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### Designing a 21<sup>st</sup> Century Classroom to Teach the Digital Natives: A Challenge to EFL Teachers

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### Abstract

The goal of this paper is to present a proposal of study on the importance of designing a 21<sup>st</sup> century classroom environment to meet the needs of the digital natives. The digital natives are those who were born in the era where technology plays an important role in human's life. Digital natives have different needs compare to other generation in term of learning environment. Their way of thinking and sosializing are influenced by the environment and culture in which they are raised (Prensky, 2001). Thus, a special classroom environment is crucial to support what constitutes learning based on their way of thinking (Weade, 1992).

The integration of technology in the teaching and learning process is essential to support the digital natives. In the area of language learning, research into the integration of technology has benefitted from the tremendous amount of studies in the use of Computer-Assisted Language Learning (Kessler, 2005, 2007; Warschauer & Healey, 1998; Fotos & Browne, 2004; Hegelmeimer, 2006). The classroom needs to provide an environment and atmosphere that will allow students to create and construct their knowledge, to share and collaborate with their peers who are not only from their inclass group, but also from around the world (Warschauer, 2003). This is a challenge to EFL teachers, because no matter from what generation they are coming from, teacher should be able to design the classroom environment that will support the needs of the digital natives.

### Background

students nowadays are born in an era where technology becomes part of every aspects of human life including education. They are born as digital natives. They are millennial, social networkers, anxious to work in collaboration. They are most likely equipped with computers tablet, decent Internet access, iPads, iPods, and smartphones, the equipment that they bring everywhere they go.

Digital natives are thinking, learning, and socializing in different ways. The way of thinking and socializing is influenced by the environment and culture in which they are raised (Prensky, 2001). This generation is born in 21<sup>st</sup> century where technology pays an important role in human life.

The United States and other countries has shown a growing recognition that 21st century knowledge and skills not only build upon core content knowledge, but also include information and communication skills, thinking and problem-solving skills, interpersonal and

self-directional skills, and the skills to utilize 21st century tools, such as information and communication technologies (Pearlman, 2006)

The social constructivist perspective view classrooms as dynamic, evolving and a differentiated communication environment. The use of technology provides resources and facilities for learners to both construct and apply their knowledge. They are able to create, edit, and share contents. Most of all, with the use of technology in the classroom, students are able to choose environment themes where they feel most comfortable to study. Students are always provided with both individual and group learning space. Providing individual and group learning space is a gateway to the behavioral tendency of human beings to be able to work as individual or a group. As the consequence, schools nowadays move from "telling/lecturing" to the pedagogy of "kids teaching themselves with the teacher's guidance (Prensky, 2008).

A special learning environment is crucial to support what constitute learning based on the digital natives way of thinking. Schools must be able to engage the 21<sup>st</sup> century students and enable them to acquire and master 21<sup>st</sup> century skills. The integration of technology in teaching and learning process is essential to support the digital natives. The classroom has to provide an environment and atmosphere that is allow students to create, construct their knowledge, share, and collaborate with their peers who are not only from their in-class group, but also with people from around the world. Creating this special environment is a challenge to teachers who are not digital natives themselves.

A previous study conducted by Machmud and Basalama (2014) shows that teachers are mostly aware that they are teaching digital natives; that they do not have a specific level of technology literacy in teaching digital natives; and that they do not feel threaten to teach the digital natives. However, they are fully aware of the importance of trainings for them to acquire specific level of technology literacy and knowledge to design a specific learning environment for their students.

Designing a 21<sup>st</sup> century learning environment should begin by questioning "what constitutes learning in 21<sup>st</sup> century?" and "what knowledge and skills students need for the 21<sup>st</sup> century?". The goal of this research is to answer further questions, which are needed to address in order to design a new learning environment for digital natives, especially in the field of English as a Foreign Language Instructions.

The use of technology can address problems in EFL teaching. There are tremendous amount of study on the use of technology in language learning. Most studies suggested that the use of technology can definitely minimize if not completely eliminate the problems faced

by EFL teachers (Brinton, 2001; Drenoyianni & Selwood, 1998; Galloway, 1997; Egbert, Paulus, & Nakamichi, 2002, Kessler, 2005; Hegelheimer, V, 2006); O'Connor & Gatton, 2004).

Having learned that technology can address of the problems of EFL teaching, it is important to equipped EFL teachers with the knowledge of designing the 21st century learning environment to teach the EFL digital natives.

### **Problem Statement**

A study shows that the EFL educators in Gorontalo are trying to use technology in classroom even though in certain way they do not feel comfortable using it because of insufficient knowledge. The study also concluded that the availability of technology had not emerged as the main problem of integrating technology in instructional setting. The major problem is actually the lack of understanding and knowledge in using technology; therefore, preparing the pre-service teachers with technology is considered significant. The study is also suggested that in order to prepare English teachers who have technology literacy, the English Education Curriculum in Gorontalo should incorporate technology in language learning as one of the subjects (Machmud, 2011).

Study by Machmud and Basalama (2014) also found that teacher should be able to create a learning environment that will support the digital native. Thus, the questions that will be addressed in this research are:

- 1. What are the problems and challenges faced by teachers in designing a 21<sup>st</sup> century learning environment?
- 2. How can technology support the instructions and assessments of a 21st century collaborative learning environment?
- 3. What physical learning environments (classroom and school) foster 21st century student learning?

### Significance of Study

The Indonesian government has gradually invested in some public schools by providing computers and the Internet access as the consequences of the implementation of the new curriculum; however, most of the EFL educators in secondary and higher education institutions in Gorontalo rarely used technology in teaching and learning process due to the lack of knowledge in using technology in teaching and learning process.

The technology that has been provided is mainly used for school administrative works,

and has not been used in instructional context (Machmud, 2011). The problem emerged from the absence of technology subject in curriculum and the classroom design; thus, this study is exploring every possibility to design an adequate 21<sup>st</sup> century learning environment.

By knowing the problems and challenge faced by teachers in designing 21<sup>st</sup> century learning environment, a solution can be made to overcome the problem and to address the challenges. A physical design of classroom ad school in general can be made with the input from the students as a digital natives and teachers as the digital immigrants.

### The Limitation of Study

Limitation of study is provided in order to identify the potential weaknesses of the study, (Creswell, 2003). Even though it is often difficult to identify the weaknesses in the study before it has begun (Creswell, 2003), it can be argued that the purposive sampling procedure used in this study reduces the generalizability of findings. This study is not be generalizable to all educators in Indonesia.

### **Delimitation of Study**

Delimitation is used to narrow the scope of study (Creswell, 2003). This study is intended to be conducted in three years. This research focuses on exploring the absence of technology in designing a 21<sup>st</sup> century learning environment.

### Literature Review

There are tremendous evidence shows that today's students, those who was born after 1982, have different relationship with information and learning due to the fast development of information and technology and better access to the Internet. One of the studies is conducted by Oblinger (2004). The study shows thatby the age of 21, students, would have spent 10,000 hours playing video games, sent 200,000 emails, watched 20,000 hours of television, spent10,000 hours on cell phone, but less than 5000 hours reading. The study also shows that based on the trend, children age 6 and under is spend 2.01 hours per day playing outside, but 1.58 hours using computers. They spend only 40 minutes reading daily or ask being read to. It also shows that 48% of these children have used a computer. Futher, Oblinger suggested that the intense interaction between children and technology has significantly affected the way they learn and interact with their environment.

The use of technology becomes an urgent issue considering that students nowadays are born in an era where technology becomes part of all aspects of human life especially

education. Children nowadays are born as digital natives. As a digital native, children are thinking, learning, and socializing in different ways. Their way of thinking and socializing is influenced by the environment and culture in which they are raised (Prensky, 2001). Thus, a special classroom environment is crucial to support what constitutes learning based on their way of thinking (Weade, 1992).

The integration of technology in the teaching and learning process is essential to support the digital natives. The classroom needs to provide an environment and atmosphere that is allow students to create and construct their knowledge, share and collaborate with their peers who are not only from their in-class group, but also from around the world (Warschauer, 2003).

A social constructivist perspective views classrooms as dynamic, evolving, and as a differentiated communication environment (Prensky, 2001). The use of technology provides resources and facilities for learners to both construct as well apply their knowledge. They is be able to create, edit, and share content. With the use of technology in the classroom, students are able to choose environment themes where they feel most comfortable to study. Students should always be provided with both an individual and group learning spaces. Providing both an individual and group learning space is a gateway to the behavioral tendency of human beings to be able to work as an individual or as a group (Prensky, 2001). In this research, the integration of technology in the classroom setting places an emphasis on computer use in language learning.

### **Technology Integration in Language Learning**

Technology exists everywhere, touching almost every part of our lives, our communities, and our homes. Unfortunately, most schools lag far behind when it comes to integrating technology into the instructional context. Many people are just starting to explore the real potential technology offers for teaching and learning. If it properly used, technology is help students acquire the skills they need to survive in a complex, highly technological knowledge-based economy (Edutopia Staff, 2008).

Learning through projects while equipped with technology equipment allows students to be intellectually challenged while providing them with a realistic picture of what the modern office looks like. Through projects, students acquire and refine their analysis and problem-solving skills as they work individually and in teams to find, process, and synthesize information they've found online. The numerous resources in the online world also provide

each classroom with more interesting, diverse, and current learning materials. The Web connects students to experts in the real world and provides numerous opportunities for expressing understanding through images, sound, and text. As an added benefit, with technology tools and a project-learning approach, students are more likely to stay engaged and on task, reducing behavioral problems in the classroom (Edutopia Staff, 2008).

Technology also changes the way teachers teach, offering educators effective ways to reach different types of learners and to assess student understanding through multiple means. It also enhances the relationship between teacher and student. When technology is effectively integrated into subject areas, teachers grow into roles of adviser, content expert, and coach. "Technology helps make teaching and learning more meaningful and fun" (Edutopia staff, 2008, para. 6).

Studies have been conducted on the integration of technology in learning. In the area of language learning, research into the integration of technology has benefitted from the tremendous amount of studies in the use of Computer-Assisted Language Learning (Kessler, 2005, 2007; Warschauer & Healey, 1998; Fotos & Browne, 2004; Hegelmeimer, 2006).

### Computer-Assisted Language Learning (CALL) in EFL Instructions

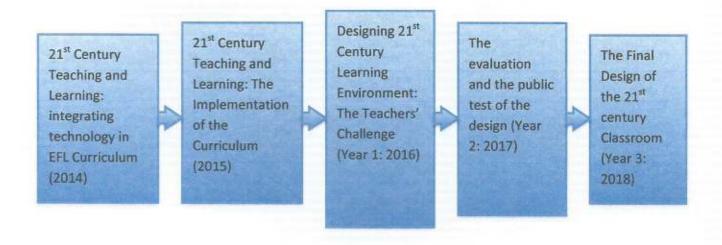
The language policy in some countries considers English as a foreign language, because English is not spoken outside the instructional setting. The teaching of English as a foreign language in non-English speaking countries is considered tougher compared to the teaching of English as a foreign language in English-speaking countries. Learning English in an English-speaking country, students benefit from the exposure to the surrounding environment where they can converse with native speakers of English and are forced to the basic use of the language to survive in the country. The engaging nature of CALL provides access to authentic tasks and audiences, which are the main obstacles faced by most EFL teachers in non-English speaking countries.

Once introduced to the uses of CALL, teachers in general can develop their own perception of how CALL can be used in language instruction. Their perception depends on what they think about the role of CALL in enhancing their teaching quality, their level of confidence, the training/preparation they had in college, and their level of familiarity with the new technology. The availability of technological devices, eventhough not crucial in determining learning results, affects teacher's isingness to incorporate technology in an

instructional context (Kessler, 2007). The educational outcomes are also affected the by teachers' perceptions of the use of CALL in Language instruction

### The Research Road Map

The research is the continuation of the previous research. The research recommended that Technology should be integrated in EFL curriculum. The final goal of this research is to find a perfect design of a 21st century learning environment to be integrated in EFL curriculum in higher education especially in English Education Study Program. The following is the fishbone diagram of this research road map.



As can be seen from the fishbone figures. This resarch is planned to be conducted in three years. This research is conducted based on the continuation of the previous research on the 21st century teaching and learning and the integration of technology into EFL curriculum. It is planned to be conducted in three years, with the outcome on the third year is a textbook on integrating technology in designing 21st century learning environment.

The first year is intended to gain teachers' problems and challenge in designing a learning environment for the digital natives. The inputs will be used in the process to analyse a best design for 21st century classroom. The outcome should be a journal article and a rough design of the learning envirment (Classrooms). The second year will focus on gaining students' and experts opinion on what should be in a 21st classroom. The outcome of the second year is an improved design of a 21st century classroom. We hope to gain an intelectual property for the design as the other outcome of the second year. The following table shows the Outcome of this research.

The Output

Previous Research (Hibah Bersaing 2014 and 2015)	Year 1 (2016)	Year 2 (2017)	Year 3 (2018)
- Perspectives EFL faculty members and EFL teachers towards integrating technology in EFL curriculum - Design of technology course to be integrated in EFL curriculum	- The outcome should be a journal article and a rough design of the learning environment (Classrooms)	- an improved design of a 21st century classroom We hope to gain an intellectual property for the design as the other outcome of the second year.	- a textbook on integrating technology in designing 21st century learning environment A final design of the 21 <sup>st</sup> century learning environment

### METHODOLOGY

The purpose in this chapter is to present the methodology of this research. The research design, the methods, and procedures selected to carry out this study are explained in this chapter.

### The Participants

The investigator will purposefully select the participants of thi research. The prospective participants will be classified into two categories. Category one is the EFL teachers. There will be about 10 teachers who teach in Middle school and 10 teachers who

teach in High School. Approximately 30 students will also be recruited to participate in this research. There might be an additional categories of participants as the research is in progress as needed.

### **Procedures**

### The procedure of recruiting participants.

Gaining access and ethical issues are significant elements of researchers' role (Creswell, 2006; Glesne, 2006). Gaining access is a process. It refers to process to obtain consent from the setting, participants, and the required documents related to the study (Glesne, 2006). If the research requires an access to certain social or cultural settings or organizations, then it is important to build a good relationship with the gatekeepers because they have the power to grant and deny the access we want (Glesne, 2006; Berg, 2007; Creswell, 2006). Seeking approval from the gatekeeper might include providing brief proposal to submit for review by gatekeepers. The proposal or the written letter should identify "the extent of time, the potential impact, and the outcomes for the research" (Creswell, 2006, p. 65).

In this research, the first step is to contact the the teachers who will be teaching a and then the prospective participants will be contacted to share information about the purpose of the study, the intention of conducting the interview, and the requirements for participation. They will be asked whether they are willing to participate in this study. The researcher will arrange the day, time and place for the initial and any follow up interview for those who agree to be the participants in this study. The students will a lot possible be the students of teachers who participate in this research

Once the agreement on the interview schedule has been arranged, the researcher will conduct the interview according to a standard interview protocol. The same steps will also be conducted to recruit the students, but the students will not be interviewed individualy. There will be two or three groups of students will participate in the focus group discussion.

### Confidentiality.

The data will be stored in the researcher's personal laptop secured by a password. A system of code numbers will replace the participants' names. A digital copy of the key will be stored on an External Hard Drive that is also password protected.

Only the researchers will have access to raw data. Data will consist of interview transcriptions in which the participants are known only by code, not by name. Any references to identifiable others named by interviewees will be made anonymous via pseudonyms.

The Interview process will be audio and video-recorded; they will be discarded after the completion of this research. In any written accounts of the research, the participants will remain anonymous.

### The data collection.

Denzin and Lincoln (2000) state that the strategy used can be the combination of observation, interview, and document analysis. By the same token, Patton (2002, p. 4) also states that data collection in a qualitative research consists of In-depth open-ended interviews, direct observation, and written documents. Creswell (2006, p. 185), in the same vein, not only mentions that the data collection procedures of qualitative research involve observations, Interviews, and documents, but also include audio and visual material as the part of qualitative data collection.

The data in this research will be collected by using interview and observation. The interview will be used to gain data about the issues and problems the integration of technology in EFL curriculum and the design of the subject. The observation will be used tonvestigate the proses of implementing the course. Focus group discussion will be conduted to gain information related to the strengths and weaknesses of the course.

### Interview.

Interviewing is a process (Glesnee, 2006; Patton, 2002; Berg, 2007). The truthfulness of data gained in an interview process depends on several related elements. Interviewing is not merely the process of questions and answers between interviewer and interviewee; instead, interviewing is the integration of the whole process starting from the preparation that consists of determining the approach and developing the questions content; setting up the interview such as deciding where, when, how long, and how often the interview will be held; and what kind of note will be used in recording the data. The whole interview process will determine the result of the interview.

The interview will be conducted in each district where the participants of this research are settled. It will be conducted from week two until the last week of December. The interview will be recorded by using audio and video devices, and during the process the researcher will also take field notes. At the end of each individual interview, the researchers

will also set up an expectation for a focus group, where the participants will be asked to join the process.

Focus group interview.

Focus group interview is an interview that consists of a group of people who share same experiences and are presupposed to have multiple perspectives (Glesnee, 2006). An interview in general is conducted at least between one interviewer and interviewee. Sometimes an interview involves more than one person if it is considered necessary.

In this research, the focus group interview will be conducted only to the EFL teachers anf EFL faculties after they have been interviewed individually. The rationale of using this interview is to gain more information and unification on certain the design of 21st century learning environment to be integrated in EFL Curriculum. The place to conduct the focus group interview will be decided based on the agreement of the participants.

The interview approach/structures.

This research will use the semi-standardized interviews by Berg (2007) or the general interview guide approach by Patton (2002). Berg (2007) identified three major categories of interview structures: the standardized interview, the unstandardized interview, and the semi standardized interview. Standardized interview uses "a formally structured of an interview schedule" (Berg, 2007, p. 92). Questions are usually created by researchers before beginning the interview and remain unchanged during the interview process. Glesne (2006) explained the term structured interviewing for this kind of process. The unstandardized interview is extremely opposite from standardized interviews, the interviewers begin with basic assumption that they have no information in advance of the necessary questions to ask, they are merely "located on the imaginary continuum" (Berg, 2007, P. 94).

Patton (2002), in the same vein, mentions three basic approaches: the informal conversational interview; the general interview guide approach; and the standardized openended interview. The first approach relies on the spontaneous and natural flow of the interaction. In the second approach, the checklist of the outline set of issues has been provided in order to make sure that all topics needed are covered. In contrast from first and second approach, the standardized open-ended interviews consist of set of questions that have been designed carefully especially in wording, because in this approach it is important to minimize the variation. The intention of this approach is to ask the different participants with "essentially the same words" (p. 342).

The interview questions in this research will be guided for each target participant; EFL teachers, School Principals, and English Faculties. The questions might emerge during the interview process; they might add or replace the pre-designed ones. Researchers are not tied into the pre-established questions. The questions can be changed based on the course of the interview. Glesne (2006) argues that this structure is "the more likely and the more ideal" one in qualitative inquiry (p. 79).

### Observation.

This research aims to investigate the issues and problems of the integration of technology in Gorontalo; therefore, one thing that should be confirmed is whether the schools in Gorontalo are being provided with technology in education. The observation will be conducted in order to gain the data about the implementation of the model course that has been designed at the previous research.

It is important to understand the research question before deciding to use observation as a data collection method. In other words, the research question will determine whether the observation is the best way of collecting the data to answer the question (Denzin & Lincoln, 2005; Glesne, 2006; Patton, 2002). The decision to use observation will be followed by the analysis of the kind of data needed from the observation. The understanding of the needs will lead researchers to decide the substance to observe. Those items can be used as guidelines along which we can focus on the data needed from the observation.

### **Data Analysis**

This study will use case-study approach. Case study is defined in many different ways (Berg, 2007; Glesne, 2006). Berg (2007, p. 283) defines case study as "method involving systematically gathering enough information about particular person, social setting, event, or group to permit the researcher to effectively understand how the subjects operates or functions". With case study approach "the researcher explores in depth a program, an event, an activity, a process, or one or more individuals" (Creswell, 2003, p. 15).

In analyzing **interviews**, an analyst has the option to begin with individual case analysis or cross-case analysis. The individual case analysis is conducted where variations in the answers/experiences of individuals is the main focus of the research. On the other hand, cross-case analysis is conducted where the focus of the research is the program. A qualitative study often includes both kinds analysis; however, one should begin followed by the other to avoid confusion (Patton, 2002).

The data analysis will begin with the cross-case analysis on the integration of technology in EFL teaching, which is the primary focus of this research. The answer from different participant will be grouped together based on common topics questions on the central issues (See appendix 1).

Patton (2002) mentions that "Case study may be layered or nested" (p. 447). There is a possibility that the cases in this research will be built in three layers of possible analysis if major variations occur in the participants' answers. The individual case analysis will be done by analyzing the variations in the experiences of each unit study (Patton, 2002).

In this research, the first unit studied is the issues and problems around the integration of technology in Gorontalo province level. The second layer is the cases that might be emerged from the raw data gained in district level. The third layer is analysis on the individual cases of each participant. However, the second and the third layers of possible analysis will only be done if major variations occur in each unit studied. If such major variations will not emerge during the process, then the cross-analysis on the issues and problems on the integration of technology in EFL teaching in Gorontalo province level will be the only one analysis approach in this research.

The cases in this research will be constructed using the process of constructing case study design by Patton (2002, p. 450). The process consists of three steps:

Step 1: Assemble the raw case.

These data consists of the information collected about the person, program, organization, or setting for which a case study is to be written.

Step 2: Construct the case record.

This step is optional; depends on complexity of data and case. This is a condensation of the raw case data organized, classified, and edited into a manageable and accessible file.

Step 3: Write a final case study narrative

The case study is a readable, descriptive picture of or story about a person, program, organization, and so forth, making accessible to the reader all information necessary to understand the case in all its uniqueness. The case story can be told chronologically or presented thematically (sometimes both). The case study offers a holistic portrayal, presented with any context necessary for understanding the case.

Once the raw case data have been accumulated, the researcher may write the case record. The case record classifies and organizes the huge amount of data into a

comprehensive primary data package. The case record then will be used to construct the case study that proper to share with the intended audience (Patton, 2002).

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