

How EFL student teachers bolster 4C learning skills in lesson planning

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Abstract

This case study investigates how an EFL teacher educator flipped the classrooms to promote 4C learning skills among student teachers planning a lesson. In lesson planning, collaborative works and participation of students are vital as both help students develop their knowledge. The flipped classroom as a breakthrough in the teaching and learning process provides more personalized learning and interaction from which students can benefit. Its implementation along with the 4C learning skills is required to face the new landscape of education after learning loss of the pandemic as the discrepancy of digital access and learning remains high. Thus, collaboration, communication, creativity, and critical thinking in flipped lesson planning activities are required to be illustrated. The data were collected from observation, interviews and document analysis. The findings suggest that pedagogical knowledge, technological knowledge and content knowledge are must-have competences of today's educators to meet the demand of the 21st century learners. In addition, lesson planning for the novice is a long, meticulous process that cannot be completed in one go, and is integral to collaborative and communicative tasks to yield a more well-informed and sounder outcome while accommodating creativity and critical thinking. Moreover, benchmarking and standardizing teachers, lecturers, or educators should be administered at some levels.

Keywords: *4C learning skills; flipped learning; lesson planning; preservice teachers*

INTRODUCTION

This study focuses on the use of the flipped learning to advocate Collaboration, Communication, Creativity and Critical thinking (4Cs) among pre-service Teachers. Current new digital era requires learners to study the routine conceptual necessities. Therefore, blended learning implementation is essential (O'Flaherty & Phillips, 2015). One of the blended learning models is the flipped classroom. This model positively contributed to students' digital literacy and anxiety (Jeon, 2021), to attitudes toward technology (Lee, 2020), and to students' achievement (Adnan, 2017). The model is also applicable for all education levels. The COVID-19 crisis has brought about a shift in learning and education in general. The shift has significantly impacted on the learner. The World Bank estimates

that school closures in Indonesia due to the COVID-19 pandemic are associated with learning loss, degrading students' reading skills (Arsendy et al., 2021). In addition, after the pandemic, the way of teaching and learning cannot be reversed back to what it was. What teachers can do is to facilitate learners, both online and offline, through blended learning where technology can play its vital role (World Bank, 2021). In this sense, it is wise to feature the flipped classroom to face what is prevailing now and what can happen next so as to provide learners with flexibility in time and space, engaging activities, and fun learning experiences.

4Cs as 21-century skills which are deemed the key to success not only in learning but also in the workplace constitute must-have skills in the new technological era. For learners, to get these skills seems unlikely without being exposed to the supporting environments of the classrooms. These supporting environments can be created through the implementation of flipped learning since it allows learners to have their own responsibility for interacting, collaborating, and learning so as to acquire 21st century skills (Avci et al., 2021). However, implementing it is not an easy task due to the fact that the competence of using digital technology for learning among learners are still insufficient (Lee, 2020). Thus, exposure to experience digital learning media in the classrooms requires reinforcement to gradually help students acquire the skills.

Previous research on the flipped learning has little attention to investigate how it is implemented in lesson planning among pre-service teachers. For instance, Research has only described its implementation in language learning (see Basal, 2015; Evseeva & Solozhenko, 2015). Research also proved its effect to students' psychological aspects (Butt, 2014; Jeon, 2021; Wong & Chu, 2014). The novelty of current research dealt with the flipped classroom implementation to develop the 21st-century learning skills, the 4C skills of student teachers in lesson planning in terms of theories and online learning practice. Thus, this study aims to close a gap in the literature by going into the students' 4Cs as demonstrated in the flipped learning: investigating how 4Cs are advocated in lesson planning and what possible challenges to its implementation are.

The Flipped Learning

At the moment, there is a great deal of interest in implementing flipped learning. This learning paradigm is convenient since it enables learners to access knowledge online before and outside class. The reason for this is that, rather than delivering typical lectures, teachers provide mentoring and more one-on-one engagement with students. The redirection of class activities accomplishes this to online and face-to-face meetings. Flipped learning typically embarks on online classes before starting offline sessions and may include additional non-compulsory online programs. According to Vaughan (2014), flipped learning environments give content to students outside of the classroom using recorded lectures, films, or other technology. The benefits of this learning approach include improved engagement in which students have ample opportunity to seek information and facts from online learning tools, and an increased degree of

understanding of instructional technique for teacher professional development (Vaughan, 2014). Additionally, it improved academic attainment (O'Flaherty & Phillips, 2015).

By implementing flipped learning, teachers gain the freedom to experiment with new teaching methods outside the off class, students gain the option of learning at their own pace, and they can take ownership of their education (Basal, 2015; Vaughan, 2014). While teachers frequently employ this method, it may have some disadvantages for students. Lo & Hew (2017) mention the issues were the feeling of unfamiliarity, the incapability to focus on video lectures, the ambiguity of teachers instruction, the high-time portion allotment for pre-class activities, lack of external support, the inadequacy of students' IT resources, and external monitoring difficulties on students' out-class activities.

4C Learning Skills

The 4C learning skills, starting from collaboration, communication, creativity, and critical thinking, are essential for future career of college students (Bialik & Fadel, 2015; Soland, Hamilton, & Stecher, 2013). These learning skills are demanded by the existing educational goal of Industrial Revolution (IR) 4.0, which is to prepare students for the future. According to the report, many Indonesian teachers have recently approved these skills, and as a result, school systems are now facing increased pressure to produce alumnus who possess a diverse variety of competencies (Soland et al., 2013). Students' success in dealing with the ever-changing world is frequently tied to their ability to master these skills. It is crucial for students to master these abilities in order to prepare them for the rising complexity of 21st-century living and work circumstances.

The first skill is Collaboration (CL) refers to how students collaborate the targeted objectives. This skill is essential to find solution in current century's multifaceted problems. In practice, collaboration can be seen when people work as a team, in which each member takes their own responsibility and role effectively to complete particular tasks. As van Laar et al. (2017) argue, although each member of a team may work on their own, contribution to the success of the group as a whole is accentuated, leading to mutualism.

Communication (CM) skills are concerned with conveying information in the most effective and efficient manner. Dede (2010) states that the characteristics of those who have communication skills include the ability to form and express opinions through the available media, which are understandable to a variety of individuals. In this sense, students can demonstrate the skills by expressing themselves through strong beliefs and opinions, clear thoughts, coherent instruction, persuasive speeches to inspire others, and the effective use of technological tools and digital surroundings to give assistance both individual and group activities. Furthermore, in ICT-based environments, it is activated to transmit information, where meanings are transformed into an effective expression for others through the use of technology (van Laar, et al., 2017).

Creativity (CR) denotes the capability of students to create advancement and innovations to what has been of their interests. Dede (2010) affirms that to invent something not only refers to the new creation of objects, but also can entails original ideas or thoughts. Creative students can be distinguished in their ability to be fluent, flexible, original, and prolific to generate new ideas. In addition, dealing with the world's increasing complexity and certainty necessitates creativity as a substantial quality to leadership (Bialik & Fadel, 2015). They also categorize creativity to a number of levels encompassing the skills for imitating, varying, combining, transforming, and creating at its pinnacle.

As the final point, Critical thinking (CT), which consists of numerous components, including deductive and inductive reasoning. It is used for obtaining relevant information, making judgments, and resolving problems (Bialik & Fadel, 2015; Dede, 2010). Typically, the capacity to think critically is characterised in terms of one's ability to develop coherent ideas. Students who can think critically demonstrate the capacity to comprehend inductively and deductively, to obtain significant information, to prompt critical questions, to explain points of view and to generate problem solving, to make sound judgments, and to present credible alternative decision making. Critical thinkers are more likely to become self-sufficient persons, making them less dependent upon government resources (Facione, 1998, in Soland et al., 2013).

METHOD

This Case Study design was conducted to capture the case of how a teacher educator employed the flipped learning to promote the student teachers' 4C learning skills in planning a lesson. The participant was purposively selected, an English teacher educator teaching at a university. She was teaching Learning Media Implementation to 24 student teachers in the class, whose goal was to allow students to create a lesson plan in implementing learning media for a specific English learning objective. She was chosen as she was teaching the students by employing the flipped learning. She was willing to be the participant of this study and most importantly, consent was given in relation to publicly sharing all the information obtained in this study. She also invited us to her online class as teachers to observe the learning activities on the Learning Management System (LMS).

The data were collected from observation, interview, and student documents. The observation was administered six times with three times online observations done on the LMS (Meetings 2, 4, and 6) and three times classroom observations (Meetings 3, 5, 7). The classroom observation was conducted by videotaping what was going on in the class. In the meantime, online observation was directly conducted in the LMS. The observation was conducted in the second meeting of the semester because we missed the first meeting as the meeting had finished when we first asked for permission for carrying out research. The first meeting was said to be used as a preliminary session before the students accessed the materials online by introducing the LMS to the students and making sure all the students were invited to the class. The observation was based on students' learning processes to collect data on the learning processes as well as to note down the 4C skills. The interview

was explicitly designed to obtain in-depth information about the flipped learning that the educator deployed in having the students plan a lesson. The interview was organised based on some constructs encompassing attitude, beliefs, the perceived benefits, and the challenges. The student documents referred to the lesson plans that the students created to apply the learning media. These were used to gauge the 4C learning skills manifested in their learning.

The LMS used were Schoology because it is a free accessible platform that the educator had tried before and is the most familiar with compared to any other LMSs. In the selection of this LMS, the researchers did not interfere and were not involved. Utilising the LMS, the teacher educator carried out the flipped learning in three stages. Each stage was initiated by an online classroom and ended in a face-to-face meeting. Thus, the activities lasted within two meetings. The first meeting was online class while the second meeting was offline class learning. While learning online, the students were provided with a set of materials and activities such as videos, quizzes, or assignments for the following meeting. Additionally, the completed assignments for upcoming face-to-face meetings were uploaded to the LMS in advance of the class.

The researchers applied the interactive model of Miles, Huberman, & Saldaña (2014) to analyse the data. The model suggests condensation of data, display of data, and finally the verification of data in which the data yield well-informed interpretation. The researchers observed the activities and analyzed the data to describe the flipped learning process. The researchers provided comprehensive research results by triangulating the data with the interview and observation data. Then, the researchers checked and connected the observation data and the interview data to ensure the validity. Furthermore, the findings are presented to account for the students' collaboration (CL), communication (CM), creativity (CR), and critical thinking (CT). The generated themes were verified to result in findings which were discussed and interpreted in relation to the existing theories.

RESULTS AND DISCUSSION

Results

The flipped learning activities employed by the teacher educator for six meetings are illustrated in Table 1. The learning activities were designed to address the course's objective of developing a lesson plan that incorporates media to accomplish specific learning objectives. Each stage of flipped learning contains both an online and an offline component (Avci et al., 2021; Mehring, 2018; Polo et al., 2018). The learning process required the students to log into their personal account in Schoology immediately. After logging-in, the students would learn the given materials. Then, they would receive face-to-face reinforcement.

Table 1. Learning activities concerning to the 4Cs skills

No	Activities	CL	CM	CR	CT
1	Filling out quizzes				V

2	Making categories for learning media types		V		V
3	Sharing ideas of the benefits of learning media in group	V	V		
4	Making a summary of learning media				V
5	Explaining how to use learning media in teaching		V		
6	Determining a learning objective in lesson planning			V	V
7	Choosing appropriate learning media for certain objectives			V	V
8	Leaving comments on the LMS		V		
9	Connecting learning media with learning activities			V	V
10	Drawing a conclusion on the learning media implementation				V
11	Connecting learning media with language skills and materials		V	V	V
12	Sharing feedback after teaching demo		V		
13	Completing structured individual assignment				V
14	Asking questions		V		
15	Asking for clarification		V		V
16	Determining language skills to teach				V
17	Demonstrating teaching-learning activities		V	V	V
18	Working in groups to solve a problem	V	V		V
19	Rationalizing the selection learning media in groups	V	V		V
20	Confirming tasks and assignments given		V		V
21	Distinguishing between non digital and digital learning media in groups	V	V		V
22	Designing non digital learning media in teaching			V	V
23	Setting up digital learning media in teaching			V	V
24	Questioning the appropriateness of certain learning media				V
25	Making an analysis of non-digital media effectiveness in groups	V	V		V
26	Evaluating learning media to attain certain objectives		V		V
27	Planning a lesson with a given learning medium			V	V
28	Discussing specific learning media used to teach language skills		V		V
29	Completing group work on the LMS	V	V		

In this research, the steps of the applied learning were: planning, acting, and observing. It was suggested that lecturers collaborate to plan flipped learning. It assists in developing course materials such as lesson plans, cycles, and materials for the learning management system. The team chose three cycles to study as a lesson. Each cycle consists of two classes (see Mehring, 2018; Polo, Silva, Crosby, 2018). It was created using screencasting software O'Matic, Powtoon, and a video maker. After that, the students had to work on the comprehension test and to read the topic about lecturer's LMS account.

The lecturer then 'performed' all of the lesson plan's steps and had already taught students how to use the LMS. Additionally, the students were given the LMS access code. The students viewed two videos before responding to comprehension questions. They include video lectures about the use of non-digital and digital learning media effectively. Additionally, they could only access the LMS for a limited time. To be punctual. Then there is the face-to-face interview, followed by the application evaluation. Figure 1 shows the LMS' materials.

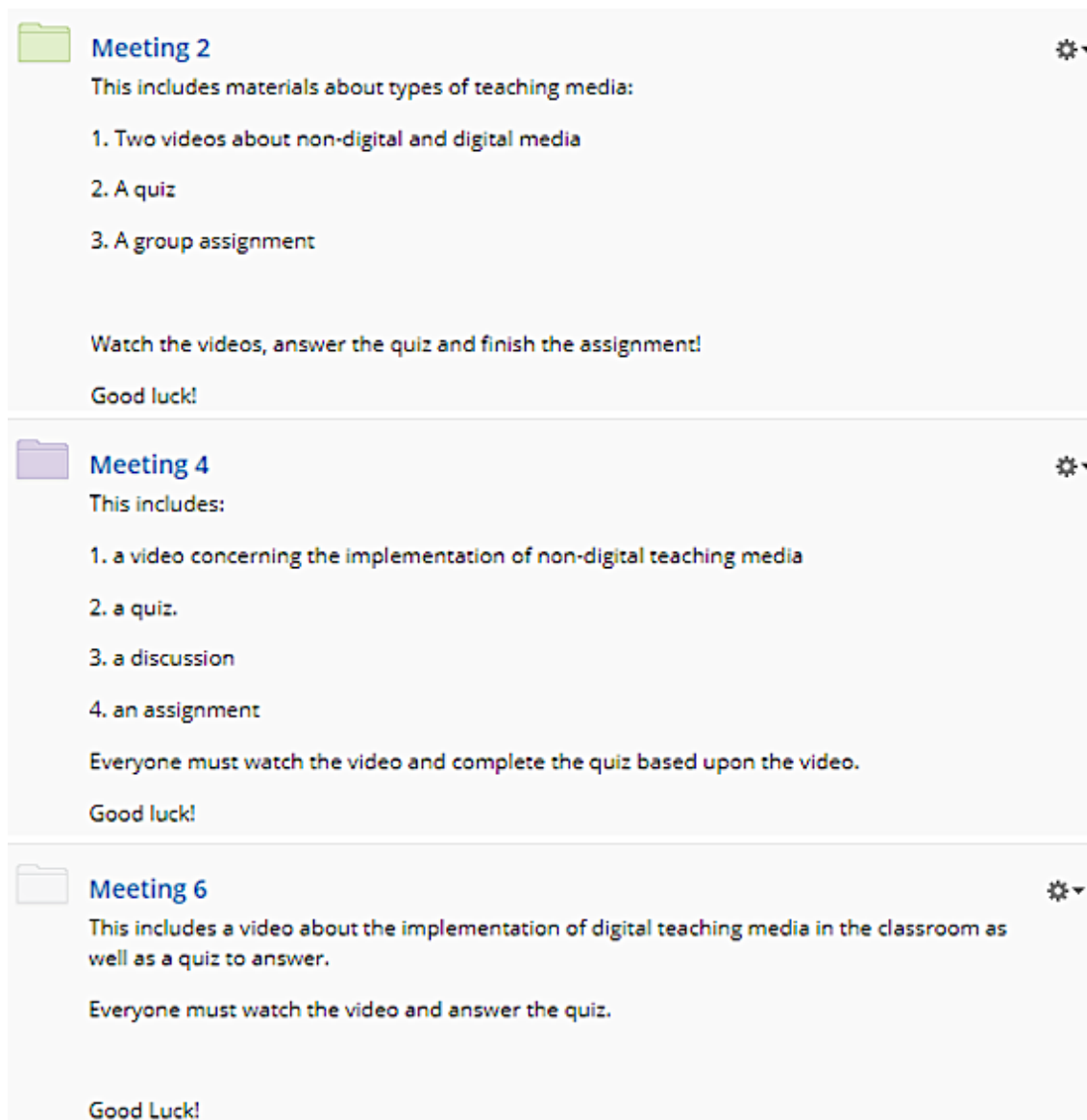


Figure 1. Materials uploaded in online classes

Throughout the offline session, the teacher checked attendance and the LMS for quiz completion. Prior to the students' performance and work presentation, a discussion and sharing session was held in class. The lecturer and collaborators met the following day to discuss the first cycle's findings. To prepare activities for the second and third cycles, we gathered feedback from the online class lecturers and the offline class collaborators.

Due to technical difficulties, the second and third cycles' video lectures have been reduced to one.

Furthermore, the second and third cycles included assignments involving materials and video lectures. The research concluded that a combination of digital and non-digital teaching media would be required. Efforts must be made to identify all possible activities that can be conducted with a particular teaching medium. For instance, they

created a list of all possible blackboard activities and collaborated on the most effective ways to teach their respective classes desired English skills. The collaborative nature of this activity enables students to collaborate because they all share a common objective, regardless of the medium of instruction used. When students participate in this type of sharing, they can choose activities that align with their learning styles and language abilities. As a result, this classroom activity is critical for imparting critical knowledge to students.

In addition, several issues were identified throughout the process and addressed by both the teachers and students involved. One of the most significant roadblocks for teachers was the time-consuming preparation required, as well as policy and an intermittent internet connection. Simultaneously, two categories of barriers were identified. The first barrier dealt with the students' unfamiliarity to operate the LMS and to join the online class. The second barrier was – the connectivity issue. This section of the report summarises the findings of an interview and observation session.

As students engage in learning activities, the 4C's are realised. The activities in the classroom during flipped learning are depicted in Table 1. Initially, online classes prepared students through video lectures. In flipped learning, students synthesise information and participate in the process by watching video lectures (Doman & Webb, 2016). Additionally, each cycle's quizzes permitted a single attempt. In this phase, the students had to complete the quiz carefully. The students also did not have flexible opportunity to commit cheating because the strict time limitation. Thus, they had to demonstrate a thorough understanding of the video lecture's content. Thus, even if they walked away after answering, their response was recorded. Indeed, students discovered errors after completing the quiz, but no score was displayed. As a result, quizzes were limited to twice per cycle in the following cycle. Allowing students to take the quiz on a timed basis can motivate them, whereas providing unlimited opportunities to complete a task result in disinterest.

The lecturer began the subsequent face-to-face meeting by checking in with students who had not completed the quiz prior to the meeting to ensure they were still on track to participate. One issue in the flipped learning is when several students miss reading the available materials in online classes, creating a learning impediment for the rest of the class (Polo et al., 2018). Individuals who did not complete the quiz were deemed to be absent from the meeting due to this rule. Increased participation in the quiz instilled confidence in students to complete it at the next meeting, which they did. Thus, as demonstrated in this article, students who participate in flipped learning have the potential to exert control over their educational experience (Basal, 2015; Mehring, 2018).

The students were also assigned to a group project to work on in order to hone their collaboration skills. The task remained connected to the LMS video that had been viewed previously by the students. They were instructed to create a mind map in order to effectively communicate their grasp of the material. Due to the fact that flipped learning requires face-to-face meetings for idea development and sharing, it was designed to assist

students in developing their critical and analytical thinking skills (Doman & Webb, 2016; Mehring, 2018). Students were expected to present the outcomes of their discussions to the rest of the class at the conclusion of the face-to-face meeting. The activity's objective was to ensure that students grasped the material and honed their interpersonal communication skills.

On the other hand, the third online and offline class highlight the practical application of various learning media. This was demonstrated in detail in the video lecture to ensure that they gained a firm grasp on how to utilise specific teaching media. To ensure each student's success in the offline class, they were each assigned to teach a specific reading, writing, listening, or speaking skill. Students were tasked with determining the most effective method and time frame for utilising digital or non-digital media, as well as how to combine the two different learning media. Additionally, they investigated tools that was possibly best for particular language skills, as not all available realia could be implemented concurrently. The students were expected to properly implement learning media as if they were the teacher. As a result, they must have a thorough understanding of the various teaching media in order to successfully teach English skills. Students' skills and mental abilities are enhanced to some extent as a result of this, as they are required to engage in rethinking and idea restructuring (Chu, et al., 2017).

Discussions

The reflection of students' 4Cs in the flipped learning

Since the educator employed a variety of activities stimulating the student's teacher to think critically, CT was primarily manifested in the classroom. Some activities required critical thinking, for example, when students were assigned to use learning media in teaching, when they determined suitable learning media for the language skills and when they rationalised their choice. In these activities, they bore in mind some considerations and share their thoughts in order for others to understand. The activity cannot be carried out without these two abilities. Furthermore, thinking critically was demonstrated in individual and group tasks. CT offers work efficiency in dealing with technical and logistical challenges (Polo et al., 2018).

The students demonstrate critical thinking by making significant efforts to gather relevant information about learning media, ask essential questions that aid in problem-solving, choose appropriate media, and provide alternatives to demonstrate in their teaching. When the lecturer asked which media could be used for certain skills, it was clear that they needed to gather relevant information. This can be done to encourage inductive and deductive reasoning. Furthermore, the ability of the students to make informed decisions by looking into the criteria was observed when they were asked "look at the basic Competency (KD), what language skills can be applied in your teaching?" and "Which non-digital learning media can be applied?" Through deductive reasoning, students could activate CT as they made informed decisions based on their basic competency, learning media, and language skills. This occurrence is consistent with

Facione et al (1995, in Soland et al., 2013) definition of the CT ability as making inferences, evaluations, standardised analyses, and deductive reasoning.

As for CM, it is also facilitated by the learning activities, but how it is executed was misleading, resulting in limited students' opportunity to convey their ideas. CM is only seen in several activities performed in the offline classroom, particularly in the whole-class or group discussion. CM is defined by forming collective knowledge and understanding about a phenomenon (Polo et al., 2018). Several activities allowing students to use these skills include categorization of learning media types, individual presentation in group and class discussion such as the discussion of learning media advantages. These activities have to do with sharing and conveying information. It appeared that students' communication skills in the face-to-face meeting were limited. The students are not motivated to deploy different learning media to express themselves or share their ideas with the lecturer or students. Nevertheless, CM is more than just presentations or expressions of oneself; the essential aspect of CM is the audience's subsequent comprehension (Bialik & Fadel, 2015). It is further argued that activities to develop accurate CM include tutoring between peers, listening actively, and prompting ideas and information that include negotiations, giving instructions, advice, relationship maintenance, and conflict resolution.

In terms of CL, they provided learning activities requiring students to work in groups to accomplish a common goal, resulting in the realisation of this skill. Along with communication, collaboration is a necessary interpersonal skill in the twenty-first century (Soland et al., 2013). The promotion of collaboration in the learning activities were mainly to get the students used to lesson planning based on the given criteria. In the activities, students were facilitated to work in groups to collaborate effectively to attain the same purpose. This leads to the manifestations of CL as they made unwavering concessions, performed self-responsibility as an individual and a group, and worked in the team voluntarily to get what becomes the common target. To some extent, this denotes students' emerging capacity to build up their CL skills and to work together for one previously set purpose.

Although the students are familiar with collaboration skills as seen in the ample data from group work, no negotiations are demonstrated by the students. Alber (2012, in Soland et al., 2013) underlined that negotiation is said to be vital in collaborative contexts. The reason for this may be due to the difficulty of thinking about an argument done simultaneously to allow others to understand the point of the argument, alongside with under pressure situations as the activity was timed. Nevertheless, the skill, negotiating with others, is still necessary to overcome multidimensional problems by the help and assistance of others owning considerable skills, experience, as well as to assure competitiveness in this increasingly complex world.

Among others, CL is reflected the least in lesson planning activities. To explain this, Polo et al. (2018) assert that CL and CM go along since the capacity to collaborate necessitates communication. As found in this study, the students collaborated if they were assigned to group work. If not, they won't unless they are in sharing and discussion

sessions. While collaborations require communication, communication can operate itself without collaboration, despite the fact that communication with the aid of collaboration yields a more well-informed and sound outcome. This suggests the importance of collaboration in this new digital era. As a practical implication., this is the time for teachers to encourage students to collaborate by first setting common and shared goals for them to achieve.

The students had excellent CR skills by modifying and elaborating the subject matter. On the other hand, based on the observation during the discussion without digital learning media, the students could not generate new ideas without the given materials. In this case, the researchers found they attempted to combine two learning media by considering the language skills and objectives. How the students mixed the use of the non-digital media was similar to what had been delivered in the video lecture. Particularly, this is because they have a strong desire to more effectively address the lesson's stated objectives. The purpose of using learning media, on the other hand, is not to make learning appear sophisticated or complex, but to make it simpler and easier for students to accomplish a set of learning objectives. Still, the pinnacle of innovation is the creation of new things efficiently and simpler than those available before with regard to the learning objectives.

In this regard, the combination level of CR occurs when two or more works are combined or mixed to form a new one (Bialik & Fadel, 2015). As stated above, what was combined was two learning media. Albeit their CR level, they had creativity skills that allow them to select appropriate learning media in the teaching of language skills. Polo et al. (2018) explain that creativity requires natural action of processing. Bialik and Fadel argue that the 21st-century challenges require students to master high tiers of creativity. They are transformation and original creation.

The applied flipped learning could develop the students' 4C skills and prepare students to manage complexities in current era. These findings indicated communication is also a collaborative endeavour by giving students the opportunities to communicate online and face-to-face. In this research, critical thinking is associated to creativity. Objective-based learning requires high critical thinking activity intensity. This is because of the nature of the lecturer's learning activities.

All the activities designed by the lecturer are scaffolded in such a way so that the preservice teachers experience what it takes to lesson a plan, particularly connecting the Basic Competency, language skills realised in lesson objectives, and learning media. The lecturer is well aware that lesson planning needs to take some considerations into account and is a rather long process. She also takes into account the reinforcement of collaboration and communication in planning a lesson among her students although collaborative and communication-promoting activities leave room for improvement, not only for achieving the goals of the course but also for assuring the product or outcome while stimulating creativity and critical thinking. Lesson planning done collaboratively can result in the

provision for professional practice improvement (Bauml, 2014, Gutierrez, 2021), unremitting learning, and reflective, affective, and professional assistance (Gutierrez, 2021).

The challenges in implementing the flipped learning

Teachers, lecturers, and educators find the flipped learning difficult to apply since the learning requires online-offline classes simultaneously. According to Lo and Hew (2017), the challenges were found to have been experienced not only by the lecturers but also by the students. It is indicated in the interview with the students and lecturer, the use of flipped learning to teach how to apply learning media in lesson plans is not without any barriers. The challenges faced by the lecturer entails the Internet resources, time consuming preparation, and policy. In the meantime, the issues experienced by the students are concerned with familiarity to the platform and available Internet connection.

The time-consuming preparation in conducting the flipped learning is significantly caused by the large size of the materials such as video lectures, quizzes, assignments, and materials for assessment. Firstly, a huge amount of time is required to create a video lecture. In this regard, the lecturer may retake the video several times, and has to do some editing before uploading it to the LMS. Rendering the video and uploading it online also takes some more time. Bennet (2013), cited by Mehring (2018) also found that the flipped learning took longer preparation and online activities than the common learning model. It is indeed challenging to create learning media that require technology when the lecturer is not particularly interested in technology. This to some extent suggests the importance of technological knowledge that teachers must have, along with the pedagogical knowledge.

To keep up with the demand, using technology to assist in teaching preparation is critical. Without it, the video lecture editing and making presumably result in inefficiency. This indicates that the technology, pedagogical, and content knowledge integration are important to provide qualified learning materials (Mishra & Koehler, 2006). In line with it, Larson and Miller (2011) affirm that technology-rich classrooms need to address different and complex learning experiences of students. As a result, being creative and innovative in flipped learning is what teachers are supposed to be (Wilkinson, 2016).

Regarding the policy, online meetings could not be considered as a meeting by the university leader, which is supplementary to face-to-face meetings. The lecturer stated that she had to substitute the online class with another offline face-to-face meeting. Therefore, the implementation of the flipped learning model seemed useless for both lecturers and students.

The effort of improving the learning quality based on the 21st-century necessity required the roles of policymakers. This is in contrast with the integration of technology as suggested by Indonesia's government. However, during the outbreak of COVID-19 pandemic, the attempt of using online learning significantly improved. The Ministry of Education, Culture, Research, and Technology also mandated all learning processes had to shift from face-to-face meeting into learning from home by online.

In addition to it, the final point to consider is the facility related to the Internet connection. Not only does the lecturer confirm this challenge, but also the students experience it during the online class. This is also the barrier that Lo and Hew (2017) reported in their research. Besides, it is a prevalent and well-known challenge among Indonesian educational practitioners, particularly in a small town. This challenge was identified when the lecturer called the roll, checked the assignments in the LMS as more time was allotted. Group discussions were also obstructed by the connection since to retrieve the materials on the LMS was not easy. This crucial time in the face-to-face meeting should better be used efficiently for determining students' understanding of the materials, leading to learning internalization and real practice. According to Basal (2015), the follow-up offline class in the flipped learning is more significant than just video lecturers. This hindrance may thus jeopardize students' further development of comprehending the materials.

The Internet Connection was also experienced by the students involved in this study. Even though the campus has Wi-Fi in some locations, it does not fulfil the students' needs to go to the LMS and complete their tasks. What is interesting is that the students persistently did what they were assigned to. Taking turns using the same device to complete the assignments was what they did. According to Polo et al. (2018), optimal learning can be obtained as long as every effort is made to pursue the objectives. This denotes the flipped learning quality to reinforce student personal engagement (Millard, 2012, in Basal, 2015; Vaughan, 2014), leading to autonomous learners.

The students found flipped learning as new and unfamiliar learning model for them. This resulted in their difficulty to access the class, submit the assignment, and complete quiz or discussion forum. It is unideal since more time should be spent on the offline class (Basal, 2015). As they are engaged in unfamiliar activities, it is true that the flipped learning increases workload (Lo & Hew, 2017; Mehring, 2018). There is also a possibility that the students withdraw their participation as triggered by technical problems and unfamiliarity with the LMS. By taking this into consideration, the materials provided at the beginning of flipped learning implementation should link what students are required to do and what they know. In other words, students' prior knowledge is used to design some challenging, interesting activities with adjusted workload. Therefore, students can have a positive attitude toward it as they take part in all the available activities of the flipped learning (Butt, 2014).

The flipped learning can be implemented to teach any other subjects at school with the use of the same LMS so that efficiency and ease are attainable. This can help students to focus on the content. Today, we still see that some teachers at some schools are using different platforms for students, which affects their concerns on some technical issue. Benchmarking and standardizing teachers, lecturers, or educators in terms of the standard LMS, standard procedures, methods, and regulations is the starting point to face the demand of the technological era. At the end of the day, the use of technology in the

classrooms is not to make it look sophisticated or futuristic, what is more substantial is that the learning objectives or goals are attained effortlessly and efficiently.

CONCLUSION

The flipped learning model could be the actual future learning. This learning allows learners to learn anywhere without attending the classroom. They could also learn based on their style and time flexibility based on their Internet access availability. The current research results provide comprehensive findings for pre-service teachers to develop their 4C skills. This learning model could also facilitate the preservice teachers to prepare their lesson plan. At the beginning of the flipped learning model, the researchers found the teachers had to enormously spend their energy preparing creative videos and learning activities. The researchers also found the students applied their 4C skills both in online and offline meetings. In each meeting, the students began with creative, collaborative, critical thinking, and communicative actions. Therefore, the implementation of flipped learning enabled comprehensive examination for the individuals. Unfortunately, some lecturers and students still found the learning model complicated and required long preparation.

In the flipped classrooms, pedagogical knowledge, technological knowledge and content knowledge constitute must have competences of today's educators to meet the demand of the 21st century learners. Lesson planning for the novice is a long process and is integral to collaborative and communicative tasks to yield a more well-informed and sounder outcome while accommodating creativity and critical thinking. Moreover, benchmarking and standardizing teachers, lecturers, or educators should be administered at some levels. Nevertheless, this study is limited to only include a teacher educator teaching in a class. Involving more participants can be done to generate solid findings either to support or oppose what has been found in this study. Besides, a prolonged period of observation, for a semester or so, can also improve the consistency of findings in relation to 4Cs.

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