



An Exploration of the Lesson Study Approach in Teaching: How Does LS Work and What are the Possible Opportunities and Limitations?

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Abstract. The current research investigated how Lesson Study influenced the professional growth of teachers and the perceptions of students regarding teaching and learning within a higher education environment. This study engaged three practicing English educators and their classes. These teachers collaborated to design, deliver, and assess three research-based lessons. The lessons were recorded, and observers documented their observations. Data was gathered through interviews, feedback from the teachers, and the analysis of observation notes and audio recordings. The results indicate that the collaborative setting of Lesson Study supported teachers in enhancing their subject knowledge, teaching strategies, and observation abilities. Additionally, Lesson Study encouraged them to reflect on their teaching methods. The students' performances during the research lessons and their feedback highlighted the positive impact of these lessons on their learning experiences. Lesson Study offers teachers a chance to enhance their professional skills by aligning their development with the specific needs of their students and the context in which they teach. This collaborative approach enriches their knowledge and understanding of effective instructional practices. The study suggests adopting Lesson Study as an innovative approach to teacher professional development instead of the traditional training programs in the region. It also outlines implications for successful implementation and offers suggestions for future research endeavors.

Keywords: Classroom Observation, Education, Lesson Study, Pedagogical Content Knowledge, Pedagogical Skills.

1. INTRODUCTION

Current research in Applied Linguistics highlights the fact that effective teaching skills can be developed in the teachers by bringing the professional development activities into the classroom (Lee 2008). In fact, the classroom can provide potent, practice-based settings where teachers can discover effective strategies to improve both, teaching and learning (Elmore 2004). Lesson study is one such strategy, which has the potential to transform the classroom into an ideal learning place for teachers (Dudley 2014). Lesson Study is a classroom based and a collaborative mode of learning (Cajkler et al. 2014) which is highly appreciated in Japanese schools (Fernandez 2010). It is a specified approach focusing on professional development of the teachers (Dudley 2011). Lesson Study is a simple arrangement of collaborative and reflective practices (Pollard et al. 2014) or joint professional development practices (Hargreaves 2012). Lesson Study practice involves a group of teachers planning and investigating together a 'research lesson' to achieve an identified long-term learning objective for their students (Fernandez, 2010). It provides a collaborative environment for the teachers to understand educational goals and standards and how to realize them in their classrooms (Lewis 2002). Lesson Study is a collaborative process through which teachers endeavor to improve their pedagogic skills using discussions, observations, reflections and evaluation of one another's teaching techniques (Baba 2007). The ultimate objective of lesson study is the improvement in the teaching practice through a "reflexive, recursive and collaborative" process (Dudley 2011: 5). These strategies eventually enable the teachers to collaboratively explore and enhance students' learning (Yoshida 2005). Lesson study focuses on the development of the pedagogic skills of the teachers within an authentic learning context of the classroom and provides the teachers with the opportunities to focus on long-term learning goals, develop their analytic abilities and grow collaboration (Carrier 2011). Precisely, Lesson Study offers the teachers the opportunity to observe different features of the lesson and make links between the teaching practices and the theory of teaching and learning (Amador and Weiland 2015).

2. LITERATURE REVIEW

Darling-Hammond (2006) identifies the main issue in initial teacher education, which according to her, is the implicit division between learning theory and teaching practice. Moreover, linking theory with practice has been a never-ending issue in teacher education (Christianakis 2010). Whereas, Ball, Lubienski, and Mewborn (2001) proclaim that teachers require a specific kind of knowledge to teach more effectively in their classroom. However, there seems to be a kind of disagreement among the researchers on how this kind of knowledge could be developed. On the other hand, Dudley (2014) states that improved quality of the teaching in the classrooms is the most direct route to effective teaching and improved standards in education. Garet et al. (2001) also propose a similar way that the professional development of the teachers could be enhanced in a better way by working in collaboration, as opposed to any other professional development program that excludes the idea of collaboration among the teachers. Because professional improvement that is collaborative, regular and sustains a constant focus, is more effective than the short range practices (Clarke 1994). However, schools usually don't provide teachers with the opportunities to indulge in continuous professional activities based on their teaching context

(Elmore 2002). Nevertheless, Lesson Study constitutes these elements, as collaboration among teachers, emphasis on effective teaching practices and a consistent focus on the development of teaching practices that make it a very fruitful strategy for the professional development of the teachers (Stepanek et al. 2007). Moreover, Lesson Study has been considered by the researchers as a strategy that could be most effective in bridging the gap between theory and practice (Davies and Dunnill 2008). Through Lesson Study approach, teachers become the researchers; they keep a reflective and critical eye on their pedagogical practices, and they start evaluating the theoretical aspects of teaching (Byrum, Jarrell and Munoz 2002). They start gaining the aptitude to combine the theory with the practice (Cochran-Smith and Lytle 1990). Likewise, Lewis (2002) emphasizes that the teachers' professional development program must be teacher driven, and student focused. Lesson Study has both these qualities (Fernandez 2002). Lesson Study incorporates such features like highlighting problems and asking questions, exploring possible explanations, trying out ideas, gathering data and scrutinizing findings (Stepanek et al. 2007) that eventually, transform the classroom into a learning laboratory where teaching and learning are investigated and explored for finding the solutions to the diagnosed problems.

Moreover, Stepanek et al. (2007) and Lewis (2009) compare the features of the Lesson Study with other forms of professional development approaches, and they conclude that the Lesson study is a much better strategy than other forms of the professional development programs. The main features of the Lesson Study, like collaboration, direct link to planning and classroom practice, focusing on teaching rather than the teacher and live observation of the students' learning set lesson study apart from other approaches (Stepanek et al. 2007) has also credited Lesson Study approach with similar attributes and declares that in lesson study, "rather than examining student work, teachers examine students' working and thinking in the actual classroom."

2.1. Starting the Lesson Study

It is very crucial, for the success of the Lesson Study, that the participant teachers are not forced or obligated to participate (Stepanek et al. 2007). The best strategy would be to start on a smaller scale, but with a group of teachers who voluntarily present themselves to participate. Furthermore, Lesson study is a self-directed and a self-governing process, hence it is vital for the LS group to agree on their roles and responsibilities during the lesson study cycle (Stepanek et al. 2007). These roles include participating in all research lesson meeting, planning and writing the lesson and activities, observation, debriefing and providing feedback. Along with the role assignment, it is important to implement an LS group protocol as suggested by Dudley (2014) to create conditions required for group harmony and learning.

2.2. The Lesson Study Cycle

The first step in learning about the Lesson Study is to understand the process of Lesson Study Cycle. Yoshida (2008) describes the Lesson Study Cycle as planning the lesson, implementing the lesson, and post-lesson discussion. This section will provide a brief synopsis of the Lesson Study Cycle.

A typical Lesson Study consists of at least three research lessons (Dudley 2011). Each research lesson further comprises of four main stages as explained below.

2.2.1. Goal Setting

The first step in the Lesson Study process is identifying a research objective or a goal for the research Lesson (Lewis 2002). This goal could be a unit goal (objective set by a unit in the textbook), content goal (a concept) or a process goal (skill or habit of mind) (Lewis 2000). It could be either the students' learning issue based on the available assessment data or a shared teaching goal agreed upon by the participant teachers (Lewis 2002). Lesson study group pursues the same goal throughout the Lesson Study Cycle (Yoshida 2008). Usually, Lesson Study has a broad or a long term goal (Lewis 2000) based on the data gathered by the teachers from students' periodic assessment (Dudley 2011). This research objective ensures that the lesson study group addresses the issue that will have a significant impact on students' performance (Lewis 2002).

2.2.2. Planning the Lesson

Based on the research objective, the Lesson Study group collaboratively plans the first lesson for teaching in the classroom that is called as 'research lesson' (Lewis 2000). This research lesson is based on the common lesson plan formats easy to be followed by the participants (Dudley 2011). The lesson plan for the research lesson, unlike typical teaching plans, is very detailed with the description of stages as well as students' expected responses during every stage (Stepanek et al. 2007). Much time is utilized by the lesson study group in investigating the teaching material for the research lesson based on their personal experiences (Lewis 2000). Each teacher identifies at least three students in the class who are called as 'case students' (Dudley 2011). These case students represent different groups of learners, like good, average or below average.

2.2.3. Teaching, Observing and Interviewing Case Students

The next stage in the lesson study process after developing the research lesson plan is teaching. One Lesson study group member decides to teach the research lesson while other lesson study group members observe the

lesson (sometimes joined by the knowledgeable others). They serve as data collectors (Stepanek et al. 2007) with a special focus on the responses of case students, noting down their progress during each stage and looking for the evidence of their learning (Chichibu 2014). Dudley (2014) recommends using observation sheets instead of a checklist during the observation. The observers can write down their notes on the observation sheets. The observers are more focused on learners than the teacher, since the lesson plan is collaboratively planned, it is equally owned too (Dudley 2011). Equally, Lewis (2002) declares that the purpose of the observation is to check the effectiveness of the teaching strategies and the techniques, not to evaluate the teacher. After conducting the first lesson the case students are interviewed (ideally at the end of the lesson) to gain their opinion on what worked best for them in the research lesson and what did not. The interviews are usually short and could be conducted individually or in a group (Dudley 2011).

2.2.4. Revising and Re-Teaching

The lesson study group members, after conducting the first research lesson, sit together and based on the collected data (during observation and interviews) make revisions in the research lesson. Post lesson discussion involves the reflection of the group members and the revision in the research lesson for further teaching to another group (Hiebert and Stigler 2000). Dudley (2011) suggests that the Lesson Study group should meet no later than 24 hours after the conduct of the first research lesson. Furthermore, he recommends using a post-lesson discussion protocol to guide the discussion sessions. The lesson study group may meet many times to revise the plan and to address the identified problem and misunderstanding during the first conduct of the lesson (Lewis 2002). Re-teaching makes it possible to see the result of the reflections and discussion during the meeting (Stepanek et al. 2007). The same cycle continues after the second and the third teaching of the research lesson as illustrated below in figure 1. The LS group sometimes creates the final version of the research lesson based on the discussions and the collected data (Lewis 2002).

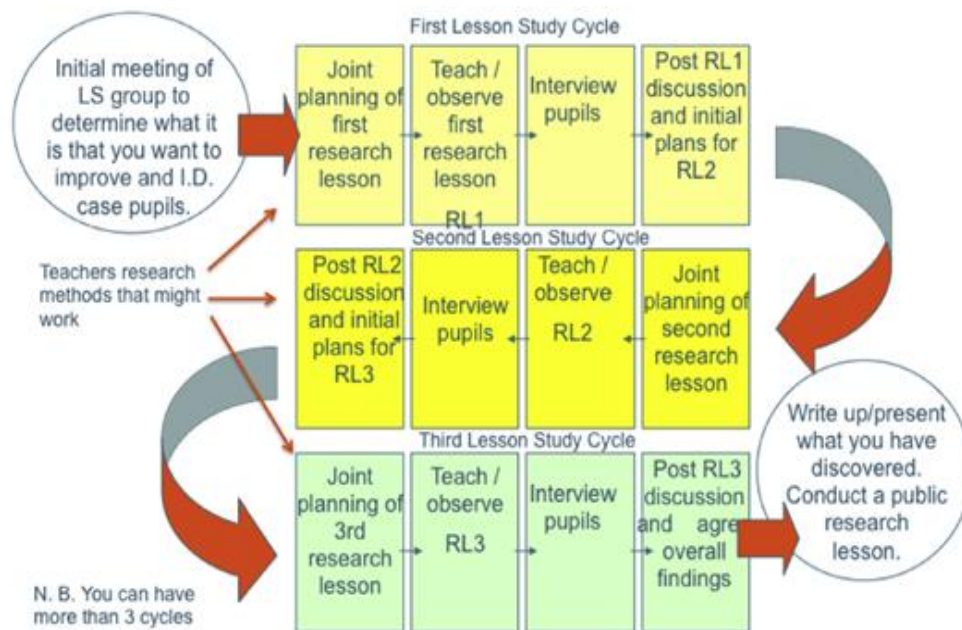


Figure 1: The Lesson Study process from (Dudley 2013, 108).

Lee (2008) claims that this cycle of the Lesson Study provides the teachers with multiple opportunities for learning. Moreover, it enables them to become the in charge of their professional development. The Lesson Study group records and shares with colleagues what they have done, learned and achieved (Dudley 2011). A summary of the group discussions, as well as transcripts of the interviews, is also sometimes included (Yoshida 1999). Video snipes or digital photos could also be presented (Dudley 2011).

2.3. The Nature of Knowledge Development in the Lesson Study

Shulman (1986) demarcated the knowledge required by the teachers for teaching into three main categories: content knowledge, pedagogical content knowledge and the curricular knowledge. Content knowledge represents the facts, concepts and the underlying structures of the specific subject area whereas pedagogical content knowledge indicates the ability of the teacher to impart these facts and concepts to others, in short, teaching strategies that are applicable across all content areas (Cavin 2008). Writing a letter, for example, is different from teaching students how to write a formal letter. Teachers need to be aware of, the ways how learners recognize the topics, parts where students' misunderstandings occur, and manifold strategies that can be used to enable the

students to understand that topic (Shulman 1986). Curricular knowledge refers the curriculum of the school (Cavey and Berenson 2005). Even though researchers have varying ideas about pedagogical content knowledge, they still appear to accept that it represents the teachers` ability to link content with pedagogy (Depaepe, Verschaffel and Kelchtermans 2013). Shulman (1986) explicates that pedagogical content knowledge is concerned with most frequently taught themes, the most beneficial form of the depiction of those ideas, the most powerful analogies, and representations.

Lesson study has the potential to develop both, the content knowledge and the pedagogical content knowledge (Bjuland and Mosvold 2015). However, there seems to be a paucity of the studies on how teachers learn and develop through participation in the Lesson Study. As the analysis of Xu and Pedder (2014) shows that 73% of all the reviewed articles on the Lesson Study concentrated on the advantages and limitations of Lesson study in different contexts. It is quite surprising that very few articles (6 % of all the reviewed articles) illustrate how teachers learn and develop practice through participation in the Lesson Study. This aspect will be further developed in section 2.5. Lewis (2009) illustrates how lesson study affects teachers` knowledge. She categorizes this learning into three main types (development of knowledge; development of interpersonal relationships; and development of personal qualities and dispositions) which ultimately lead to instructional improvement (See Figure 2). During the development of the research lesson teacher profoundly explore learning and teaching issues. They discover their shortcomings and lesson study discussions encourage them to enhance their professional knowledge and teaching skills (Fernandez, Canon and Chokshi 2003). Lesson study also helps the teacher to develop instructional knowledge (Lewis 2002). Particularly it enables the teachers to develop effective questioning strategies and the ability to gauge students` understanding. This knowledge gained by the teachers is not limited to the research lessons only but could be utilized in other lessons too (Stepanek et al. 2007). The next section will focus on the aspects of lesson study that enable the teachers to develop their professional skills.

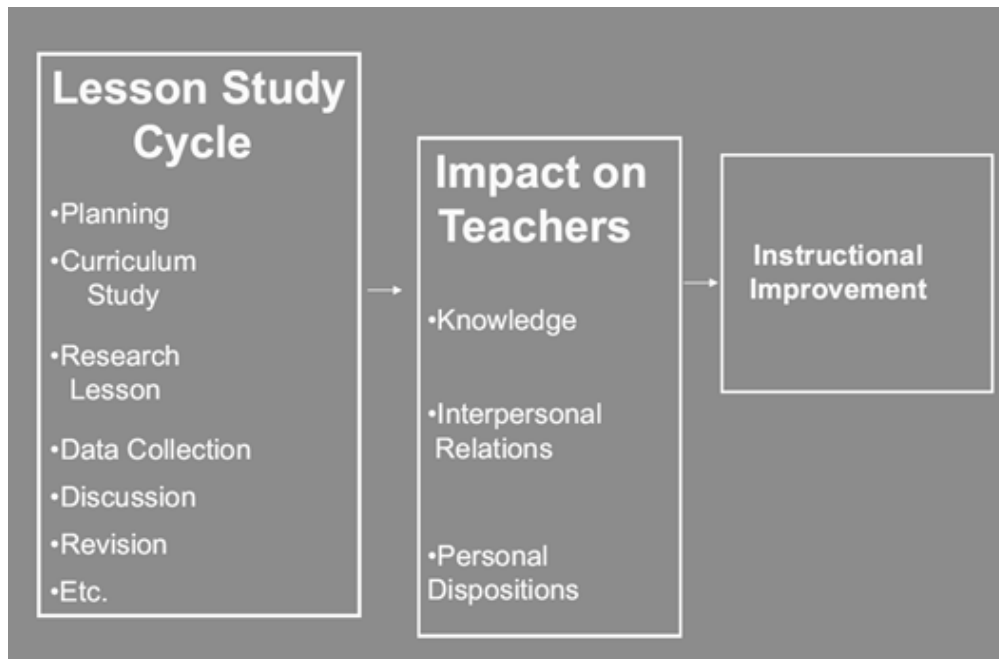


Figure 2: How does Lesson Study improve Instruction? (Lewis 2009, 100).

2.4. Aspects of Lesson Study that Contribute to the Teachers` Learning

“LS is the world`s fastest growing approach to teacher learning, and to developing teaching that in turn improves pupil learning. It has transformed the practice of tens of thousands of teachers and educational professionals worldwide; myself included!”(Dudley 2014, 4)

If Lesson Study does improve teachers teaching skills, it must have certain aspects that enable it to realize this proclaimed attribute. The available literature on the Lesson Study reveals central characteristics that collectively make the Lesson Study a successful strategy for the professional development of the teachers. This section will discuss these three aspects of the lesson study that make it a very fruitful strategy for the professional development of the teachers.

2.4.1. By Developing Collaboration among the Teachers

Collaboration is the pivotal point in Lesson Study (Bjuland and Mosvold 2015), which in reality is responsible for the professional growth of the teachers (Hargreaves and Fullan 2012). This collaboration enables the teacher to bring together the reflective and dialogic process of professional development (Adamson and Walker 2011). Research confirms that collaboration among the teachers supports them to grow an inquiry attitude and become more reflective about their teaching practice (Cajkler et al. 2015). Lesson Study has the potential to act as a

medium to foster collaboration (Lewis 2002). This collaboration results from the teachers' increased inclination to join in the deliberations about teaching and learning during the discussion phase of the Lesson Study (Rock and Wilson 2005). This development of collaboration among the teachers does not stay only until the teachers are engaged in the Lesson Study process, but it extends to their later professional career. Subsequently, lesson study helps the teacher to develop a learning community where they can share and discuss both teaching and learning.

2.4.2. By Enabling the Teachers to Develop a Critical and a Reflective Stance

Griffiths (2000) highlights that reflection is considered as the most important aspect of any teacher training program by the educators. Lamb, Lane, and Aldous (2013) assert that the process of reflection is often initiated through the development of lesson plans and the practice of lesson evaluation. Therefore, Lesson Study becomes a very effective strategy for developing teachers' reflective practice in relation to their specific needs. Lewis (2002) declares that for a research lesson to be a success, it is not so much about what happens in the class during the research lesson, but in reality, it is about what is learned during discussions and meetings with the colleagues. The organization structure created through Lesson Study enables the teachers to draw upon their knowledge in a more reflective and critical manner (Lamb and Aldous 2016). The Lesson Study Cycle involves the teachers in exploring their students' thinking and analyzing the impact of their teaching on students' learning (Fernandez, Cannon and Chokshi 2003). Likewise, Lawrence and Chong (2010) show that during LS group Discussions, the participant teachers become more analytic, in making connections between learning objective and students' prior knowledge. Lewis (2002) describes the cause behind this analytic stance of the teachers. She states that teachers need to look for the evidence of their students' learning, motivation, and development during the Lesson Study. Lesson Study also equips the teachers with the necessary skills to gather that evidence through the observation of students' performance during the conduct of the research lesson.

2.4.3. By Focusing on Students' Learning

One of the key ideas that distinguishes the Lesson Study from other professional development programs is the focus that it gives to the students' learning (Bjuland and Mosvold 2015). Lesson study is not just collaboratively planning a research lesson (Fujii 2014), but it must have a strong focus on students' learning during the lessons (Bjuland and Mosvold 2015). During the course of the lesson study cycle, "teachers identify goals in terms of pupil learning of a topic, investigate curricular materials that teach the topic, plan a lesson to make pupil learning visible in the classroom with the topic, gather data in the lesson, and, afterwards, discuss the student learning that occurred during the lesson" (Murata, 2011: 4). Focusing on students' learning helps the teachers to understand what motivates their students and what helps them to accomplish a task in the class (Stepanek et al. 2007). Consequently, in Lesson Study everything circles around students' learning as opposed to the usual practice of the teachers where they focus on the curriculum (Bjuland and Mosvold 2015). This aspect obliges the participants in the Lesson Study to consider a specific research objective and to follow that objective during the lesson study cycle (Chokshi and Fernandez 2004). For instance, Dotger (2011) reports that during lesson study teachers' pay more attention to students' previous knowledge about the topic than the usual classes. This refining of their focus on students' learning gives the teachers an improved understanding of students and their learning needs (Cajkler et al. 2015).

The research on the Lesson Study, as discussed above, reveals that Lesson study is a very effective approach to the professional development of the teachers and enhanced student learning. However, it seems quite possible that the result of Lesson study approach could vary based on the contextual constraints as the discussion in Section 1.3. For the same reason the researcher conducted this experimental project with the teachers in the given context focusing on the following research questions:

- What is the impact of the Lesson Study Cycle on teachers' professional development in my sample?
- What kind of changes does it bring to the teachers' knowledge and beliefs? (What do the teachers perceive as beneficial/ challenging about the experience?)

3. METHODOLOGY

The purpose of the research design is to make sure that the obtained evidence enables the researcher to answer the research question. This research followed an experimental design using qualitative methods. Experimental designs are employed to explore the outcomes of new policies; approaches, methods, etc. and they can produce considerable confidence in the reliability of casual findings (Bryman 2012). Qualitative research is concerned with the subjective views of the researcher in which the researcher is the main measurement device (Miles and Huberman 1994). Hence researcher's personality becomes an integral part of the research. The researcher adopted an interpretive, naturalistic and inductive approach (Bryman 2012) in order to address the research questions. This experimental project was divided into five main phases.

- Introductory session with LS group

The participants were given a detailed orientation to the research project.

- Research Lesson planning, reflecting and re-planning meetings with LS group

Seven meeting in total were held with the lesson study group during the project. See Table 2 for the overview of LS group meetings.

- Conducting the research lessons and observation

The LS group members planned three research lessons. Each member taught one lesson in his respective class, while other members observed the conduct of the lesson.

- Individual feedback from the LS group members

The teachers provided two types of feedback: written reports and responses to a close ended online questionnaire. Table1 below provides an overview of the LS group meetings.

Table 1: An overview of the LS group meetings.

Meeting	Objective	Duration
01	Choosing research lesson objective	45 minutes
2	Planning research lesson 1	45 minutes
3	Planning research lesson 1	60 minutes
4	Planning research lesson 1	60 minutes
5	Reflecting on research lesson 1 and re-planning	80 minutes
6	Reflecting on research plan 2 and re-planning	60 minutes
7	Reflecting on research plan 3 and teachers` comments about the project	60 minutes

3.1. The Participants

Voluntary participation is also very crucial to the success of the Lesson Study Research (Stepanek et al. 2007). The researcher contacted the principal of the Bright Future College on the phone and explained the objective and the design of the research project. Having gained his formal consent (see appendix1) to conduct this research in his college, the researcher visited the college in person and had an informal meeting with the English teachers at the college and briefly explained the research project. Although science teachers also showed their interest and were willing to participate, it was decided to carry out this project with the English teachers at the college owing my personal interest in the subject. Below is a brief description of the participants.

3.1.1. Teacher Participants

Three English Teachers, Arshad, Mansoor, and Ejaz, (all names are pseudonyms) voluntarily agreed to participate in the project. The participant teachers were given a detailed presentation about Lesson Study and the project. The objective of this presentation was to give the participants an orientation to the Lesson Study and a clear view of how things would go during the project as well as their role in this project. After the orientation session, the participants were provided with the hard copies of the informed consent forms (see appendix2). The teachers had varying teaching experience, four years, three years and two years respectively. All of the teachers had their masters in English literature (16 years of education in Pakistan) and were teaching at Intermediate level. Table 2 below illustrates the qualification, professional training and teaching experience of the teacher participant at the intermediate level.

Table 2: An overview of teachers` qualification and professional training.

Name	Qualification	Professional training courses/ certificates	Teaching experience at intermediate level
Arshad	MA English Literature (16 years of education)	B.Ed. (two years through distance learning)	4 years
Mansoor	MA English Literature (16 years of education)	Nil	3 years
Ejaz	MA English Literature (16 years of education)	Nil	2 years

3.1.2. Participant Students

The researcher also visited the individual classes (Intermediate year 2) of the participant teachers during their class time and briefly explained the project to the students. The students were given the information about the role of the observers during the project as well as the objective of the interviews (regarding case students). Their respective class teachers chose the case students (three students from two classes and four from one class) based on their performance (high performer, average performer, and low performer respectively). Thus they were representing three different learning groups (Dudley 2011). The structure and the purpose of the interview were explained to the case students, and they were provided with the hard copy of the student informed consent forms (see appendix3).

3.2. Data Analysis

Qualitative research uses a wide range of data like recorded interviews, field notes, audio or video recordings, etc. based on a smaller sample of participants. This section will discuss the strategies that were used to collect data during the project and a brief description of their significance in Applied Linguistic research. Five different strategies were used to collect data during the lesson study project. These strategies have been used in the past in

different LS studies as discussed in section 2.4 and have been found very fruitful.

3.2.1. In-Class Observation Notes

Observation is a non-judgmental account of classroom proceedings that can be analyzed and given interpretation (Gebhard and Oprendy 1999) and is an exceptionally fruitful strategy (Lighbown 2000). Classroom observations provide a very useful first-hand data rather than relying on second-hand reports, or hand-outs and the researcher can observe and record the context of an authentic educational environment. The observation during this project was non-participant and unstructured, which means neither the observers were actively involved in the conduct of the class, nor there were any specific, concrete observation categories. However, the observer did use observation sheets for notes taking regarding case students. For observation, observation sheets were adapted from Dudley (2011) (appendix 8). The data was first transcribed in L1 and then translated into English by the researcher (See Appendix 13). The researcher did not take any active part in the conduct of the class. However, during the planning and reflection stages, the researcher acted as a facilitator.

3.2.2. Semi-Structured Interviews

The interview is the most common technique used in qualitative research (Dörnyei 2007). Semi-structured interviews offer a compromise between structured and unstructured interviews. Semi-structured interviews contribute to better understanding of the issues according to the context. The interviewee is encouraged to elaborate on the topics, raised in an exploratory manner while the interviewer provides guidance and directions (Dörnyei 2007). For gaining case students, responses questions were adapted from (Dudley 2011) (Appendix 9). Researcher informed the interviewees regarding the purpose of the interview and the recordings to increase their motivation to respond in detail (Dörnyei 2007). All the interviews were audiotaped for the purpose of analysis as suggested by Duranti (1997).

3.2.3. Feedback from the Teacher Participants

The LS group members were asked to provide written feedback on their experience during the project as a whole. For written feedback participants were provided with the prompts adapted from (Cajkler et al. 2015) (Appendix 12). The participants were also asked to answer the online questionnaire, adapted from (Stepanek et al. 2007) in order to gain respondents' validation. The online questionnaire consisted of 21 close-ended questions (see Appendix 13). Written feedback and close ended questions minimized the chances of variability between the respondents' answers and the researcher's interpretations of those answers (Bryman 2008).

3.2.4. Audio Recordings and Transcription (of Meetings, Research Lessons, and the Interviews)

Audio recordings provide a permanent record of the events (Griffie 2005). Moreover, they are the perfect means for commencing and supporting the process of theorizing from the language classrooms. Therefore, all the meeting, interviews as well as the conduct of the three research lessons were audio-taped. The audio recordings of the meeting and the interviews were first transcribed in L1 (Urdu) and then translated into English by the researcher (see appendices 14 and 15)

4. FINDINGS

This section presents the findings of the Lesson Study project in the given context. These findings are based on the analysis of the feedback provided by the teachers (a written report and an online questionnaire); semi-structured interviews of the case students, in-class observation notes, and analysis of the transcripts of the LS group meetings (planning and reflection).

4.1. Impact of the Lesson Study on Content knowledge

Lesson study cycle allowed the teachers to discover the shortcomings in their subject knowledge. For example, the participants were having difficulty in deciding the teaching aim of their research lesson. The researcher prompted the participants to think about the context where students can normally use passives. There was silence for about 10 seconds. This silence revealed that they had never thought about this aspect of passive voice sentences. Their responses were limited to the syntactical aspects of the passive voice sentences. The teachers admitted this fact that they had no idea about the context where passive voice is used. Below are some of their comments during the meeting.

68. M: This is a very good question. I mean, we have been teaching passive voice sentences, and we have studied passive voice too. However, we never thought about where or when do we use them?

69. A: there are many rare uses of passive voice.

75. E: Oh! This is difficult.

This discussion enabled the teachers to think about the usage of passive voice in a context. Consequently, when they researched about it later at home on the internet, they found the answer and shared it with each other during the next meeting. Although this is related to the content area of their knowledge, it is also directly linked with their pedagogical content knowledge since they would now teach passive voice with a clear context of usage

in their classes. Discussions, especially during the LS group meetings, played a key role in enhancing their content knowledge. During the Lesson study cycle, the participants had the opportunity to engage deeply with the topic of the research lesson and explored multiple facets of the topic. They indulged in discussions that benefited their understanding of the topic. From the very first meeting teachers were prompted to research the topic. They utilized books and the internet to find the answers to the questions that were raised during the discussion. Moreover, sharing their knowledge with their colleagues benefited even those who for some reason or other could not find any information (for instance, one teacher did not have internet facility at home). Below is an excerpt from their discussions during the meeting that shows the involvement of the teachers in researching about the research lesson objective.

94. A: I read about the passive voice on the internet in detail that where and why do we use them.

95. E: yeah. It's the same as we discussed earlier. I mean where we don't know about the subject.

96. A: Yea. And also when we are describing a process. Yeah. This was also mentioned there.

100. A: By the way, it's also written sometimes on the menu or outside the restaurants like, 'chicken is served here.'

101. M: But I think having the aim, like, to talk about a process is better and more relevant.

During the group meetings teachers had the opportunities to raise questions openly to their colleagues related to their subject and more precisely about the research lesson topic, which allowed them to explore the topic in detail and share their knowledge with group members. One LS group member, for instance, was not clear about the different types of sentences according to their function (imperative, declarative, assertive, etc.). Probably, he never had a chance to teach, or to talk about these sentences in the class or with his colleagues. During the meetings when another participant teacher used the term 'declarative', he openly asked the question, 'what is meant by declarative?'. Below are the comments from the feedback by the teachers regarding the outcome of Lesson Study on their content knowledge.

'Through this project, I did some research on the topic of RL, and it was the first time, honestly speaking, that I did such a detailed research about any topic before going into the classroom.....Lesson Study has proved to be very helpful and fruitful for me and now I have a better understanding of teaching passive voices in the class. The activities were helpful for the students, and I will try to incorporate such activities into my other lessons in future'.

Arshad

'Through the research lesson and also because of our meetings, we prepared our topic in detail I have a better command over passive voice after having discussed these in the meetings as well as after having prepared three lesson plans'.

Ejaz

'Research Lessons helped me to improve my understanding of the content of the lesson.'

Mansoor

When the researcher asked Arshad how was this lesson different from the way you used to teach passive before. The teacher said that he only used to explain the grammatical rules with no practice activities and no teaching aim. This fact was observed during the very first meeting when all of the three group members were unable to write down the teaching aim of the passive sentences.

These interpretations of the comments of the teachers in the feedback, as well as their discussions during the meetings, were further validated through the online questionnaire that the teacher participants were asked to answer when the project was over. All of the three participants agreed to the fact that the research lesson planning allowed them to increase their content knowledge and helped them to think deeply about issues in their content or teaching.

4.2. Impact of the Lesson Study on Pedagogical Content Knowledge

In this sample, the greatest effect of the lesson study cycle was observed on the teachers' pedagogical content knowledge. Lesson study enabled the teachers to plan their lessons, in detail, focusing on students' learning. Observation enabled the teachers to see how a teacher can affect students' motivation. Teachers learned that giving effective instructions and equal attention to all the students and using whiteboard affect students' interest to a great extent. Along with learning to teach more effectively teachers also learned how to avoid things in the lesson that can cause a distraction for the students and make the lesson less effective. Moreover, the teachers came to know that the students loved learning in this way as opposed to the traditional way which according to their previous teaching beliefs was preferred by the learners.

400. E: I had the class with the same group after the lesson. They told me that they really enjoyed the lesson. They told me that they learned like this for the first time.

Lesson Study approach not only allowed them to experiment with new teaching strategies but also enabled them to see the results of the selected strategies on students' performance in the classroom. Teachers conducted the lessons in a way that enabled the student to participate well and understand the content of teaching as well as to respond in a way that made their learning quite visible for the teachers. Not only they were able to observe the reason of students' learning but also they were able to notice the cause of their poor performance during any

activity.

In my point of view, Lesson Study is a very effective strategy. The lesson plans during the project focused on the learning outcome of the students. These collaborative lesson plans helped the teachers to focus more on students learning and to avoid digressions in the lessons. Students get more involved in the learning process and more active in the class.

Arshad

Lesson study also enabled the teachers to develop a reflective stance about their teaching. They started critically analyzing their teaching practices and its effect on students learning.

321. A: And also we did not mention anything about the subject in the last lesson. The student might get the impression that we don't use the subject in the passive voice.

468. E: ... the students got confused at the start when I abruptly jumped from the `passives` to the `process`.

The participants realized the fact that if the teacher is just engaging few students in the class, other students get confused, and may develop an inferiority complex.

504..A:.....and another thing that I noticed was that Ejaz was only focusing the students sitting in the first two rows. The student who was sitting next to me was left behind. He could not catch up and was feeling confused.

Lesson Study also helped the teacher to analyze the different situations that arose in the classroom context and enabled them to suggest solutions to their colleagues. For instance to minimize the disturbance in the class Mansoor advised Ejaz:

496. M: and also you should have asked the students to complete their tasks first, and then you should have given the whole class feedback. There would have been no disturbance.

Lesson Study facilitated the teachers to improve their instructions. Teachers worked on their instructions to make them more effective based on their discussions and observation during the project. The LS group, through observation and reflections, not only discovered the fact that effective instruction is conducive to students' learning but also the effect of giving ineffective instructions. For instance, in research lesson plan1, the teacher was supposed to ask the following question while demonstrating Archimedes' principle in front of the class:

What do you think when is the weight heavier?

1. When it is immersed in water.
2. When it is pulled out.

The expected response of the students was either `when it is immersed in the water` or `when it is pulled out.' However, instead of asking the question teacher asked,

Is it heavier in the water?

Or is it lighter?

Accordingly, the response of the students was different than expected. They only answered using the adjectives, `lighter` and ` heavier.' The teachers learned that effective instructions need to be considered, and one way to master this is to write the instructions in the lesson plan.

Lesson Study helped me to improve my instruction in the class and also how I can better teach my students by avoiding the mistakes that I used to do.

Ejaz

In research lesson, one of the teachers gave out the reading paragraph to the students before giving them the reading task. Consequently, the students got confused. It was also observed by the observers that Case A and Case B students did not understand what the teacher meant by V1 and V2 when he asked CCQs. Because the terms V1, V2, V3 were not explained to the students before asking the concept checking questions (CCQs). The teachers came to know through observation that giving the hand-outs before giving instruction about the task confuses the students. Moreover, asking the questions right at the start of the lesson intimidates the students, and they lose confidence.

392. A: When I asked the question to the students at the start of the lesson that where do we use passive voice? They got confused.

393. M: Yea. I also observed that and wrote down on the observation sheet the same point.

Also, they realized that nominating students during the class puts them under pressure, and they get confused, hence cannot give any response.

415. E the teacher should not nominate the students for getting the answers. Like I saw in the last lesson that when the teacher nominated the students for answers, they got more confused.

It shows that the teachers were critical about their teaching, and they were developing their practices based on their reflections during the meetings. Consequently, a reflective stance helped them to come up with better teaching strategies.

Teachers' knowledge about the lesson plan and developing one for their lessons in the class also developed through the Lesson Study project. Teachers expressed that generally in their lesson plan they do not have any language aims, rather they do not use lesson plans in their classes.

267. M: Though we usually don't teach in this way in our school, planning and going stage wise, but from the activities that the students did I think this lesson was very fruitful for them.

Arshad commented that the lesson plan they learned during his professional development course (B.Ed.) was not a detailed like the one they had prepared during the research lesson. The participants discovered that the detailed lesson plan made their teaching more effective and fruitful. The teachers mentioned the same aspect in their final feedback.

Through lesson plans, I had better control over the lesson in general. Lesson Plan not only helped me in teaching but also it helped the student in learning the lesson more effectively.....I learned how to make my instructions more effective, simple and to the point`.

Mansoor

During the Lesson Study group meetings, it was very much visible from the discussions of the teachers that they were trying to make their classes students centered. This aspect in the given context was quite contradictory to the prevalent educational culture as discussed in section 1.3. Teachers tried to explore and experiment with innovative strategies to make their lesson more interesting. Below are some extracts from their discussions that show how teachers got involved in starting the lesson in a way that would grasp students' attention. Teachers are discussing the warmer activity for the research lesson one. The discussion began with a suggestion that it should be started by asking students a question about the passive voice at the start of the lesson. However, they finally agreed on starting with a demonstration activity, because demonstration would be more interactive and interesting for the students than asking questions or showing pictures.

196. A: we can demonstrate. Right?

197. E: how would you demonstrate?

198. A: like something similar in this passage. By using a beaker full of water and a stone tied to a string and we can actually perform the experiment that is in the passage.

200. A: it will become more interesting.

201. M: yeah. The students will get a bit involved

Lesson study also developed observation skills in the participant teachers as expressed in their feedback. The teachers learned how to analyze the effect of different strategies on the students learning. Their interest in observation, as well as observation skills, enhanced. Moreover, in their responses to the questionnaire they all agreed to the fact that observing students' learning and thinking during the lesson was an important learning opportunity offered by the Lesson Study. For some participants, it was a first time experience as stated by Arshad in his feedback.

`I have, for the first time, seen as an observer that what things or instructions make students feel bored. Moreover, what type of method/ strategy should be adopted in the class to enhance students' motivation and participation in the class? The activities were very interactive, but in Pakistani schools teachers don't normally prepare any activities, except very few good institutes. The teacher continues speaking for 40 minutes ignoring student learning style and interest, without having any idea whether the students are learning or not`.

This observation practice helped the teachers to monitor the students' performance closely and analyze the reasons behind their learning success or the causes behind their issues in learning. For instance, Arshad after the research lesson1 commented that the student he was observing during the lesson understood the structure but he did not know the right form of the verbs. He was having trouble with the helping verbs. For instance, in response to the sentence `increase the pressure slowly`, he wrote:

`The pressure have increased slowly.'

Then he crossed `have` and wrote `has` and again he crossed `has` and asked the observer what to write there. The observation allowed the observer to see where the students are having learning issues and enabled them to focus on them in the next lesson. Teachers expressed in their feedback about the learning opportunities that the Lesson Study offered them during the project.

`The observer teacher can better judge the teaching errors that he can't see while` teaching. Mansoor

5. DISCUSSION AND IMPLICATIONS

5.1. Discussion

The results of this research are consistent with the findings of previous research studies on the Lesson Study. The findings focused on the impact of lesson study on teachers' professional development, knowledge and beliefs. These findings show that the lesson study had a positive influence on teachers' content knowledge, pedagogical content knowledge, teaching beliefs and interpersonal relationship in the given context. As illustrated by Lewis (2009), the Lesson study allowed the teachers to develop their content knowledge, pedagogical content knowledge and interpersonal relationship. Based on observations, discussions and feedback from the teachers it has been noted that the Lesson Study also had a rewarding impact on the teachers' approaches and beliefs about teaching as a profession as shown by Rock and Wilson (2005). The greatest influence of this approach was felt on the pedagogical level as reported by (Cajkler and Wood 2016). The research lessons facilitated the teachers to discuss what went well for students' learning and what did not. Not only the observers gave comments that

showed their development as professional teachers but also the teacher conducting the lesson himself was able to comment about the good and not so good aspects of his lesson. This Lesson Study project enabled the teachers to develop a reflective and a critical stance about their teaching and about students' learning, behavior, reactions and participation in the class as stated by (Pollard et al., 2014). This study also supports the claims of (Vescio et al. 2008) that de-privatization of the classes brings positive changes in teaching practice and learning outcomes. Lesson Study enabled the teachers to de-privatize their classes. It provided the participant teachers with an environment where they took risks with their teaching practice. Lesson Study empowered them to adopt new teaching approaches and allowed them to feel safe to share their professional weaknesses as indicated by Ylonen and Brahm (2014) which show that Lesson study develops the confidence of the teachers and enables them to experiment with new teaching strategies. Teachers' professional skills regarding planning the lesson, focusing on the specific objective for students' learning, conducting the lesson and observing the learning of students in the class enhanced as indicated by (Baba 2007).

This project also showed that Lesson Study enabled the teachers to develop their observation skills as advocated by Dudley (2011). This fact is quite in opposition to the opinion of Amador and Weiland (2015) who proclaim that observation skills require time to develop. Besides, it could be an extremely difficult task for the beginners, as the inexperienced teachers usually focus on insignificant aspects of the lesson as reported by Fernandez, Llinares and Vallas (2012). Conversely, during this project, the participants proved it otherwise. Teachers, even though, had no prior experience of observation, by making use of observation sheets adapted from Dudley (2011) and through the scaffolding provided by the lesson study, were able to observe students' learning in a way that helped them understand students' perceptions, learning style and learning issues. Discussions, reflections, and collaborative planning made it relatively convenient for the participants to analyze students' learning. Teachers were able to discuss both micro and macro aspects of teaching and learning as discussed in section 4.2. Lesson Study allowed the teachers to plan their lessons keeping the students' learning style in the mind which they had not done before.

During this research project, teachers found collaboration, during planning and reflection, very useful as expressed in their final feedback. Teachers worked in collaboration to plan the research lessons for investigating the learning objective. This finding is in accordance with what is advocated by Adamson and Walker (2011) that collaboration, in reality, is a very effective tool for the growth of professional expertise. Moreover, it supports Lewis (2002) claim that Lesson Study has the capacity of developing this very vital feature among the teachers which leads them on their path of professional development. Nguyen et al. (2009) claim that workplace learning groups in Asian cultures evade differences of the opinion to sustain the harmony of the learning group. Quite contradictory to their findings, during this Lesson Study project, group harmony was maintained despite having differences of the opinion. Lesson Study project provided the teachers with an environment where the group members felt confident to give and receive views as well as positive criticism. Moreover, their differences in the opinion guided them towards the best possible option they could come up with in keeping with students' learning issues.

It is illustrated in the research that observers usually remain inactive during the conduct of the lesson, and they serve as data collectors by focusing on students' learning and responses about the instructions and the activities that are jointly planned (Lewis 2002). There has not been found any indication in the available research, by the researcher, regarding the role of the observers during a situation where the teacher conducting the research lesson gets under pressure or loses confidence, and the class gets noisy. Should the observers intervene? Alternatively, should they let the things follow their course? And reflect on the matter later on during discussion sessions. Nonetheless, in the given context, the observers took an active part in the course of certain activities during research lesson 3. For instance, in giving answers to the students' questions where the class teacher could not provide a satisfactory answer to the students or in assisting the teacher where he felt confused and made simple mistakes on the whiteboard which could have affected students understanding about the research topic negatively if they were left uncorrected. However, it was found helpful as expressed by the individual teacher. Moreover, students too got their answers to the questions as well as the classroom environment did not get noisy which would have happened otherwise. This observation also shows that the observers were not focused on the teachers' teaching or evaluating teaching skills but on the students learning and effect of teaching strategies on students' performance.

Managing time during the Lesson Study Cycle is the greatest challenge of the Lesson Study as noted by Boss (2001). It was observed that the participant teachers were not feeling convenient in spending extra time at the college after the school hours. Time management was a major issue. The teachers during the project were also busy in conducting their regular classes as well as other academic activities like marking students' assignments, preparing other tests, etc. Spending additional time for Lesson Study, especially for meeting and discussions, was not stress-free for them. Lesson Study does require much time. This result is also consistent with the findings of the previous research studies like (Hiebert and Stigler 2000). Spending extra time for Lesson study also has some negative impact on the successful execution of the research lessons. As in this case, some participants were unable to review the research lessons and consequently skipped some of the stages of the lesson plan during the teaching session.

5.2. Implications For the Implementation of Lesson Study in the Given Context

To make Lesson study more effective and convenient for the participant teachers, the support of the management for the participants is a fundamental requirement as suggested by Trent et al. (2005). This aspect would require making changes to the schedule of the Lesson Study group members, lessening the workload, or may be arranging for an alternative teacher when a participant is observing some other teachers' class as recommended by Taylor et al. (2005). The school management should also give recognition to the teachers' efforts, both morally and monetarily.

It was observed that teachers were having difficulty in following the stages of the lesson plan and managing time for different activities. Like in the first research lesson the teacher was unable to complete the final task that was in the plan. It seems appropriate to provide the teachers multiple opportunities to conduct research lessons. This project consisted of only three research lessons and seven meetings. Teachers in the given context had the opportunity to see for themselves the positive outcome of the lesson study approach. However, they did have some difficulties regarding familiarizing to a changed approach. During the discussions and the meetings, teachers were very enthusiastic about the Lesson Study approach as well as about experimenting with new teaching strategies and focusing on students' learning. This aspect is quite visible in the research lesson plans and the transcript of their discussions as argued in Section 4.2. However, executing that plan- as planned was a challenging aspect. Time management for the individual activities, and conducting all the activities as planned was not done as decided by the group. This issue illustrated that even though Lesson study positively affected teachers' pedagogic beliefs, they needed more time and practice to execute those strategies during their lesson. And the only suitable way to solve this issue is the long term Lesson Study practice.

The Lesson study group can work independently as opposed to the traditional teacher training programs that require an expert as expressed by Dudley (2011). However, there is a necessity for understanding the essential and core elements of the Lesson Study process and their sequence in a context where teachers are not familiar with the Lesson Study approach. This aspect might require the support of the knowledgeable others acting as a facilitator for the successful execution of the Lesson Study in the given context. It is not to say that there is a need to train the Lesson Study Research group formally, but it is desirable to have a support of a resource person who could provide guidance regarding the Lesson Study process before starting it, as well as provide resource materials and relevant literature/ handouts.

6. CONCLUSION

Lesson Study is one of the most effective strategies for continuing professional development of the teachers. The achievements of the Lesson study are numerous: the development of content knowledge, pedagogical, and educational culture. Teachers' pedagogical content knowledge and the content knowledge, observation skills and instilling a reflective stance. Lesson Study provides the teachers with opportunities to develop their professional skills in relation to their context, students' needs knowledge get enriched. It provides the teachers with the opportunity to see the effect of their teaching on students' learning, through eyes of the observers. The teachers explore their teaching topics and discuss and reflect on making their teaching practices more conducive to students' learning. Each cycle of the Lesson Study develops their understanding of the teaching and students' learning inside the classroom. The classroom gets transformed from a private sanctuary to a shared learning place. Lesson Study also facilitates the teachers to develop a critical stance about their teaching. Thus, the teachers become the researchers and Lesson study empowers the teachers to generate knowledge and theorize their teaching practices. Lesson study also facilitates the teachers to develop a more collegial interpersonal relationship. They feel confident in asking, sharing and discussing their teaching and learning issues. The impact of the Lesson Study is not limited to only the research lesson cycles, but it has the capacity to have long lasting imprints on teachers' performance and skills. Not only the participants develop a positive professional attitude towards teaching but also the whole educational environment indirectly receives a positive stimulus.

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