REFLECTION ON TECHNOLOGY-ENHANCED LEARNING IN RESEARCH BASED TEACHING METHOD IMPLEMENTATION

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ABSTRACT

The research aimed to investigate the utilization of technological tools in implementing the research-based teaching method in English for Academic Writing Course. The narrative research design was implemented to reach the conclusion of the research. 66 (sixty-six) students enrolled in English for Academic Writing Course were observed. Lecturer's reflective journal and portfolios were analyzed. An online interview was conducted to confirm the initial findings. There were six technological tools and applications utilized during the preparation process, instruction, and practice process, as well as in the assessment and transfer process. Through a structured reflection process based on Gibbs' model of reflection, the result shows that the students' motivation is increased during the use of technology. Technology also enables students to work collaboratively. Nevertheless, preparation and briefing are needed to be done before the class begins. Like the classic problem of technology implementation, internet access becomes the main challenge in conducting Technology-Enhanced Learning (TEL) in the classroom.

Keywords: Technology-Enhanced Learning (TEL), research-based teaching method, English language teaching

INTRODUCTION

The emerging of industry 4.0 has triggered advanced demand for technology utilization in education. As noted by Visvizi and Daniela (2019) that education institutions should be ready to utilize various technological breakthroughs. Various tools and applications are available to facilitate the teaching and learning process in the classroom. To be ready to face the demand of industry 4.0, the students should be prepared with skills and competencies that enable them to be part of successful professionals in the future. Along with the development of industry 4.0, the Sustainable Development Goals (SDGs) also emerges the urgency of technology mastery by students. Thus, Technology-Enhanced Learning (TEL) should be implemented in teaching-learning activities.

The fact that the students currently are living in the 21st century, they are showered with the rapid development of technology (Carl & Strydom, 2017). This situation makes the students that are born as millennials, and some others become the digital natives.

The previous research shows that they do not have any problems in mastering technology (Putri, 2019). The research has found an interesting fact that they have more problems in social skills like collaboration and communication rather than in technology mastery. Thus, the utilization of technology in the classroom should have no significant barrier for the students. Further, the utilization of the technology in the classroom should also be able to facilitate the students in developing their interaction in the classroom as well as their social skills such as collaboration and communication with the other students.

Various technological tools and applications are available online to be utilized by educators nowadays, namely Kahoot, Padlet, Quizizz, Socrative, Google Docs, Google Forms, Microsoft Forms, Microsoft Sway, Microsoft Teams, Zooms, and many others. Educators can utilize those tools and applications for various purposes, such as for content delivery, assessment, and evaluation.

Besides technology implementation in

the classroom, teachers and educators are also suggested to do self-reflection in order to improve the teaching performance (Ajayi, 2016). The teachers and educators are suggested to review their own experiences, implications, and belief so that they could have better solutions for the teaching and learning process in the future. Zhou (2018) has also noted that reflective practice is crucial in a teacher's professional development process. Further, Zhou (2018) has concluded that teachers who do reflective practice have more ability in critical thinking and analytical thinking, as well as able to leverage their professional and teaching experience.

In the implementation, the most common reflective practice tools that can be used are video recording and teaching journals (Ajayi, 2016; Nurfaidah, Lengkanawati, & Sukyadi, 2017). The video recording and teaching journal are analyzed in order to get narrative experiences of the teaching and learning process in the classroom. Besides, a teacher's portfolio is also able to use in reflective practice (Stenberg, Rajala, & Hilppo, 2016).

It comes to a challenge and opportunity when utilizing the technology in a course that implements the research-based teaching method. This course is English for Academic Writing course, which facilitates the students to be able to produce an academic writing paper. To achieve the course outcome, the research-based teaching method is implemented. This method requires students to do mini research during the course. The problem arises when the students are still in the third semester and do not have a research course beforehand. So, the researcher has to teach both English academic writing and research writing. To boost the students' readiness, the flipped classroom is implemented as well. This strategy is chosen since it requires the students to read and has input before entering the class. So, the limited amount of available teaching time in the classroom can be maximized for classroom discussion and skill acquisition.

While implementing the flipped-learning method, various technological tools are used to facilitate content delivery, assessment, and evaluation. The technological tools are not only utilized for in-class activities but also for pre-class and after-class activities. Thus, this research will highlight the reflective practice on utilizing the technological tools in facilitating the learning activities in English for Academic Writing Course that implement the research based-teaching method.

METHODS

The research implements a narrative research design to achieve the conclusion. It is because narrative research may facilitate the researcher to gather and inform stories of people's lives as well as to formulate the narratives of individual experiences (Creswell, 2012). It is a depth-reflective result from teaching and learning activities in English for the Academic Writing course on the 2019/2020 academic year. There are 66

students in this course that are Master Track students majoring in Information Technology. The students are in the third semester of their study.

In the reflection-practice process, the research analyzes the lecturer's teaching journals and portfolios in order to gather a detailed description of the teaching and learning process in the classroom (Ajayi, 2016; Nurfaidah, Lengkanawati, & Sukyadi, 2017). Besides, a random interview with students is conducted as well in order to confirm the findings from the reflection-practice process. The reflection activities in the research are divided into six steps based on the Gibbs Reflective Cycle (McGregor & Cartwright, 2011), namely description step, feeling step, evaluation step, analysis step, conclusion step, and action plan step.

In the first step – description, what happens during the course are reflected and described. The second step, feeling and thought during the course are explained and elaborated. The evaluation step provides a discussion on how things are carried on. The next step – analysis; the actual experiences and theories are compared analytically. In the conclusion step, what has been learned from the experiences are highlighted. Moreover, the last step, action plan, the follow-up plans are made so that suggestions can be made for improvement in the future.

RESULTS AND DISCUSSIONS

The reflection activities are done to confirm the findings from the reflection-practice process besides a random interview. The following steps are the reflection results after one semester of study in English for Academic Writing Course. The first step is the description. This is a research result by reflecting on the technology-enhanced learning implementation on English for Academic Writing course. The 66 Master Track students majoring in Information Technology enroll in this course. This course aims the students to be able to produce an academic writing paper. The research-based teaching method is implemented to achieve learning outcomes.

In this course, the students should be able to master the knowledge and skills in academic writing and some aspects of research writing. Then, a challenge arises when the students have not had a research methodology class beforehand. So they will have difficulty in implementing the research-based teaching method as well as in achieving the learning outcomes. Research-based teaching methods and the learning outcomes require the students to implement the knowledge and skills in writing a research paper, such as writing citations, references, quotations, paraphrasing, and so forth. Challenges arise when the students have to read abundant readings to enable them in mastering the knowledge in research writing. Another challenge arises when this course is only two credits. Only 100 minutes available to teach in the classroom.

The flipped learning method is implemented

in this course. The students do have not only the in-class session but also pre-class and after-class sessions. To facilitate the learning process, there are six technological tools and applications that are used, namely Padlet, Kahoot, Google Docs, Google Forms, Socrative, and Mentimeter. Those technological tools are chosen based on their function in the teaching and learning process. To reinforce the implementation of technological tools and teaching strategy in the classroom, the briefing is done in the first meeting with the students in order to form the same perception and expectation of the learning outcomes at the end of the semester.

The second step is feeling. This is not the first time for the researcher to teach this course; thus, the researcher has prepared several techniques and methods as a result of previous researches on this course as well. Nevertheless, every time having this course, the researcher always feels excited to teach the students since they will be equipped with new skills in academic writing. It is as well as prepared for a research paper writing skill that can be useful for the future final paper.

With all challenges described, the researcher feels worried about how the students would master all the knowledge, skills, and competencies required to be achieved from this course. The 100 minutes in the classroom would not be enough to achieve the learning outcomes. It is because the students have to read the learning materials, practice their writing skills, revise their paper based on the given feedback, and so on. From the online interview, the students also reveal that in the briefing and expectation set in the first meeting, they feel too many things to be acquired and learned in a very limited time. They are worried whether they could achieve the learning outcomes or not. Besides, they are worried about research writing the most since they are not familiar with this thing before.

The third step is evaluation. For answering the challenges, the flipped classroom is implemented. The flipped classroom is implemented in order to facilitate the students in acquiring input and knowledge before the classroom activities conducted (Lee & Lai, 2017). So, the students would do hands-on and practical activities in the classroom and have reflection after the learning process took place. In those practical activities, various technology tools and applications are utilized to facilitate the students in acquiring the skills and competencies needed.

Besides, technological tools and applications are utilized to overcome the challenge. Dunn and Kennedy (2019) have found that TEL could be advantageous for educational achievements, such as in the area of cognitive, behavior, and emotional. Nevertheless, they have found that there is no relation between the engagement in TEL with academic achievement. Aligned with these findings, Daniela et al. (2018) have noted that TEL stimulates the students to actively participate in the process of learning.

There are six technological tools and web-based applications that are utilized during this course,

namely Padlet, Kahoot, Google Docs, Google Forms, Socrative, and Mentimeter. Besides those tools and web-based applications, one learning management system (LMS) is also used, it is BINUSMaya. The technological tools and applications are utilized and classified based on the teaching structures; preparation process, instruction & practice process, and assessment & transfer process. In the pre-class activity, the students could access all materials for self-reading before the classroom activity in the LMS. The researcher puts various reading materials related to the topic each week for the students to read.

In the in-class activity in the classroom, the students should utilize the six tools and web-based applications according to their needs. For example, Padlet is utilized for brainstorming, discussion, and evaluation session. While Kahoot and Socrative are utilized for the assessment session. In the brainstorming session, Padlet is utilized when it comes to replace the KWL chart. The students should answer the KWL questions: 'What I Know' and 'What I Want to Know' at the beginning of the class, and 'What I Have Learnt' at the end of the class by using Padlet. Besides, the students also should utilize Padlet when classroom discussion is established. The students would post their discussion results on Padlet. Using Padlet, this application might facilitate the learning process, and collaboration among students runs well. The connectivity is also stable. The students are also fun using this application since they could post their opinion, pictures with their team members, give comment, vote, and like on the other's group posting, and many others. Besides, for both lecturers and students, Padlet is user friendly.

Kahoot and Socrative are utilized in the assessment and transfer process. These applications bring a positive attitude and improved students' motivation in having an assessment. The students even ask for more quizzes and tests when they experience it with Kahoot and Socrative. While Socrative allows collaboration during the test took place. Problems occur when the students have low connectivity to internet access, so they might not be able to join the quiz and the learning process well. Kahoot and Socrative facilitate well in testing the students' knowledge. The new version of Kahoot even enables educators to modify more than one type of question model in one test session. The applications also facilitate the educators to save the test result and students' scores directly.

Google Forms is also utilized in establishing tests for the students. When it comes to more technical materials to be tested, Google Forms is suitable to be utilized. This application is mainly utilized when the students have to practice their skills in paraphrasing, citation writing, reference writing, and summarizing. Challenge occurs when the students do the test on their smartphone. Mostly the answer to the questions is quite long while Google Forms could not show their whole writings in one big box. Sometimes, errors also happen when the students have submitted their

answers, but suddenly the connection is lost, or the submission is failed mysteriously.

While Google Docs is utilized by the students when they have to write the academic paper as the final assignment collaboratively. The students have remarked that Google Docs helps them a lot in working collaboratively since they can edit and collaborate the writing assignment anywhere and everywhere with their team members. While Mentimeters is utilized when the lecturer has to give an explanation on how to conduct the survey as one of the research methods. Mentimeters is chosen because it provides various features to do a survey. The students could have various options and experiences by utilizing this application.

The fourth step is analysis. The implementation of Technology-Enhanced Learning (TEL) in the English for Academic Writing course might be implemented since the students are millennials and digital natives. They do not have any problems with operating technological tools, and they have increased motivation for TEL to implement. TEL and flipped classroom implementation result during the course is aligned with the research result by Pechenkina and Aeschliman (2017) study. It is found the digital native students are preferred blended learning activities rather than the traditional class activities. Thus, learning motivation is increased. This condition is also supported by the characteristics of millennials and digital natives who have less attention span than the other generation type. So, various learning activities should be done to maintain their attention, motivation, and participation in the teaching and learning process.

Besides, stable internet connectivity, the supporting devices also help the successful utilization of TEL and flipped classrooms. Before the classroom activity, the researcher often asks the students to prepare for the in-class activities, what devices they should bring for the classroom activities, for example, laptop, tablet, or smartphone with stable connectivity. Since the flipped learning method is implemented, the researcher has to prepare well before the in-class activity so that the in-class activities can run well and effectively.

The researcher also provides out-class feedback and discussion for the students when they want to clarify the given feedback for paper revision or homework exercise. The students and the researcher utilize LINE to communicate and send messages. This application is chosen because people only need to add the LINE ID or scan the barcode to connect with others without giving our personal phone number. It is also light and has various features that enabled people to communicate well. For example, LINE provides various funny and cute stickers that can be used as the non-verbal communication tool. It may help the lecturer to build a good rapport with the students since the stickers lessen the formal situation between the users.

Another reason for the successful implementation of TEL and flipped classrooms is free technological tools and applications on the internet.

The students can easily access the tools and utilize in their own device.

The fifth step is the conclusion. The researcher learns that the implementation of TEL and flipped classrooms need more preparation in the beginning (Brewer & Movahedazarhouligh, 2019; McLaughlin et al., 2016). The students are also needed to be briefed in the very first session on how the class will be carried on. In utilizing the technological tools and applications, if the students have never experienced the application, it often needs a test-drive before the real test is conducted. Thus, it will be helpful to prepare a sample test. Besides, it is necessary to do a sample test or rehearsal by the lecturer to minimize errors in the implementation day.

In the implementation of TEL, Armstrong (2019) has highlighted three factors that may affect the motivation in TEL utilization. They are organizational culture, staff development, and resources. Thus, it is important to prepare the utilization of TEL so that the teachers, still be able to improve not only the engagement a motivation but also the students' outcomes and achievement. This statement is aligned with Ahn and Clegg (2017) who have noted that design is the fundamental component of work in Human-Computer Interaction (HCI), and understanding the process is a major focus in the field.

The last step is the action plan. In the future, there are a lot of options available to overcome the challenges. The rapid development of technology would provide access to TEL implementation in the classroom. Ratnam and Su (2017) have highlighted the implementation of other Office 365 education platform, not only Microsoft Teams. The research has found that the suitable implementation of a technology integration framework could trigger the development of the student's 21st-century skills, as well as the content and research development. The learning also should facilitate the students to be ready for the upcoming demand in the workplace in the future as well as stimulate the students' higher-order thinking.

Recently, the researcher tries to utilize Microsoft Teams in collaborating with the other fellow lecturers in writing research articles. The researcher plans to utilize this application in the classroom in order to facilitate the students in experiencing various learning experiences. Buchal and Songsore (2019) have found that Microsoft Teams is a helpful medium for students. Microsoft Teams can develop students' collaborative skills on the given project. Besides, Microsoft Teams also might facilitate the students to give and receive feedback as well as to contribute freely to their project. Further, Martin and Tapp (2019) have noted that Microsoft Teams might facilitate the implementation of the constructivist approach. This research also supports Buchal and Songsore's findings related to collaborative learning implementation through Microsoft Teams.

Microsoft Teams is chosen because it is available on the desktop application as well as on mobile applications. It might ease the access of the students.

Since this course will implement flipped learning, the chosen application should enable the students to access the application everywhere and anywhere. As found by Andujar, Salaberri-Ramiro, and Martínez (2020), in implementing the flipped learning and mobile device, students highlight the easy access and the design of the video content available for them to learn. Hence, collaborative teaching with other lecturers would seem promising since various perspectives and collaboration may enrich the students' learning experiences.

CONCLUSIONS

Based on the structured reflective practice in the findings and discussion section, it can be concluded that the implementation of TEL and flipped classrooms in English for Academic Writing course have developed the student's collaborative skill as well as increased the students' learning motivation and engagement in-and-out classroom learning activities. These findings also aligned with the findings from research done by Ansori and Nafi (2018). The research has found that flipped classrooms might help the students to have active learning experiences, establish collaboration and teamwork, trigger independent learning, and enhance the interaction among students in the classroom.

The teaching and learning process in the classroom becomes alive, and the students actively participate in every phase of learning. With limited time and a tight schedule, the students could acquire the learning materials and do the assignment well. The most important thing, the students could achieve the targeted learning outcomes and produce a well-structured academic writing paper collaboratively. After the learning process, the students also feel more confident in writing an academic paper for their final assignment or thesis in the future.

The research has implications on several aspects, such as in the technology mastery of the lecturer and the well-planned preparation before the teaching process. To successfully implement technology utilization in enhancing the learning process, the lecturer should be accustomed to technology. Thus, the lecturer should have a well-planned teaching session plan as the preparation before teaching activities, if possible, to do a simulation in the preparation process. This research also has implications for lecturer professional development. The lecturer should develop themselves and open to various technological tools that may be used in the teaching process so that it can facilitate the students and provide a rich learning experience in-and-out classroom activities.

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