Teachers' Reflection: Does The Instructional Technology Implementation Transform Learning?

By Tri Mulyati

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Abstract

The development of the digital era requires teachers to insert technology into English instruction. Teachers must be able not only to use the internet and computer software but also to implement technology appropriately in the teaching and learning process in order to help students achieve learning objectives. Inserting technology into English instruction has been done by many teachers. Also, research on technology integration in English class has been mushrooming since years ago. However, the evaluation dealing with the implementation of technology in English instruction is limited. This research aims at evaluating how teachers use technology in the teaching and learning process. The evaluation focuses on whether the use of technology has enhanced students' learning experiences or transformed students' learning experiences. Four levels of the SAMR model (Substitution, Augmentation, Modification, and Redefinition) are used to assess the implementation. Here, the researchers gauged information from six English teachers of the senior high school in Banyuwangi regency concerning how they use technology in the teaching and learning process.

Keywords: ELT; Technology; SAMR.

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Introduction

The development of information communication and technology (ICT) has been transforming the learning environment from paper-based to digital based. The need of multiliteracy and the fact that students have been used to using technology in their daily life insists teachers to be the leading technology. Teachers have to use technology not only for searching for information but also integrating it in the teaching and learning process to help students achieve learning objectives.

The technology integration in the teaching and learning process has been mushrooming. One of them is the use of computer and internet in English instruction. Some Internet-based instructions are online learning, blended learning, and mLearning. Zahin-kizil (2014) explains that online learning is an instruction which doesn't need teachers and students to have face to face interactions while blended learning is an instruction which combines online learning and face to face instruction. mLearning is the development of the two previous internet based instruction. It is an individual instruction which is connected to the internet network in mobile devices (Romrell et.al, 2014). The use of the internet in English instruction can be in the form of synchronous and asynchronous mode (Mill, 2006). The use of chatting and video conference is the example of synchronous mode whereas email, discussion board, blogging are some examples of asynchronous mode.

The use of internet as learning resources benefits English instruction. Several studies reported that the use of internet in English instruction is effective to improve English achievement, learning motivation, students' self-esteem and learning autonomy. The use of digital storytelling in English instruction, for example, has created an interesting class and improved class interaction (Cahyono, 2012; Cimermenova, 2015). Further, Mulyati (2013) stated that the use of the internet in the form of video mail can improve speaking skill and students' interest and self-confidence. The use of CALL can stimulate students' learning autonomy. Students who are in the digital learning environment shows their improvement in using learning strategy, high learning motivation, and are responsible to learn independently (Mutlu and Eroz-Tuga, 2013). Moreover, the internet is very popular among teachers and students since it gives various media, material, and learning resources which can be accessed every time and everywhere. The easy operating system and affordable cost make the internet become the most wanted learning resources in English language teaching. Also, the use of computer-assisted language learning (CALL) makes teachers easy in presenting learning materials because it can be done everywhere and every time. Online learning materials can be quickly updated by students.

However, nowadays the technology integration in ELT lacks the implementation quality. The teachers tend to focus how to use internet media and certain software to improve language skills. Even, the use of the Internet and electronic media in the teaching and learning process are not different from when there is no internet in the class (Romrell et al, 2014). Obviously, technology integration in English language teaching is to transform instruction to digital-based learning activities with additional competence in order to enhance the function of applications or digital media used. According to Torsani (2015), the implementation of computer-assisted language learning (CALL) in English language teaching has to combine both the knowledge of CALL and the knowledge of a

language. Further, Brown (2007) explained that both pedagogic and electronic competence must be integrated in such a way that the teachers can select the suitable technology to help students achieve learning objectives. The teachers have to use appropriate technic and procedure. In this case, they must not only know and apply how to operate certain software in the class but also they have to be able to determine what technology that fits the class (Mills, 2006).

In response to the development of internet use in educational context, Dr. Ruben R. Puentedura developed the Substitution Augmentation Modification Redefinition (SAMR) model (Puentedura, 2014; Romrell et al, 2014). This model uses four stages describing cognitive level which can be achieved by using technology as media and learning resources. SAMR model consists of four frameworks, namely, substitution, augmentation, modification, and redefinition (see figure 1). Substitution means technology is used as a substitute for learning activity without changing its function. The use of technology in this stage does not change the function of previous media and learning resources. For example, reading a novel by using an e-book. This activity only replaces reading activity which is usually done by using a book with a digital one. Augmentation is that technology is used as a substitute for learning activity with functional improvements. For example, reading novels by using e-book is added by the use of an online dictionary to find the meaning of new vocabulary. Modification means a technology helps teachers redesign the teaching and learning activities whereas redefinition is that the technology creates a learning activity which is impossible to be implemented without the use of technology. This model is not hierarchical. Thus, every stage of the SAMR model is not designed to be implemented in chronological order. The following is SAMR framework:
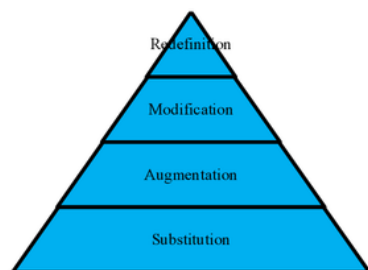

Figure 1. SAMR Model stage

The four frameworks of SAMR model on the use of technology in English language teaching gives teachers a model on how they determine the level of technology implementation in English language teaching and what cognitive level the students have to achieve. It is expected that by following this framework, the implementation of technology in English language teaching can motivate students to achieve a higher cognitive level.

Research on the technology implementation in English language teaching has been done many times, yet research on the technology implementation with SAMR model as the framework is still limited. Aschcroft and Imrie (2014) used digital flashcards in the form

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of quizlet in vocabulary learning. In this research, they used SAMR model to measure the function of the digital flashcard on vocabulary instruction. The result shows that quizlet did not merely replace paper flashcards since this application enhances students' interaction and make them share learning resources each other. Further, Romrel et.al (2014) conducted an analysis on the result of mLearning based research by using SAMR framework. The research results were classified based on four levels of SAMR model. The result shows that SAMR framework helps teachers determine a lesson plan with appropriate mobile technology. These research results were limited to the review of ICT based instruction research. Thus, teachers still need to explore and compare research result using SAMR model so that they can plan ICT based instruction well. Considering the previous research, this research aims at evaluating how teachers use technology in the teaching and learning process. The evaluation focuses on whether the use of technology has enhanced students' learning experiences or transformed students' learning experiences. It is considered important since information dealing with the technology implementation in English instruction will provide such a reflection for teachers to improve the quality of the teaching and learning process. Six English teachers of senior high school in Banyuwangi were involved since the technology has been used in the teaching and learning process. Digital learning environment in Banyuwangi is supported by Banyuwangi local government which has produced a local innovative program called Banyuwangi Digital Society (B-Diso) since 2013.

This article provides information dealing with the teachers' reflection on technology implementation. Pardo and Tellez (2015) pinpointed that teachers who can do self-critique the pedagogical practices, media and resources used are able to redesign and improve the quality of the teaching and learning process. Here, the reflection covered the teachers' perspectives of the technology implementation in their teaching and learning process and was focused on four main research questions that helped to review what they did in the classroom. The four questions were as follows:
1. How is the implementation of technology in ELT on the substitution level?
2. How is the implementation of technology in ELT on the augmentation level?
3. How is the implementation of technology in ELT on the modification level?
4. How is the implementation of technology in ELT on the redefinition level?

Finally, the result of the research is expected to help teachers identify the level of technology implementation based on SAMR model so that they can design an instruction by following SAMR framework to assist students to achieve learning objectives.

Method
The research design used was descriptive explanatory research (Gufron et al, 2016). This design was used in order to describe how the technology has been implemented in the teaching and learning process. Four levels of SAMR model (Substitution, Augmentation, Modification, and Redefinition) are used to assess the implementation. Here, the researchers gauged information from six English teacher of senior high school in Banyuwangi regency concerning how they use technology in the teaching and learning process. Three English teachers were asked to reflect on how the technology is implemented in writing activities whereas the rest were asked to reflect on how the technology is implemented in reading activities. In this research, questionnaires,

interview, and document analysis were used to collect the data. The questionnaire was for collecting information about the technology implementation based on four level of SAMR model. The interview was used to gather additional information about the challenge in the technology implementation. And document analysis was for collecting information about how teachers formulate the technology-based learning activities in their lesson plan. The data analysis was done through three steps: data reduction, data presentation, and drawing the conclusion.

Results

The results of data analysis cover the implementation of technology in listening and speaking activities and in reading and writing activities. The following is the results.

The Technology Implementation in Listening and Speaking Activities based on SAMR model.

There were three English teachers of three senior high school in Banyuwangi involved in this research. It was found that every school has different frequency in applying technology in English language teaching. The following table shows the results based on SAMR framework.

Table 1. The result of the educational technology implementation in Listening and Speaking Activities.

Level	Never	Seldom	Often	Always	Total Frequency	Total Likert Score
Substitution	1	9	5	0	15	63%
Augmentation	6	5	3	1	15	48%
Modification	10	5	0	0	15	33%
Redefinition	8	3	3	0	14	38%

Table 1 above shows that the educational technology implementation on the substitution level was in scale 63%. There was one statement in never column, nine statements in seldom column, and five statements in often column. Thus, it can be concluded that English teachers often implement the technology on substitution level in listening and speaking activities. Further, the technology implementation on the augmentation level was on 48% scale level. The table shows that six statements in never column, five statements in seldom column, three statements in often column, and one statement in always column. Hence, English teachers seldom implement the technology in listening and speaking activities. On the transformation level, the table reveals that educational technology implementation in Modification level was in scale 33%. There were ten statements in seldom column and five statements in seldom column. It can be concluded that English teachers seldom use the educational technology in Listening and speaking activities. Similarly, the table above also shows that the educational technology on the redefinition level was in scale 35%. Eight statements were found in never column. Three statements were in seldom column and three statements in often column. It means that

English teachers seldom use the technology in English language teaching activities either.

Based on the analysis result, it was found that the index percentage in the implementation of SAMR in listening and speaking activities was 44%. Thus, it can be stated that the percentage was in the "seldom" interval scale. In short, the teachers in Banyuwangi senior high schools seldom implemented SAMR model in listening and speaking activities.

The technology Implementation in Reading and Writing Activities based on SAMR Model.

Dealing with the educational technology implementation in reading and writing activities, three English teachers from different senior high schools were given questionnaire. The table below shows the results.

Table 2. The result of the educational technology implementation in reading and Writing Activities.

Level	Never	Seldom	Often	Always	Total Frequency	Total Likert Score
Substitution	0	7	6	2	15	40%
Augmentation	2	6	5	2	15	37%
Modification	1	7	6	1	15	37%
Redefinition	4	7	4	0	15	30%

Based on table 2 above it was found that total Likert score in substitution level was 40%. There were seven statements in "seldom" column, six statements in "often" column, and two statements in "always" column. In augmentation level, total Likert score was 37%. There were two statements in "never" column, six statements in "seldom" column, five statements in "often" column, and two ones in "always" column. In modification level, total Likert score was 37%. There was one statement in "never" column, seven statements in seldom column, six statements in the "often" column, and one statement in "always" column. In redefinition level, total Likert score was 30%. There were four statements in "never" column, seven statements in "seldom" column, and four statements in "often" column.

Based on the analysis result, it was found that the index percentage in the implementation of SAMR in reading and writing activities was 60%. It means that the percentage was in "often" interval scale. Thus, the English teachers often implemented SAMR model in reading and writing activities in English language teaching.

Discussion

The Technology Implementation in Listening and Speaking Activities based on SAMR model.

The use of technology in listening and speaking activities are classified into four levels based on SAMR model. The first two levels are enhancement. There are substitution and augmentation. The other two levels are transformation. There are

modification and redefinition. Based on the analysis, the researcher found that educational technology implementation in English language teaching on the eleventh year student was at seldom level. It means that English of Banyuwangi senior high school seldom implement educational technology in listening and speaking activities.

Based on the result of the questionnaire in the substitution level the scale of the frequency was 63%.The percentage of the scale shows that the frequency of the use of technology in substitution level was at Often level. The technology which were mentioned in the substitution level were; online dictionary, Microsoft power point, podcast, ELLO, and online movie. In this level, the researcher found that the English teachers of Banyuwangi senior high school often use the technology mentioned above. The use of the technology above function as the alternative to replace the manual method without functional change. Puetendura (2006) states that in substitution level "the teacher only uses the technology to replace resources list that could be used in the library"

In augmentation level the scale of the frequency was 48%.It means that the frequency of the use of technology in augmentation level was in seldom level. The technology which mentioned in the augmentation level were; Diaro, Microsoft word, word to pdf, WhatssAp, online quizzez, Facebook, Tunein radio, podcast, Google Docs, E-mail, and TED. In this level, English teacher of Banyuwangi senior high school seldom uses the technology which was mentioned above. The augmentation has differences with the substitution level because the use of the technology in this level have been improved with a functional change. In the augmentation level, technology is commuted and the function of the technology positively changes in some way (Hamilton et.al. 2016).

Based on the result of the questionnaire in modification level the scale of the frequency was in scale 33%. It shows that the frequency of the use of technology in modification level was in seldom level. The technology which mentioned in this level were; YouTube, video blogs, online text, movie maker, diaro, padlet, video show, mobile phone, Facebook. Based on the scale of the frequency the researcher found that English teachers seldom use the technology. The activity becomes more complex because modification was transformation level. It happened since the modification level demands a significant redesign of a task (Hamilton.et.al. 2016).

Based on the analysis result the redefinition level scale was 38%. It shows that the frequency of the use of technology in redefinition level was in seldom level. The technology mentioned in the questionnaire were; YouTube channel, video blogs, online text, movie maker, diaro, padlet, mobile phone, video show, Facebook. Based on the scale of the frequency the researcher found that the English teachers seldom use the technology. The activity on the redefinition level was more complex from the modification level. The use of technology in redefinition level can create new project using technology. In the redefinition level, technology allows the creation of tasks or projects that are likely impossible to be done without technology (Lobo and Jimenez. 2017). The teacher seldom applied the technology in redefinition level because the technology application in redefinition level was too complex. In redefinition level all the process of teaching must use technology as the media, but the technology at the school was limited.

It can be concluded from the questionnaire, that the highest frequency was in substitution level. So, the educational technology implementation in listening and speaking activities in English language teaching of the eleventh year students was on substitution level. The use of the technology has no functional change, and the use of the

technology function as the alternative.

The technology Implementation in Reading and Writing Activities based on SAMR Model.

The use of technology in reading and writing activities are classified into four levels based on SAMR model. The first two levels are enhancement. There are substitution and augmentation. The other two levels are transformation. There are modification and redefinition. The researcher also measured the implementation of technology in each level of SAMR model that was used in learning process.

In enhancement stage, technology supports the achievement of traditional tasks. There are two levels in this stage. In substitution level, the technology provides a substitute for other learning activities without functional change. the analysis result showed that the teachers often used technology as a substitute for other learning activities. The activity found in this level was word processing program. Most of teachers used Microsoft word as the application to write the material and do the assignments for students. Teachers also used online PDF and online texts as references to substitute books. Furthermore, teachers asked students to submit the assignments by using E-mail. By incorporating technology in the class, the task would relate to the preference of the students to learn with the involvement of technology (Lobo and Jimenez, 2017). In augmentation level, the technology provides a substitute for other learning activities with functional improvements. The researcher found that the teachers often used technology in augmentation level. Teachers used the feature in word processing in this level, such as spelling & grammar, thesaurus and word count. Teachers used technology to integrate the application in learning process. Romrell (2016), pinpointed that technology provide unique opportunities that allow learning to be personalized, situated, and connected. There are two activities in this level. The first, teachers asked students to write their own story. Then, the teachers asked students to use the feature in Microsoft word. The other programs in this level were online dictionary, online quiz, E-book and Google Drive.

In transformation stage, technology was used to produce creative tasks. In this stage, there are modification and redefinition. In modification, the technology was used to redesign the material in learning activity. The result shows that the teachers often implemented technology in modification level. In this level, teachers were challenged to make the innovation in learning process. The teachers used blog as an application to create students critical thinking. The teachers asked students to submit the assignments by using Google Drive and used the feature in Google Drive, such as highlighting tools. According to Lobo and Jimenez (2017), the use of technology would be meaningful to motivate students in the learning process since the idea was innovative. In redefinition level, the technology allows for the creation of tasks that could not have been done without the use of the technology. The researcher found that the teachers seldom use technology in redefinition level. Once, the technologies used in this level were video blog, YouTube, and graphic organizers. This level forced teachers to use technology in learning process because the learning process need technology in each part. According to Killedar (2008), impact of any new technology cannot be fully explored unless whole system is totally redesigned to exploit all its benefits. Therefore, teacher should use technology as good as possible to redesign the material in learning process. So, it can make learning process more interesting and effective. The activity in this level were complex, such as solving

problem activity, improving students' creativity and producing new innovation.

The Teachers' Challenges in the Technology Implementation and the Lesson Plans

Dealing with the challenges faced by the teachers, the researchers had an interview with them whereas the information about the technology implementation in the teaching and learning process was confirmed by the information gotten from the teachers' lesson plan. The following is the results.

The result of the interview revealed that the teachers faced some problems in the technology implementation. The first was about the internet network provided by schools. All teachers explained that the internet network was often trouble due to the limited internet network. It happened since many students and teachers accessed the network at the same time. Even though most students used their smartphone, they tended to use Wifi services provided by schools. As a result, the technology implementation was often done outside the classroom. The second was that the teachers' skill in using the technology. One of teachers explained that he often does not understand how to operate a smartphone application due to the rapid development of smartphone application. He often asks students to explain how to operate certain application. Further, one teacher also explained that not all students have smartphone. So, some students have to join their friends when the teacher asks them to use smartphone during the teaching and learning activities.

The result of documentation showed that most of lesson plans made by the teachers do not reflect the technology implementation as they stated in the questionnaire and in the interview. The technology implementation stated in the lesson plans was only the use of LCD and videos. LCD was only used for presenting material and discussion while videos were in the form of downloaded videos taken from the internet for learning models. When the teachers were asked for clarification why the teaching and learning process stated in the lesson plans were different from the response they gave, the teachers answered that most of them developed lesson plans for the sake of administrative assignment. They often copied the lesson plan from the internet. Further, they explained that the technology implementation was directly done in the teaching and learning activities in the class.

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Conclusion

Based on the research results, it can be concluded that the teachers have been using technology in English instruction. However, the technology implementation was still on the substitution and augmentation level. Thus, the teachers have to improve the technology implementation on the modification and redefinition level so that the technology used was not only for transferring knowledge but also for transforming learning. The local government is also suggested to provide schools with good internet network services. Thus, the technology can be maximally implemented in the teaching and learning process.

Acknowledgement

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