Changes in Indonesian EFL Lecturers’ Technological Pedagogical Content Knowledge (TPACK) After Lesson Study

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Abstract. It is probably fair to say that English language teaching in Indonesia’s universities has not seen significant success. Plethora of studies reported that the most common problem found in college English teaching is unskilled lecturers including the lack of integrating technology into their teaching. In fact, in this digital era, an ideal English lecturer has to have deep understanding of Technological Pedagogical Content Knowledge (TPACK) to create effective teaching. Therefore special treatment is needed to upgrade their knowledge and Lesson Study is believed to be the impactful professional development on teachers’ knowledge. This article reports on a case study regarding changes on three English lecturers’ TPACK after engaging in Lesson Study project. Those lecturers were voluntarily recruited for the case study. The findings show that Lesson Study broadened English lecturers knowledge of content, pedagogy, technology and the combination of these domains.

Keywords: Indonesian EFL Lecturers, Technology Pedagogical, Lesson Study

1. Introduction

English proficiency is vital for citizens in countries that seek to participate actively in the global economy and need access to information and knowledge for social and economic development. Therefore, in this globalization era, Indonesia has made English as a compulsory subject in junior and senior secondary schools, as well as at tertiary levels of education. English is a compulsory course for undergraduate students in the first or second semester. However, English teaching in Indonesia especially at higher education has seen limited success. Alwasilah (2001) reported three common problems in English teaching in Indonesia’s universities namely unskilled teachers, abject facilities’ and ‘unfavorable learning environments. This indicates that there must be serious attention given to solve these problems including improving English lecturers’ skills and knowledge. [1]

In line with that, another previous study has shown that significant problems on university teachers are encountered in EFL teaching. They are teaching styles and methods, insufficient time, unclear instruction, large class size, less preparation and lack of teaching aids and technology used in the classroom. [2]. First is the teachers’ teaching styles and methods; the atmosphere in the classes was not very exciting. There were not many activities designed to arouse the students’ interest. Second is insufficient time for communicative activities. The teachers tried to use a communicative approach in their classes, but it was not implemented effectively or properly. All the teachers conducted pair work and group work activities in their classes, but these activities were limited to answering the questions in the textbook. Third is grammar-driven teaching model where the teachers focused too much time on
teaching grammar. Fourth is unclear instruction. Fifth is large class size. Sixth is limited ability in classroom management. Seventh is not much investment for lesson preparation. The last is that teaching aids and technology were not used much by the teachers. In fact, learning English in the present era is increasingly facilitated by the presence of technological innovation. Students no longer rely on classes but can be anywhere and anytime including via a smartphone and portable computer. This is what needs to be emphasized by English lecturers. The role of the lecturer is no longer the only source of knowledge but rather directs the students to learn interactively in various media that are familiar to them.

Besides, another study reported that most of the questions asked by the lecturers to university students were lower-order questions. [3]. In fact, English is particularly a subject which does not only ask the students to remember structures but most importantly, to express ideas. Therefore, treating students with more challenging questions which trigger their thinking skills is more encouraged. The questions also should vary in terms of the types (process vs product), in which product questions require specific answers whereas process questions require the use of analysis (Muijs & Reynolds, 2011) as cited in [4].

An ideal university teacher must have content knowledge (CK), pedagogical knowledge (PK), technology knowledge (TK) and the combination of this knowledge namely Technological Content Knowledge (TCK), Pedagogical Content Knowledge (PCK), Technological Pedagogical Knowledge (TCK) and Technological Pedagogical Content Knowledge (TPACK). As cited in [5] TPACK stands for Technology, Pedagogy, and Content Knowledge and was announced as the “TotalPACKage” for effectively teaching with technology [6]. Therefore, a university teacher is highly suggested to have deep understandings of each of the above components of knowledge in order to integrate technology, pedagogy, and content into teaching.[7,8,9,10].

Promoting the development of quality teachers is important in improving education quality [11]. There has been much effort to improve teaching quality through professional development. Participation in professional development is believed to have some impact on the teachers’ ability to acquire and critically develop the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with their students and colleagues through every phase of their teaching lives. In the last few decades, researchers and educators have become interested in developing more prolonged forms of professional development such as Lesson Study.

Lesson Study is also believed to be the key of successful education in Japan. It is a collaborative professional learning model [12] that is proven to improve teachers’ content and pedagogical knowledge [13] where teachers can observe and critique one another in order to improve their teaching. It is a school-based collaborative activity that involves a continuous cycle of planning, demonstrating, and improving a lesson [14,15,16]. During a lesson study cycle, teachers collaborate on a broad, student-centered goal [17]. In Indonesia, [18] asserts that the implementation of lesson study in Indonesian context has been modified and simplified in three phases: plan, do, and see. [19]. The teachers will develop their own teaching and students learning by planning, observing, and reflecting from those research lessons.

Although many studies reported the positive impacts of lesson study on teaching and students learning, little research exist investigating the implementation of lesson study in a university and seeking deep understanding on changes on English lecturers’ technological pedagogical content knowledge (TPACK). Therefore the present study is conducted to answer the following research questions: (1) what is English lecturers’ perception on their own TPACK level? (2) what processes are involved in the lesson study implementation? and (3) what have changed after engaging in lesson study implementation?
2. Literature Review

2.1 Lesson Study

Lesson study is a form of long-term professional development in which teams of teachers collaboratively plan, research, and study their lesson instruction as a way to determine how students learn best. In Japanese lesson study teachers work in small teams to plan, teach, observe, analyze, and refine individual class lessons, called research lessons. Therefore the process of lesson study basically consists of three main activities: plan (planning English lessons and the teaching strategies), do (implementing the teaching and learning activities in the classroom), see (reviewing the teaching and conducting a reflective meeting with other English teachers or lecturers who have observed the teaching and learning activities.

The cycle of lesson study can be seen in the following figure 1:

![Figure 1. The lesson study cycle](image)

2.1.1. Plan

In this stage, the activities of plan are conducted through meetings at the beginning of academic year or the beginning of semester. The dean of faculty can arrange the schedule of lesson study activities through head of English study program. Furthermore, the head of English study program makes planning activities which include the determination of topics or teaching materials, the determination of teachers who will carry out learning and other preparation such as designing tools or models that will be used in teaching and learning process with regard to inputs obtained from previous lesson study activities. In relation to such preparations, head of English study program can play a full role in preparing all aspects of the learning aspects. Once the time has been arranged, the next step done by the dean of faculty is to disseminate information and invitation to the parties concerned. Agreeing on operating rules, group norms, and schedule are important for the successful lesson study. In this stage, the members of Lesson Study group also discuss the specific English goals, students need, lesson plan, content topic and teaching materials. Sharing and seeking out expertise on teaching topic are also done in this stage.

2.1.2. Do

[20] developed protocol guidelines for the implementation phase of lesson study activities as follows:

1) Observers including teachers who have helped plan lessons should not intervene in natural learning activities. Nevertheless the observers are allowed to go around in the classroom as long as students work. Communicating with students is only for the purpose of clarifying something that is not clear.

2) The observer can record or make notes about all the things that happen during teaching and learning process. This is not only useful so that the observers are always focused on the learning objectives and activities, but also help them organize the feedback that will later be revealed in reflection.

3) The observers distribute the results of their observations among the teachers. Another important thing is informing the seating arrangements to the observers as well as the name tag of the students so the teachers can easily point out which pupils they care about.
In this stage, after completing the lesson plan, there will be a decision on who will teach the lesson; one lecturer teaches the lesson while the others are observers who collect the data of the teaching and learning process such as teacher’s actions, students’ activities, and responses. The classroom activities are arranged to be videotaped, so the observers can observe not only in the classroom but also outside the classroom after the teaching and learning process. In this stage, the observers discuss the pedagogical strategy and how the lesson details support the stated goals.

2.1.3. See

See or reflection is the most important stage in lesson study. In this stage, the participants of lesson study deliver comments on the learning that has been going on and objectively conveys the strengths and weaknesses of learning based on the analysis of his/her observations. This reflection is expected to improve the quality of continuous learning in accordance with the principle of continuous quality improvement. This stage is considered the most crucial stage because the lecturers are asked to be critical on peer teaching and their own teaching so that it is a way to build a reflective practitioner.

2.2 Technological Pedagogical Content Knowledge (TPCK)

The bigger use of technology in the teaching and learning process makes [21] noticed that technological knowledge was treated as a set of knowledge outside of and unconnected to PCK. Therefore, they created a new framework, TPCK, which adds technology to pedagogical content knowledge and emphasizes the connections, interactions, and constraints that teachers work with in all three of these knowledge areas. Technological Pedagogical Content Knowledge (TPCK) was introduced to the educational research field as a theoretical framework for understanding teacher knowledge required for effective technology integration [21]. The TPCK framework acronym was renamed TPACK (pronounced “tee-pack”) for the purpose of making it easier to remember and to form a more integrated whole for the three kinds of knowledge addressed: technology, pedagogy, and content. The TPACK framework builds on Shulman’s construct of Pedagogical Content Knowledge (PCK) to include technology knowledge as situated within content and pedagogical knowledge. The framework of TPACK can be seen in figure 2.

![Figure 2. The TPACK framework](image-url)
Based on the figure 2 above, according to [22], there are three main components of teachers’ knowledge: Content Knowledge (CK) which include knowledge of concepts, theories, ideas, organizational frameworks, knowledge of evidence and proof, as well as established practices and approaches toward developing such knowledge, Pedagogical Knowledge (PK) which include knowledge about the processes and practices or methods of teaching and learning, and Technology Knowledge (TK) which is knowledge about certain ways of thinking about, and working with technology, tools and resources and working with technology can apply to all technology tools and resources. Equally important to the model are the interactions between and among these bodies of knowledge, represented as first, PCK (pedagogical content knowledge) which is knowledge of pedagogy that is applicable to the teaching of specific content, it deals with how teacher interprets the subject matter, finds multiple ways to represent it, and adapts and tailors the instructional materials to alternative conceptions and students’ prior knowledge. Second is TCK (technological content knowledge). It is an understanding of the manner in which technology and content influence and constrain one another. Third is TPK (technological pedagogical knowledge) which is an understanding of how teaching and learning can change when particular technologies are used in particular ways, and the last is TPACK (technological pedagogical content knowledge). TPACK is the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge to develop new epistemologies or strengthen old ones.

To sum up, the TPACK framework (see Figure 2), which builds on Shulman’s Pedagogical Content Knowledge, describes the relationships between three basic components of teachers’ knowledge namely Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK) required for effective integration of technology in teaching and learning [23]. CK refers to the knowledge about actual subject matter that is to be learned or taught and how the nature of knowledge is different for various content areas. PK refers to the knowledge about the methods and processes of teaching and includes knowledge in classroom management, assessment, lesson plan development, and student learning. TK refers to the knowledge about various technologies, ranging from low-tech technologies such as pencil and paper to digital technologies such as the Internet, digital video, interactive whiteboards, and software programs.

In the TPACK framework, the interactions among the three components of knowledge are equally important which are represented as Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK). PCK refers to the content knowledge that deals with the teaching process [24] and it is different for various content areas. TCK refers to the knowledge of how technology can create new representations for specific content and how teachers can change the way students practice and understand concepts in a specific content area by using a specific technology. TPK refers to the knowledge of how various technologies can be used in teaching and changing the way teachers teach by using the technologies. Finally, TPACK refers to the knowledge required by teachers for effectively integrating technology into their teaching in any content area by teaching the content using appropriate pedagogical methods and technologies.

3. Research Methodology

This study adopts a case study approach to explore the changes in Indonesian EFL Lecturers’ Technological Pedagogical Content Knowledge (TPACK) after Lesson Study program. The term lesson study is still new in universities especially in Kuningan, West Java, Indonesia, therefore this project becomes a breakthrough to enhance English lecturers’ professionalism. Three female English
lecturers from two faculties (two from Economic Faculty, one from Teacher Training and Education Faculty) are selected to participate in lesson study program. The participants were aged 27 – 35 years and all had master degrees in teacher education. They are chosen because they are teaching General English in those faculties and this program was conducted to enhance learning community focusing on collaborative study to improve lecturers’ knowledge and skills especially the skill of teaching General English for non-English students. The participants are organized to participate in two cycles of Lesson Study consisting three stages in each cycle namely ‘plan, do and see’ stage.

The data were collected in three phases. The first phase was conducted before Lesson Study Program to find out the level of EFL Lecturers’ knowledge of technology, pedagogy and content including the combination of those domains. Two instruments were used in this study, namely self-report questionnaires by Schmidt et al. and [25] and observation. The second phase was conducted during Lesson Study Program to find out the processes involved in LS. Observation was employed during this phase and all processes were video recorded. The third phase was conducted after Lesson Study Program to find out the changes that English lecturers made after engaging in Lesson Study Program. Observation, self-reports and interview were employed during this phase. In analyzing the data, the qualitative data were transcribed and translated into English by the researcher. To verify the accuracy of the data, member checking was also conducted.

4. Findings And Discussion
4.1. English Lecturers’ Perceptions on Their TPACK Level

To answer the first research question, self report questionnaires adopted from Bingimlas (2018) was used. It included 40 questions that were based on the literature (Mishra & Koehler, 2006; Shulman, 1986). The seven domains including technological knowledge (TK) (7 items), pedagogical knowledge (PK) (6 items), content knowledge (CK) (6 items), technological pedagogical knowledge (TPK) (6 items), pedagogical content knowledge (PCK) (5 items), technological content knowledge (TCK) (5 items), the knowledge of technology, pedagogy, and content (TPACK) (5 items); distributed into 40 items. The results of the questionnaires distributed to five English lecturers are presented in the table 1.

| No | Statements                                                                 | Mean |
|----|-----------------------------------------------------------------------------|------|
|    | **Technology Knowledge (TK)**                                                |      |
| 1  | I have the ability to use popular application software, such as a word processor (Word), presentation graphics (PowerPoint), spreadsheet (Excel). | 2.8  |
| 2  | I have the ability to use social media, such as (Twitter, Facebook, blogs, and Wiki). | 2.9  |
| 3  | I have the ability to use the basic devices attach by computer such as a printer, scanner, digital camera, projector, and smart blackboard. | 2.8  |
| 4  | I have the ability to install software programs that I need. | 2.6  |
| 5  | I have the ability to solve basic technical problems of computers and its accessories. | 2.5  |
| 6  | I have the ability to create and edit video. | 2.5  |
|    | **Pedagogical Knowledge (PK)**                                               |      |
| 8  | I have the ability to manage my classroom. | 3.0  |
| 9  | I have the ability to connect a variety of concepts to students. | 2.9  |
| 10 | I have knowledge of the common mistakes and misconceptions among my students. | 2.9  |
| 11 | I can assess my students by many different scientific ways. | 2.7  |

Table 1. English lecturers’ perception regarding their TPACK
|   | Ability                                                                                   | Score |
|---|-------------------------------------------------------------------------------------------|-------|
| 12| I have the ability to apply a variety of teaching methods (such as cooperative learning, problem-solving approach, active learning, discovery learning, and project-based learning). | 2.9   |
| 13| I can plan group activities for students.                                                   | 3.0   |
| 14| Content Knowledge (CK)                                                                     | 3.3   |
| 15| I have enough self-confidence to teach any subject specialisation.                         | 2.9   |
| 16| I have sufficient information about my subject specialisation.                             | 2.9   |
| 17| I have the ability to help my colleagues with knowledge and skills in my subject specialisation | 2.8   |
| 18| I know experts and scholars in the field of my subject specialisation.                     | 2.8   |
| 19| They follow-up new sources and recent development (books/journals/articles) in the field of my subject specialisation. | 2.5   |
| 20| I know conferences and events in the field of my subject specialisation.                   | 3.0   |
| 21| I can confidently choose the appropriate new technologies to motivate my students to learn | 2.4   |
| 22| I have the ability to use new technologies to develop my teaching approaches.              | 2.5   |
| 23| I have the ability to use new technologies to increase my student engagement of learning  | 2.3   |
| 24| I have the ability to use new technologies in evaluating students in various ways.         | 2.0   |
| 25| I have the ability to use social media in teaching.                                        | 2.6   |
| 26| I have knowledge of appropriate teaching methods in my subject specialisation.             | 3.0   |
| 27| I have the ability to prepare effective activities in my subject specialisation.           | 3.0   |
| 28| I have the ability to achieve goals in my lesson plan.                                     | 3.0   |
| 29| I have the ability to help my students to link concepts in my subject specialization with other disciplines. | 2.9   |
| 30| I have the ability to develop students’ assessment tools particularly in my subject specialisation. | 2.9   |
| 31| I have knowledge of new technologies related to my speciality.                             | 2.8   |
| 32| I have the ability to use appropriate new technologies to represent the content of my speciality (such as multimedia, simulation, and modelling). | 2.8   |
Technological Pedagogical Content Knowledge (TPACK) 2.52

36. I have the ability to integrate effective teaching methods with appropriate modern technologies in my speciality.

37. I could be a leader to help others in teaching content in my speciality by using an appropriate teaching method with the use of suitable new technologies.

38. I have the ability to design educational activities in my speciality using appropriate new technologies.

39. I have the ability to use social media (such as Facebook, chat programmes, blogs, wikis) for the design of effective teaching activities in my speciality.

40. I have the ability to use learning management systems, such as (Blackboard, Moodle) to teach my speciality (subject).

Regarding the level of TPACK, table 1 shows that English lecturers have ‘low knowledge’ on Technological Knowledge (2.26), Technological Pedagogical Knowledge (2.38), and Technological Pedagogical Content Knowledge (2.52). However, they have ‘moderate knowledge’ on Pedagogical Knowledge (2.9), Content Knowledge (3.3), Pedagogical Content Knowledge (2.96) and Technological Content Knowledge (2.9). In short, the highest level is content knowledge and the lowest level is dealing with technological knowledge. Table 2 represents the level of the domains of English lecturers’ TPACK.

Table 2. Level of TPACK based on Sahih (2011)

| Level                  | Value     |
|------------------------|-----------|
| Very low Knowledge     | 1.0 – 1.80|
| Low Knowledge          | 1.81 – 2.60|
| Moderate Knowledge     | 2.61 – 3.40|
| High Knowledge         | 3.41 – 4.20|
| Very high Knowledge    | 4.21 – 5.00|

4.2. Processes of Lesson Study in a University

To answer the second research question, observation was video recorded during two cycles of Lesson study. The first focused on Telling time and date material, and the second cycle focused on recount text material. They are considered to be the difficult material in General English course for the first grade students in university of Kuningan, West Java. Each cycle consists of three stages, namely plan, do, and see. ‘Plan’ stage aimed to design learning that can teach students and be student-centered. This
is done to encourage students to be actively involved in the learning process. This plan was not carried out alone but was carried out jointly between three English lecturers who collaborated to enrich ideas. This plan stage begins by identifying the needs and problems that exist in the English learning process. The needs and problems that can be analyzed in learning include: characteristics of the subject, lesson schedule, basic competencies, dealing with the lack of learning facilities and facilities, student characteristics and class atmosphere, learning methods / approaches, media, teaching aids, process evaluation and learning outcomes, etc. Next, jointly look for solutions to solve all problems found. The solution that has been chosen is then applied to a learning tool that reflects student-centered learning, namely the lesson plan. The lesson plan must be a truly very mature plan, which is able to anticipate all possibilities that will occur during the implementation of learning, both at the initial stage, the core stage until the final stage of learning. To design learning that can teach students and be student-centered. This is done to encourage students to be actively involved in the learning process. This plan was not carried out alone but was carried out jointly between three English lecturers who collaborated to enrich ideas. The results of this stage are a fixed English course outline for one semester that can be used for all faculties in a university, fixed two topics and lesson plans for open lesson in the ‘do’ stage that considered to be difficult lesson for most of university students. Besides, in this stage, the site for conducting open lessons is also determined. The first open lesson will be conducted in Economy Faculty and the second open lesson will be in Faculty of Teacher Training and Education. The emphasis of this stage is on how technological pedagogical content knowledge is integrated in the lesson plan, and based on the observation during the stage it is found that technologies are well integrated in pre activity, whilst activity and post activity such as the use of video, power points, some mobile applications, audio and a learning management system which is called ‘e-class’ or electronic class designed specifically for this University students is integrated and planned very well by the participants of Lesson Study. In this system, the lecturer can post the teaching materials, check and assess students learning.

The second stage is ‘do’. During do stage, there are two main activities, namely: (1) learning activities carried out by an agreed instructor or teacher model or at his own request to practice the lesson plan that has been jointly compiled, and (2) observations made by other members or communities of Lesson Study. In this case one English lecturer from Economy faculty became the model, while the rest two English lecturers became the observers. The focus of observation is aimed at the interaction of students with students, students with teaching materials, students with teachers, and students with the environment associated with four teaching competencies, as well as students’ difficulties in learning Telling Time and Date, and Recount Text. This stage is also called as open lesson, because the lesson is open to those who want to observe the real teaching and study from that. There were two open lessons conducted; the first was at Economy Faculty and the second was at Faculty of Teacher Training and Education.

The last stage is ‘see’ or reflection stage. This stage is a very important stage because efforts to improve the learning process will depend on the sharpness of the analysis of the participants based on observations on the open lessons. Reflection activities are carried out in the form of discussions followed by all participants in the Lesson study. At this stage, the video of open lesson in the ‘do’ stage is played again to see if there is something missing during the observation. All of the participants of Lesson Study did not only observe the open lesson in the real class, but also in the see stage to make sure their results. After that, the first opportunity was given to the instructor or model who has done the learning to express her impressions during the implementation of learning, both to herself and to the students she faces. Furthermore, the observers convey comments, suggestions and questions concerning all aspects of the learning activities that have taken place which are supported by evidence obtained from observations, not based on his opinion. The various discussions developed during this reflection phase can be used as feedback for all participants for the sake of improvement or improvement of the learning process.
4.3. Changes on English Lecturers’ TPACK After Engaging in Lesson Study

To answer the third research question, observation and interview were conducted to all of participants. After analyzing the data, in can be said that there are significant differences between English lecturers’ TPACK before and after engaging in Lesson Study. Regarding Content Knowledge, they are assessed to have higher Content Knowledge. They are confident enough in delivering the materials in front of the class. Besides, their confidence is seen when they answer the questions from the students, they have sufficient information and knowledge of English to support the answer. From the result of the interview, it can be concluded that engaging in Lesson Study can improve their content knowledge, their confidence and decrease their speaking anxiety. The stages in Lesson Study are felt to be beneficial to enhance their content knowledge, especially they have various ways and strategies of developing their understanding of English. The second is regarding pedagogical knowledge, Lesson Study is assessed to be very impactful. By doing every single stage together with other English lecturers, they are assessed to have higher pedagogical knowledge. From the learning community of lesson study, they know how to to assess student performance in a classroom, adapt their teaching style to different learners, assess student learning in multiple ways, use a wide range of teaching approaches in a classroom setting, and how to organize and maintain classroom management. The third is regarding technological knowledge, lesson study is assessed to be powerful tool in enhancing English lecturers’ technological knowledge. They became more aware of the usefulness of technology. By sharing in this learning community of lesson study, they can learn technology easily, keep up with important new technologies, and know about a lot of different technologies.

The forth is regarding pedagogical content knowledge, lesson study is assessed to give positive impacts on English lecturers’ pedagogical content knowledge. They know how to to select effective teaching approaches to guide student thinking and learning in English, have the ability to prepare effective teaching, have the ability to achieve goals in the lesson plan, and have the ability to develop students’ assessment tools particularly in English.

The fifth is regarding technological content knowledge, lesson study is assessed to be impactful tool in enhancing English lecturers’ technological content knowledge. By engaging in lesson study, the English lecturers are more aware of the importance of integrating technology in teaching English. They are more confident in using internet for scientific research or for searching any material related to English. They are also feeling so sure to use any social media to enrich their knowledge of English.

The sixth is regarding technological pedagogical knowledge, lesson study is assessed to be useful in improving English lecturers’ technological pedagogical knowledge. The stages in lesson study teach them many lessons such as how to choose the appropriate new technologies to motivate their students to learn, how to use new technologies to develop their teaching approaches and students engagement, how to use new technologies in evaluating students in various ways, and how to use social media such as facebook, whatsapp, instagram, and you tube in English teaching.

The last is regarding technological pedagogical content knowledge, lesson study is assessed to be powerful tool in improving English lecturers’ technological pedagogical content knowledge. Every stage in lesson study is very beneficial and useful for the lecturers. They know how to integrate effective teaching methods with appropriate modern technologies in English, design educational activities in their English teaching using appropriate new technologies, and use social media (such as Facebook, Instagram, chat programmes, blogs, wikis) and new learning management system which is named ‘e-class’ for the design of effective teaching activities.

5. Conclusion

In this digital era, English lecturers are suggested to keep improving their knowledge especially about integrating knowledge of content, pedagogy and technology to create a better teaching. The implementation of Lesson Study in a university is believed to be the impactful tool in enhancing English lecturers’ content, pedagogy, technology and the combination of these domains namely Technological Pedagogical Content Knowledge (TPACK). Lesson Study broadened their knowledge
about how to integrate effective teaching methods with appropriate modern technologies in English, design educational activities in their English teaching using appropriate new technologies.

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