therefore the material presented. For example, in audio-visual media, students not only hear but also watch it. ICT also increased student's learning motivation. One of the indicators about the utilization of

smart phones is the students' ability in identifying the meaning of difficult English words. Fourth, it increased students' vocabulary mastery.

Fifth, ICT encourage students more interested in the learning process and facilitate teachers in teaching, although it requires maximum preparation. Sixth, the learning condition is better and the process of delivering the material is on time. Seventh, students understand the function of internet and applied electronic media in learning foreign language. More details about the impact of ICT can be seen below:



Fig. 2. Taxonomy of ICT Implementation in Language Teaching

#### D. Constraints and Solutions of ICT Implementation in Language Teaching

A number of obstacles found in this study consist of the inability of teachers in operating computers including designing an ICT-based learning model. It is revealed that some teachers are not proficient in applying ICT (especially computers) so they prefer to create power point presentation. Another obstacle is not having a chance in preparing it, so the solution is designing role-play learning model.

Institutional constraints found that schools have not provided adequate facilities such as limited LCD equipment, so that teachers have to use them in turn. The solution is they postponed the teaching process that are directly related to ICT, and will do it again when the LCD is available. Another obstacle is also the absence of e-books for teachers and students.

Especially for students, they often play games while learning; some learners also do not have handphone which is connected to the internet. How to overcome it is to create heterogeneous groups taking into account the availability of handphone owned by students and controlling them while the learning process is in progress.

#### E. Cultural Themes

Based on the discussion of the four focuses of the research above, the researchers formulate a number of cultural themes such as (1) understanding the concept of ICT-based learning and its type is very helpful for teachers in designing ICT-based learning model, (2) the integration of teaching materials become the core of teachers competence,

and application of technology, information and communication is the best solution in designing learning, (3) the increasing of students' learning motivation when the application of ICT in the learning process indicated that ICT based learning need to be developed, (4) although ICT has become the learning media in teaching language but the teachers have to control the students when using technology, (5) the process of teaching with ICT applications will be better if teachers conducted adequate preparations, (6) providing ICT-based learning facilities is a way out to implement ICT in the learning process in the classroom.

All the data above indicated that language teachers have implemented ICT in language learning. This can be seen in the lesson plan document that contains the types of ICT that are always used when the learning process.

Media that is always used consists of internet, power point presentation, CD, LCD, computers, laptops, smart phones and videos.

They also have a good understanding about the purpose of implementing ICT in language learning, such as (1) facilitating them in conveying learning material, (2) the learning process becomes interesting, (3) they can explain abstract learning concepts, (4) material presentation is more flexible, (5) attracts students' attention, fosters interest, increases learning motivation, and encourages the creation of learning activities and creativity, and (6) increases participation in the learning process.

This is in line with the results of a study conducted by Narbutas (2010) who stated that learning activities through ICT encourage students to be able to access learning materials, choose topics that are appropriate with material characteristics. Four important roles that can be done by teachers include: (a) planner and facilitator of situations and suitable learning contexts, (b) developer, adapter and creator of materials and resources, (c) assessor, guide and knowledge facilitator, and (d) evaluator.

The use of ICT also increases student learning motivation. Pena (2011) explains that ICT provides opportunities for creativity and collaboration with peers and flexibility in time and location and increases motivation and engagement in authentic communication. In the target language, learning environments provide a great variety of new learning and teaching experiences and options, enhance English language teaching and learning, and improve teaching methods (Mafuraga & Moremi, 2017). It helps scenario of individual learning and understand learning materials (Puerto & Gamboa, 2009; Barbulet, 2013).

Mustafa Altun (2015) stated that ICTs contribute greatly to the teaching and learning process. In line with Altun (2015), Amiri (2012) explained that technological devices should always be applied by students and teachers, and integrated to the learning curriculum (Ghavifekr & Rosdy, 2015).

However, ICT applications in the form of learning models such as computer assisted language learning (CALL) have not been carried out. Whereas it is known that this model conceptually encourages the critical thinking and student learning creativity (Hartoyo: 2006).

Factors that often hinder teachers to implement ICT in learning are the availability of media and lack of understanding. As explained by Salehi & Salehi (2012) that insufficient technical supports at schools and little access to Internet and ICT prevent teachers to use ICT in the classroom. Moreover, shortage of class time was another important discouraging factor for the teachers to integrate ICT into the curriculum.

The impact is to facilitate the teaching process, and understand the internet-based learning system, as well as the development of ICT-based materials. Especially for teaching English, Japanese and German, the use of ICT is a must because the students really need learning media in accordance with the learning context. A contextual environment will make it easier for students to learn language.

#### IV. CONCLUSIONS

Based on the findings and discussion above, this study concludes that teachers have understood well about the concept of ICT in language teaching, even though only some types of ICT media are applied in language teaching. The implementation of ICT in language teaching was done with the available equipment at the school and has positive impact on developing students' abilities and teacher competencies in language learning.

The teacher also has a number of very basic obstacles such as not all facilities are available at school. Then, not all teachers have the ability and skills in implementing ICT in the learning process. Therefore, teachers must be taught the knowledge and skills in designing ICT-based learning models, including Computer Assisted Language Learning (CALL) ALL) and Blended Learning models.

Schools need to conduct training on ICT-based learning design, from learning plans, learning design, materials to the assessment process. Through training, the abilities and skills of teachers in learning designing through ICT media will increase significantly.

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