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A Teacher-Lecturer Virtual Collaborative Lesson Study for Teaching Social Sciences in a Libyan Junior High School: An Experimental Study

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ABSTRACT

In Libya, social sciences teachers at Junior High Schools are known for their unattractive, traditional, text-based teachings. As a result, their students' grasps of social sciences tend to be lower. This research using experimental research aims at evaluating and analyzing a teacher-lecturer collaboration on the Lesson Study approach to enhance the quality of teaching social sciences to JHS students in Libya. The students experiment Al-Bernawi Libyan JHS as subjects with a pre-and-post-test design in a quantitative method, where one-way ANOVA tests compare the reflections of Lesson Study variations on three groups of students: Group A (Lesson Study involving only teachers), Group B (Lesson Study involving only lecturers), and Group C (Lesson Study involving a collaboration of teachers-lecturers). The findings reveal that (1) Once Lesson Study is introduced into the teaching process in any of the Groups, the students' learning system eventually improves their accomplishment, (2) In Al-Bernawi School Libya, the collaboration between teachers and lecturers (Group C) has been the most effective in the students' learning as compared to the other variations (Group A and B). The one-way ANOVA test above shows that the lesson study approaches are efficient with teachers and lecturers ($F = 78.14$; $p = 0.00$ 0.01). The Post Hoc test findings revealed that the combined

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approach of teachers and lecturers was more successful than the combined technique of teachers and lecturers alone (MD = -8.28; p> 0.05).

Keywords: Junior high school, learning, lesson study, planning, social sciences learning

INTRODUCTION

In any country, education relies on the country's circumstances and is improved along with its social, monetary, and political conditions, i.e., its dependability and stability. The changing political conditions have given the Libyan Government chance to adopt and give importance to educational programs and the goals sought from education (Libya Ministry of Education, 2012; Tamtam et al., 2011). Libyan education system involves the basic, 9-year school program, which is mandatory and free of charge. The program incorporates Arabic/Islamic Languages, Jamahiriya/Social Sciences, Mathematics, Natural Sciences, History, Geography, Arts, Music, and Technical and Physical Education.

Students in basic education often, meanwhile, perceive social sciences as useless and uninteresting subjects. On some points, social sciences learning has become unattractive owing to the teachers themselves. There have been field problems where social sciences teachers have not come from social sciences education backgrounds but from only one of the scientific fields contained in social sciences, be it History, Geography, Sociology, or Economics, while the teachers' tasks cover all the fields. It is probably based on the general assumption that Social Science is a subject that one can teach without previously receiving special education on how to carry out social sciences teaching (Copriady, 2013; Setyawan et al., 2019). In addition, there have been results on social sciences teachers' general attitude that they have heavily relied on books and traditional methods in their educational institutions. This finding is consistent with the results of several other studies (Abukhattala, 2016; Drent & Meelissen, 2008), despite being contrary to some others (Nneji, 2014; Sarfo & Ansong-Gyimah, 2010).

In basic education, students ideally learn social science within integrations of Eco pedagogy and eco-cultural literacy. However, these concepts have still been difficult to achieve if they have not progressed slowly. Teachers are accustomed to applying the old teaching style (Wasino et al., 2020; Riyani et al., 2021). Social facts are different from the world of ideas that normally become the objects of philosophical research. They cannot be studied and understood only by speculative thinking and pure mental activities, but they must be supported by empirical research.

According to van Werven et al. (2021), basic schoolteachers now face the demands to complete the necessary competencies to perform a wide range of tasks appropriately to prepare their students for the global framework. As a result, experienced teachers and educators are looking to Global Citizenship Education (GCE) and related global teaching competencies in

the latest literature in various national and international contexts. Results have shown that the broad profile of core competencies, facilitation and curriculum development, and the definitions in Global Citizenship Education (GCE) are the best fit for the morality and description of a global citizenship culture.

For effective learning management, personal factors, e.g., professional commitment, have become important traits (Khan, 2012). Research has developed ways to boost professionalism in teachers through training sessions to improve their students' learning qualities, one of which is *Lesson Study*. Originating in Japan, Lesson Study is an approach to support the sustainable professional development of teachers (Leavy & Hourigan, 2016) by collaborating with educators to immerse in repeated evaluations and planning of teaching strategies to improve student's learning qualities. Learning classes, therefore, become the models for teachers' professional development through collaborative and sustainable learning, guided by the principles of collaboration and mutual learning, to help build learning communities.

Media use in learning will assist students in receiving learning messages; as Gafur (2012) stated, learning media serves to overcome communication problems that arise in learning. In addition, the media can arouse students' curiosity; stimulate performance physically and emotionally. Moreover, if the media is varied, the learning atmosphere becomes more lively, enjoyable, and not boring. According to Tafonao et al. (2020), if the teacher uses a variety of media, it will require adjustment of the student's senses, increasing students' attention, motivating them to learn, encouraging thinking, improving learning abilities, and then increasing student learning outcomes. Using variation is defined as the teacher's actions in the learning process to overcome student boredom so that students always depend on perseverance and enthusiasm and play an active role (Musonef et al., 2020).

One other alternative that can be achieved through the development of learning models that match the characteristics of the citizens continuously is considered a strategy in an effort to increase motivation and learning outcomes of learning residents, namely through collaborative learning models. The development of this model is expected to be useful to implement in the learning that is carried out and will have an impact on increasing the enthusiasm for learning, so of course, it will also impact the learning outcomes of learning residents continue to increase. The development of collaborative learning models can empower learning citizens to increase their enthusiasm and learning outcomes, not as objects but as subjects. However, what happens in the field, according to the results of observations made by researchers, generally tutors still use conventional learning models. It means that most tutors still use the lecture method, which includes material, without sufficient time for 24 students to reflect on the materials presented, tutor-centered learning, less interaction among learning residents, and no groups to work together. The learning

outcomes of learning residents are in accordance with the document study; the average score is in to lower middle. So that conditions like this become an opportunity to be able to develop a collaborative learning model. With collaborative learning, a learning activity can be established where learning residents are involved in teamwork and support each other in small groups to achieve a goal, namely, improving learning outcomes together (Hossain et al., 2012).

According to Dillenbourg (1999), collaborative learning is when two or more people learn or try to learn something together. Collaborative learning demands positive interdependence, mutually supportive interactions between students, individual and group responsibility, team skill development, and group activities (Barkley, 2012). Therefore, collaborative learning makes learning more meaningful, encourages students to be responsible for learning, becomes more creative, and ultimately can improve cognitive learning outcomes as expected. Hari Srivinas stated that collaborative learning can achieve high learning outcomes for both teachers and students and is relevant to the development of values of caring, hard work, discipline, honesty, and openness, which are targets in learning (Mofield, 2019). There are many techniques or methods used by teachers in implementing collaborative learning (Barkley, 2012). Of the many learning techniques that have been implemented in learning, in summary, collaborative learning techniques are classified into five types: (1) discussion, (2) reciprocal learning by friends, (3) problems, (4) managing graphic information, and (5) writing.

In relation to social sciences, especially for junior high school students, researchers have successfully adopted collaborative efforts of teachers and lecturers to deal with teachers' gaps to boost students' learning qualities. However, another gap is that in practice, some junior high school students still do not meet the criteria to make the optimal learning process by the teachers because of other problems, such as the collaborative methods cannot meet their intention to learn. Also, the differences in results from previous studies make this analysis more interesting. However, since the implementation is very time-consuming for teachers and lecturers, no scientific study has been conducted in Libya to determine how the process is carried out in a Libyan JHS and to what extent it is effective for the students. Therefore, our research aims to evaluate and analyze a virtual collaboration between Libyan teachers and Indonesian lecturers in a Lesson Study to enhance the quality of teaching social sciences to JHS students in Libya. An experiment is done using the students at Al-Bernawi Libyan JHS as subjects with a pre-and-post-test design in a quantitative method, where one-way ANOVA tests compare the reflections of Lesson Study variations on three group of students: Group A (Lesson Study involving only teachers), Group B (Lesson Study involving only lecturers), and Group C (Lesson Study involving a collaboration of teachers-lecturers).

LITERATURE REVIEW

Learning is essentially a process of regulating and organizing the environment around students so that it can grow and encourage students to carry out the learning process. Learning is also said to provide guidance or assistance to students in the learning process. According to Pane and Dasopang (2017), learning is a complex aspect of activity and cannot be fully explained. In simple terms, learning can be interpreted as a product of continuous interaction between development and life experience. In essence, learning in a complex sense is a conscious effort from a teacher to teach his students (directing students' interactions with other learning resources) with the aim that the goals can be achieved. Learning can also be said to be a system because learning is an activity with a goal: providing students with knowledge. Learning is a process of delivering information through interaction between teachers to students. It is also a planned guidance process that conditions or creates students so that they can learn well. Learning activities can be characterized by educational interactions, namely teachers to students or students to teachers pedagogically. In addition, teachers must also generate enthusiasm in an innovative manner that is able to arouse students to carry out learning activities.

Lesson study is a model for fostering the teaching profession through collaborative and sustainable learning studies based on collegiality and mutual learning principles to build a learning community. In addition, Stigler and Hiebert (1999) said that Lesson study is a collaborative process in a group of teachers when identifying learning problems, designing a learning scenario (which includes activities to find books and articles on the topic to be taught), teaching students according to scenarios (one teacher carries out learning while the other observes), evaluates and revises learning scenarios, re-learns revised learning scenarios, re-evaluates learning and shares the results with other teachers (disseminates). Lesson study, which is the development of teacher professional competence, certainly has advantages that distinguish lesson study from other ways of developing teacher professional competence. Rusman (2010) said that "The virtue of lesson study is that it can improve skills or abilities in carrying out learning activities carried out by teachers through lesson study activities, namely learning from a lesson" (p. 229). Lesson study, which is a collaborative work between teachers, is expected to make a major contribution to improving the quality of education, in this case, improving the professional quality of teachers. Thus, the benefits of implementing the lesson study can be used as a reference in increasing teacher professionalism.

Designed as a coaching activity for teachers, Lesson Study consists of four subsequential, connecting stages: making preparation (plan), implementation (do), reflection (check or see), and follow-up (act). In the 'plan' stage, teachers work together to design the best tools and strategies used in a certain learning context, of which the main idea is to create student-centered,

active participation. The second stage, or the 'do' stage, is when teachers implement this design in real class settings. In this stage, they have their colleagues observe and record certain points in the class while the students are in active learning processes. In the 'reflection' stage, these records are then analyzed, evaluated, and discussed in relation to the student's learning processes and results to project developmental ideas for future follow-ups in the 'act' stage. The learning models can be situational, small group discussion, cooperative learning, project-based learning or simulation, discovery learning, self-directed learning, and problem-based learning (Murata, 2010; Rahardjo, 2012).

Cerbin and Kopp (2006) have made a description of a complete Lesson Study in a college lecturing setting consisting of 6 stages as follows:

1. Formatting Team: A team is set up consisting of 3 to 6 participants, involving instructors and other competent people, all bearing similar interests to the lesson.
2. Developing Student Learning Goals: The team discusses what ideas to generate from the Lesson Study.
3. Planning the Research Lesson: The lecturers make learning designs to achieve the specified learning goals and anticipate students' responses in the classroom.
4. Gathering Evidence of Student Learning: One of the lecturers implements the plan (becomes a model teacher) in a real class setting, while others make observations and record evidence of students' learnings (becomes observing lecturers).
5. Analyzing Learning Evidence: The team discusses observations and evidence and evaluates student progress toward learning goals.
6. Repeating the Process: The team revises necessary aspects of the lecturing, repeats the stages from stage 2 to stage 5 above, and then shares their findings.

In addition, the teaching-learning activities in the classroom should not be disturbed by the large number of observers involved in the Lesson Study. The classroom process takes place and appears as is, and therefore is not made up in spite of being observed. The process needs to appear and be perceived as naturally as possible by the teacher and students to allow observers to completely capture all aspects of learning and use them unambiguously in the reflection process (Yoshida & Fernandez, 2012).

Perry et al. (2009) described lesson study as a strategy of professional development based on "learning through practice". Teachers design long-term learning and development objectives and collaborate on "learning research" to attain learning goals, monitor, document, and discuss student reactions to learning, and assess and enhance the learning strategies throughout the lesson study.

Nevertheless, Lesson Study has become practical means for both the teacher and

the observers in mining competence. In the reflection stage, the teachers will get valuable inputs from observers about the conducted teachings and develop throughout students' learning processes. At the same time, the observers, including teachers and invited visitors, also profited directly from gaining a serving model for future cases. Even in the case where the teacher performs poorly in creating classroom interactions, problems will continuously be coped with until reaching difference, more participatory learning methods and strategies are finally seized. Lesson Studies may also be used to integrate new learning innovations that keep changing and developing (Fernandez, 2010; Hernández et al., 2017).

For social science, the teaching and learning methods are similar to those used in other subjects: help students acquire the skills they need; teach scientific, vocational, social, and cultural skills rather than rote memorization; and project, problem-solving, and scientific survey methods in teaching. Methodical variation impacts both genders in Libya (Tamtam et al., 2011). Essentially, teachers work with many students using the classical teaching method, but online courses can be more beneficial for certain students, e.g., with their time flexibility. Virtual courses can be useful for students whose schools do not provide certain subjects, for example, statistics studies (Imleesh et al., 2020).

The result from one of the largest universities in Libya on teachers' general attitude towards social sciences showed that they had been heavily relying on books and traditional methods in their educational institutions. This finding is consistent with the results of several other studies (Abukhattala, 2016; Drent & Meelissen, 2008), despite being contrary to some others (Nneji, 2014; Sarfo & Ansong-Gyimah, 2010). Humans have cognitive, emotional, and psychomotor domains of skills that represent the full dimensions of the Attitude Scale. Teachers should recognize that these cannot be fully developed depending on textbooks. With computerized and technological advances in education nowadays, e.g., using a web-based project model, students now have bigger chances to grasp the full potential of the things they learn at school and to harness them in their communities in their daily lives practically.

In this case, lesson study can be the means for Libyan teachers to adjust to these students' learning needs. Teaching can be so developed that students are encouraged to learn actively, creatively, effectively, and in fun ways through hands-on and minds-on activities, daily life, and local materials. The development using Lesson Study in classroom learning practice by some Indonesian universities has great potential to use as a leadership model to enhance the professionalism of Libyan teachers, as it has been proven effective in the Indonesian case.

METHODOLOGY

In this research, quasi-experiment is used as the main method. According to Creswell (2014), experiments are the best quantitative design for determining plausible cause-and-effect relationships. He emphasized a

quasi-experiment method which involves taking a group of participants as is rather than randomly grouping them. Experimental research includes methods to find the effects of treatment variations on certain elements in a controlled environment (Sugiyono, 2013). It is congruent with the research's goal to investigate three independent factors (lesson study approaches involving only teachers, only lecturers, and a combination of teacher-lecturer for social sciences learning) on the dependent variable (lack of knowledge of social sciences).

The sources used in this study are primary data obtained from the results of questionnaires distributed directly to respondents. The reason for using primary data sources in this study is to obtain an objective picture of Collaborative Learning Virtual Lesson Study Social Studies Learning at Al-Bernawi Junior High School in Libya.

The data analysis technique was carried out after the data was collected using the applied method. Data analysis is a very important part of research activities because, at this stage, research conclusions will be obtained. After the data is collected, the next step is to organize and analyze the data to achieve the research objectives that have been formulated. In this study, researchers used quantitative data analysis techniques, namely data that can be realized by numbers obtained from the field. Quantitative data were analyzed by researchers using statistics. The analysis used is a two-way ANOVA analysis, named after and before using the SPSS 25.0 for windows programs. The ANOVA test is used to analyze the relationship between one or more variable factors and covariates with two or more dependent variables.

In the analysis, the experiment is designed with pre-and-post-tests to compare students' achievements before and after Lesson Study among the groups. The results are then analyzed quantitatively using a one-way ANOVA program. The research procedure of this study adopted a case study suggested by Yoshida (1999). Its implementation has significantly impacted teachers and the quality of education, and this concept has been adopted in other countries to improve the quality of teachers and education.

Classes Sampling

Each of the three classes (Group A, B, and C) was randomly picked from Al-Bernawi JHS. A different teacher was assigned for each class, with different variations. Group A was handled by only a teacher, Group B by a lecturer, and Group C by a teacher-lecturer combination. Each group received interventions of Lesson Study and was given pre-and post-tests, of which results were then compared to examine to what extent the variations would give results to students' achievements.

The Running of Lesson Study

Our experiment began with taking data on the last social science exam results of the three randomly picked classes as starting values (pretests), which were later compared with the tests after Lesson

Study interventions (post-tests). In our experiment, the lesson study consists of 4 stages described in Table 1.

Stage 1, designing lesson plans and observational measurement tools, is done virtually between the Indonesian lecturers and the Libyan teachers through video conferences. The design covers five strategic actions considering the aspects to be achieved.

In stage 2, teaching & observation, the class teacher (a teacher in class A, a lecturer in class B, and a combination in class C) performs teaching activities and is observed (by teachers (class A), lecturers (class B), and a combination of teachers-lecturers (class C). Teachers and observers in all groups play roles and use tools according to the lesson plans. Teachers attempt as much as possible to achieve lesson plans' targets and goals. In relevance, observers measure to what extent teachers have succeeded in achieving these targets and goals and find possible causes for failure.

In stage 3, the reflection on teaching and revision of lesson plan, the teacher and observers of each group gathered to engage in a discussion to review instructional materials, develop teaching methods, explore ideas to improve thinking, and

Table 1
Four stages of the lesson study program

Stage	Lesson Study Program	Actions
One	Designing lesson plans and observational measurement tools through video conferences of Libyan Teachers and Indonesian Lecturers	1) Think of a long-term goal, fostering a spirit of learning and appreciation for one another. 2) Consider the targets of each subject, section, or instructional material. 3) Design the classroom instructions in relation to the targets and long-term goals. 4) Set necessary tools for student responses, including learning, intervention, and interaction with one another. 5) Set necessary tools for observation to measure teaching-learning achievement and failure.
Two	Teaching & Observation	The lesson plans are then carried out in the three groups (classes) at school (real-time). Group A: A teacher teaches while observed by teachers; Group B: A lecturer teaches (virtually) while observed by lecturers (virtually); Group C: A combination of teacher-virtual lecturer teaches while observed by teachers and lecturers. Both teachers and observers in all groups play roles and use tools according to the lesson plans.
Three	Reflection on teaching and revision of lesson plan	Engage in a discussion to review instructional materials, develops teaching methods, explore ideas to improve thinking, and help teachers find solutions to problems, understand topics, and expand their understanding, skills, and abilities.
Four	Making and Testing revised Lesson plans	Each group's teacher and observers make new session plans and implement them into teachings. After the teachings, each group of subjects (students) will have post-tests. The pre-and-post tests are then analyzed using a one-way ANOVA statistical program to find out which Lesson Study combination provides the best result.

help find solutions to problems, understand topics, and expand their understanding, skills, and abilities. Again, it was the moment where the observers' findings were being collided with the teachers' experiences. In this stage, it is important to separate the subjective findings and experiences from the objective. It is fairly understood that those teachers might have had teaching experiences for years, but what is outlined in this stage is how far they have met the targets and goals in lesson plans objectively. It is also possible for them to think of ideas they missed out on when making the first lesson plans in relation to targets and goals.

Stage 4 is based on the discussion findings in stage 3. In this stage, each group's teacher and observers make new session plans and implement them into teachings. After the teachings, each group of subjects (students) will have post-tests. The pre-and-post tests are then analyzed using a one-way ANOVA statistical program to determine which Lesson Study combination provides the best result.

RESULTS AND DISCUSSION

Pre- and post-tests data were calculated to find mean, standard deviation, and t-values for each test for each group are presented in Table 2. Based on Table 2, it can be seen that the post-test scores calculation of Group A (Lesson Study with only social sciences teachers) results in M=91.43, SD=3.56, and T= -10.38, with p = 0,05. Post-test scores calculation of Group B (Lesson Study with only social sciences lecturers) results in M = 92.71, SD = 4.53, T = -31.59, with p = 0.05. Meanwhile, the post-test scores calculation of Group C (Lesson Study with the combination of teachers-lecturers) was substantially higher than those of the other two Groups (lesson study for social sciences with a combination of instructors and lecturers), with M = 93.71, SD = 4.37, T = -33.22, p = 0.05. This data also supports the hypothesis that the combined approach is more successful than the techniques in groups A and B.

The one-way ANOVA test above shows that the lesson study approaches are efficient with teachers and lecturers (F = 78.14; p = 0.00<0.01). As a result, a follow-up exam (Post Hoc Test) is required to establish the size of the difference in developing student knowledge between each set of experimental subjects. The Post Hoc test findings revealed that the combined approach of teachers and lecturers was more successful than

Table 2
Mean, SD, and ANOVA test results

Techniques	*Pretest*		*Post-test*		T	Gain Score		F (3,55)
	M	SD	M	SD		M	SD	
T (Group A)	81.86	3.85	91.43	3.56	-10.38**	9.57	2.44	
L (Group B)	79.43	4.58	92.71	4.53	-31.59**	13.28	1.11	78.14***
TL (Group C)	72.14	5.14	93.71	4.37	-33.22**	21.57	1.72	

*Note. ** < 0.05 means significance level at 5%*

the combined technique of teachers and lecturers alone (MD = -8.28; p> 0.05).

Lesson study is learning on a lesson. A teacher can learn about a particular lesson through the existing learning display (live/ real or video recording). Teachers can adopt methods, techniques, or learning strategies, use media, and so on that are appointed by performing teachers to be imitated or developed in their respective classes. Other teachers or observers need to analyze the lesson's positive or negative side from minute to minute. The results of this analysis are very much needed as input for performing teachers for improvement, or through the learning profile, the teacher or observer can learn from learning innovations made by other teachers. Although it is a simple idea, lesson study is a complex process. Lesson study is a process that collaborates teachers in small groups to plan, teach, observe, review, and report the results for application in individual teaching. The innovation of the teaching and learning process designed and developed in this lesson study activity is active, practical, fun, and effective. In its implementation, lesson activities. This study is not an instructional or single school, group of teachers in the same field in the MGMP, groups of teachers in a group, groups of teachers in a field, and lecturers in a field in one area (Juano et al., 2019).

CONCLUSION

This result revealed that once lesson study is introduced into the teaching process in any of the Groups, the students' learning system eventually improves their accomplishment; in Al-Bernawi School Libya, the collaboration between teachers and lecturers (Group C) has been the most effective in the students' learning as compared to the other variations (Group A and B). Lecturers' teaching styles, as well as teachers' and lecturers' teamwork, have a substantial impact on students' grasp of social sciences materials. The one-way ANOVA test above shows that the lesson study approaches are efficient with teachers and lecturers (F = 78.14; p = 0.00 0.01). As a result, a follow-up exam (Post Hoc Test) is required to establish the size of the difference in developing student knowledge between each set of experimental subjects. The Post Hoc test findings revealed that the combined approach of teachers and lecturers was more successful than the combined technique of teachers and lecturers alone (MD = -8.28; p> 0.05). So based on this result, it can be concluded that the combination approach of teachers and lecturers was more successful than the combined technique of teachers and lecturers alone, and this also supported the new rules that it takes a reciprocal relationship between students and teachers to always work together in achieving optimal achievement or learning outcomes and cannot be from one side only; therefore, the combination between the two is the best.

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