The Effectiveness of Lesson Study as a Professional Development Approach for Omani Teachers

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Abstract
This study is proposed to adopt Lesson Study (LS) as a collaborative professional development approach. Therefore, the main purpose of this study is to investigate whether the Lesson Study approach has an effect on teacher's professional development across the Lesson Study classroom conferences. Data collected through mixed methods resources including audio-recording of classroom observations, audio recording of post-class conferences and my field notes. The data disclosed an increase improvement in teachers' teaching quality practices throughout the Lesson Study cycles. The study revealed also that there was a gradual increase in the teachers' critical reflection. This study, as one of the initial trials to be implemented in the Omani context, may contribute to the in-service professional development. The study may encourage stakeholders in the MOE (Ministry of Education) to take the lead in adopting the Lesson Study approach within the current in-service professional programme.
Keywords: Professional development, Lesson Study, Bloom Taxonomy, mediation, scaffolding

1. Introduction
Human development is the single most important factor contributing to the success of any organization. Without creating a structure that provides continuous learning opportunities for human resources in the Ministry of Education, educational change is not likely to occur (MOE, 2004:10). Teachers' continuous professional development plays a major role in the field of education in Oman. On this basis, the Omani government implemented the Long-Term Development Strategy in 1996-2020. Accordingly, teachers who are recruited in Basic Education schools should be provided with on-going support in order to cope with the new Basic Education system. To achieve this goal, two main sources of professional development are provided by the MOE, namely in-service training (INSET) (including conferences, workshops and training sessions, and the supervision system (MOE, 1997). Several Omani scholars, such as, Al Lamki (2009); Al Balushi (2017) and Al-Hinai (2003), have insisted on the role of INSET, such as formal training, workshops and attending seminars and its importance in the career of Omani teachers. However, they argued that despite the dominance of INSET, the supervision and training model could still be regarded as a top-down model.

2. Background research
Despite my extensive experience of supervision, involving trying to support teachers' professional growth and enable them to demonstrate good practice in classroom fields, their level of improvement was always below what I expected. Besides the training sessions offered to teachers to improve their teaching performance followed by a number of supervisory visits, it was found that teachers' ability to reflect and to analyse what they have learned is very limited or sometimes superficial. Despite the in-service training programme offered to Omani teachers throughout their teaching career, its aim is still limited to certain purposes. For instance, Al Rasbi (2006) summarised some of these purposes when she stated that EFL teachers in Oman are offered in-service training programs to introduce them to a new curriculum, to develop their teaching techniques and assessment strategies and to develop them professionally. She added that such training activities commonly take the form of conferences, courses and workshops; however, these programmes are not always based on a systematic teachers' needs identification. Al Rasbi (2006) added that teachers who attend these programmes are dissatisfied because most of these programs are designed on a lecture-basis and they do not meet their needs. As a result of traditional professional development and in relation to classroom instruction, several teachers followed practices that depend on the traditional teacher-centred approaches, such as teaching language skills in isolation, conducting choral repetition, and using whole-group instruction. For these teachers, communication about students' learning and teaching strategies is restricted to discussions between the teacher and supervisor, while investigating ways to promote reflection on teachers' performance seems to be neglected (Al Sinani, 2007).

In relation to the collaborative approach, an investigation of the Omani literature reveals that collaborative learning is not widely used by Omani teachers. For example, Al Hikmani (2011) has investigated the collaborative professional activities among Omani teachers and found that the common collaborative activities utilised among Omani EFL teachers are limited to sharing materials and conducting departmental meeting

sessions. She added that teachers perform these practices mechanically simply to complete the work required of them without any specific intended outcomes.

Observing teachers continuing teaching on the basis of teacher-led strategies inspires me to search for a model of professional development that confronts teachers with an issue related to problem- solving and motivates them to participate in determining possible solutions within a reflective and social environment. Also, persistent and purposeful recommendations from many Omani researchers (such as Al Lamki, 2009; Al Maskiri, 2016; Al Rawahi, 2016; and Al Balushi, 2017) provokes a need to adopt the 'Lesson Study' in the Omani context within a collaborative learning situation, distant from the top-down, traditional professional development programmes that is currently exists.

3. Literature review

3.1 Sociocultural theory

The rationale for this study was developed through a combination of my personal experience as a supervisor and a review of the literature on effective professional development for Omani teachers. Thus, the framework rests on the notion of social constructivism where people seeks to understand the world in which they live and work (Creswell, 2007). In this regard, Lesson Study as a model of professional development lies at the heart of constructivism where both teachers and student learners actively construct their own knowledge and meaning from their experiences and interacting with others (Lewis, 2004).

In the same vein, Vygotsky (1962), who is the responsible for the social development of learning, emphasises on the importance of social constructivism and claims that learner construction of knowledge is the product of social interaction, interpretation and understanding (Adams, 2006). Later, Vygotsky (1978) focuses most of his actual research on the individual social development of the learner through what is called 'sociocultural theory', a notion that has recently received a great deal of consideration (Wertsch,1991). On the basis of the sociocultural approach, Vygotsky insists heavily of 'how speaking and thinking come to be thoroughly interwound in human life as an example of the inter-functional relationship' (Wertsch,1991:30). According to Vygotsky (1978:56), sociocultural theory depends on the assumption that an 'inter- personal' process is transformed into an 'intra-personal' one, summarised in the following:

"Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first between people (inter-psychological), and then inside the child (intra-psychological)" (ibid:57).

Therefore, the transmission from inter to intra takes place in Zone of Proximal Development (ZPD) (Wertsch,1991). Vygotsky (1978:86) defines the ZPD as 'the distance between the actual development level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers'.

3.2 Mediation

Within Vygotskian theory, the concept of mediation plays a crucial role in the construct of knowledge. The point throughout Vygotsky's formation of a sociocultural approach is the claim that the higher mental functioning by 'tools'; for example, language (through dialogue), diagrams and arithmetic, is called 'semiotic' (Wertsch,1991:30). In other words, within the ZPD, a kind of negotiation takes place between the teacher and student in which teachers tend to use instructions that requires students to take on additional responsibility to move from the zone of 'social regulation' or 'other-regulation' to a new level of self-regulation (Wertsch,1991:113). The move from one zone to another entails strategic orientation to problem solving through mediation. The form of mediation can be, for example, textbooks, visual material, classroom discourse patterns, the opportunity for second language interaction and the various kinds of teacher assistance. In relation to Lesson Study prospects, teachers learn through talk within interaction in collaborative discussion or 'talk' as mediation to explore what works and what does not. The shared tools help teachers to improve professionally at the end.

3.3 Scaffolding

The term 'scaffolding' was introduced by Wood, Bruner, & Ross (1976:90) who identified it as a 'process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his/her unassisted efforts'. According to ZPD, learning only occurs in the cognitive place beyond what the child can do alone. Wilhem et al. (2001) explained this in depth and assumed that anything the child can learn with the assistance and support of a teacher, peers, and the instructional environment is relied upon the ZPD. They added that, under this notion, with enough assisted practice, the child, gradually, internalises the strategies for completing the task, which then becomes part of his/her psychology and personal problem-solving repertoire. In this case, scaffolding is considered as a key strategy in cognitive apprenticeship, in which students can learn by taking increasing responsibility and ownership regarding their role with guidance of more knowledgeable others

(Collins, Brown, & Newman, 1989).

3.4 Critical reflection

Teachers must be aware of what is happening in the classroom, and this includes explaining and reflecting upon why things happen the way they do. This is greatly facilitated as a social task performed with their colleagues. The early concept of reflection, initiated by Dewey's (1916), provided a basis for many current theories regarding reflection practice. Dewey (1933) defined reflection as more than simply the "recall of past events" but as "a meaning-making process that moves a learner from one experience into the next with deeper understanding and connections to other experiences". Schon (1983), on the other hand, claimed that reflective practice has two components: 'reflection-in- action', which is grounded on the process of 'thinking on your feet". In other words, to reflect on an incident unfolding in real time can benefit that situation rather than reflecting on how the professionals would do things in a different way in the future. Reflection-on-action, on the other hand, takes place after the incident and it is considered as the process by which a professional explores how practice can be developed or amended after the event.

On the basis of social constructivism, Rock and Wilson (2005) highlighted the point that individual learning might occur as a result of social interactions, along with negotiation, discussion and reflection. Thus, teachers should be engaged with their colleagues, through reflection with both novices and experts to seek a better professional knowledge for further learning. This brings us to what was already been noted regarding Vygotsky's theory and social interaction to transmit learners from self- regulation dialogic speech between the self and more experienced member; the transmission takes place in the Zone of Proximal Development level as determined by independent problem-solving (Fraweley and Lantolf, 1985). In connection to this study, it is worth mentioning that teachers' learning is supposed to be as 'reflexive', given that new knowledge is formed in imagined practices throughout Lesson Study discussions; and this form is refined as a result of close observation practices in action (Dudley, 2011) which might form the core of teachers' knowledge (Fernandez & Yashida,2004).

3.5 Lesson Study

Lesson Study, defined as 'a Japanese process of professional development that stands on collaborative classroom practice' (Lewis et al, 2006:3), has been the dominant form of professional development.for teachers in Japan since the 1999s (Dudley, 2015; Fernandez et al., 2003; Fernandez, 2002; Lee, 2008; Stepanek et al, 2007; Fernandez & Yashida, 2004; Lewis & Hurd, 2011). Catherine Lewis, in her initial work on this field, investigated why lesson study has caused a remarkable change within Japanese teachers and concluded that Lesson Study encourages teachers to refine their teaching and guide others who seek to become skilled teachers (Lewis & Tsuchida, 1998:18). Lesson Study, then, has spread rapidly in the United States (US) since 1999, with the release of Stigler and Hiebert's book 'The Teaching Gap' which summarised the Third International Math and Science Study (TIMSS). The authors of this book commended the Japanese professional approach and urged people to try out Lesson Study as a way to improve teaching and learning (Perry et al, 2008). Following the success attributed by the US researchers of developing teachers' knowledge by using Lesson Study, the notion has been spread in East Asia, such as in Singapore, China, Malysia, China and other countries. Fujii (2016) summarises LS phases as shown in figure (1):
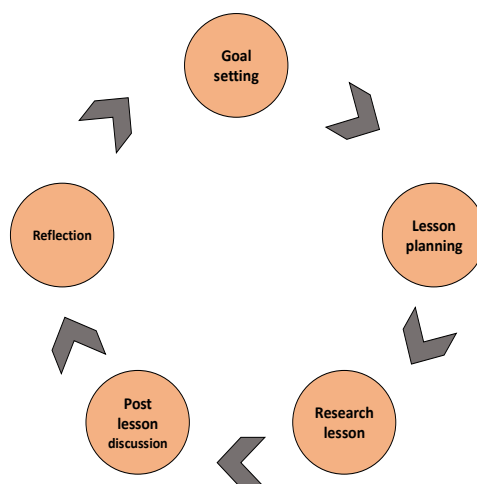

Figure 1: Lesson Study cycles adapted by Fujii (2016)

- *Goal setting*

In this phase, teachers study the curriculum and standards in order to identify gaps between the long-term goals

and the students' current level. To identify the long-term goals, it is preferable first to develop a research theme through which the goals can be examined and refined.

- Planning a research lesson

In this stage, the LS group identifies a unit of study and chooses a specific topic, which should be aligned with the overarching goals. Here, the teachers collaboratively prepare a lesson plan. Fujii (2016:412) calls this a 'lesson proposal' that includes (a) research theme, (b) content goals, (c) connections between the current content and related content from former and later grades, (d) a rationale for the chosen approach, (e) a detailed plan for the research lesson, (f) anticipated students' thinking, and (g) data collection.

- Research lesson

In this stage, one teacher teaches the research lesson and the other group members observe and write detailed notes on the students' learning. The observation focus is on students and not on teachers, therefore, the observers are inclined to gather data on students' thinking and learning. During the observation, the observers may use the lesson plan as a tool for data collection.

- Post-lesson discussion

This stage is called a debriefing phase which typically starts with the teacher who taught the lesson speaking first. Then, the observers share data from the lesson to show evidence of the students' learning, lesson steps, and the lesson and unit design, and present some artifacts that they collected from the lesson.

- *Reflection*

In this stage, the group writes a report that includes the original research lesson proposal, students' data, and reflections on what was learnt during the LS process, to be shared among the group. At this point, teaching a new lesson is optional. Some LS experts, like Fernandez and Yoshida (2004), suggest that some groups choose to go on to revise and reteach the lesson, so that they can continue to learn from it.

3.6 Situating Lesson Study within Sociocultural Theory

LS is an enquiry-based, teacher-directed and collaborative approach that is grounded in classroom practices (Lewis, 2013). Here, I will attempt to ground this study within sociocultural theory, which underpins my study design. The literature reveals that LS does not allow teachers simply to generate knowledge and skills by reviewing and studying the relevant materials but supports the teachers competence to work collaboratively in order to achieve a common goal through a systematic process. Within the LS process, teachers are offered multiple opportunities to plan, teach, observe, analyse, and refine research lessons (Cerbin and Kopp, 2006); teachers' involvement in these mutual activities in the LS process is expected to lead to professional development (Johnson, 2009). In this study, I will adopt Eun's (2008) framework, which might provide me with a background for understanding teachers' professional development as a result of their engagement in the LS process. Based on this, I consider the three LS cycles as a ZPD through which the teachers might improve their professional development. I argue that, through the LS phases the teachers might be able to grow professionally. Thus, I consider the participants' discussions (including the planning and debriefing sessions) to be the main tool in this study in addition to the other tools, including lesson plans, teaching materials, the English For Me (EFM) curriculum and any instructional materials that the teachers might use during the process. These semiotic tools are expected to serve to mediate teachers' development in the process of LS.

3.7 Lesson Study and globalization

Scrutinising the educational literature in Oman reveals that the education system has changed quite noticeably from the 1990s until now. Al Abri (2011) attributes such changes to the response to globalisation. Taylor (1997:55) defines globalisation as 'a set of processes which in various ways-economic, cultural and political-make international connections'. The notion of globalisation is highly controversial, some people believe that it is a dangerous phenomenon which can change the world in negative way, whereas others view it as a way to overcome certain educational challenges. Ali (2005) argues that globalisation reduces the policy making capacity of nations and sees education as an industry rather than a body for creating and spreading knowledge; on the other hand Al Abri (2011) insists that globalisation through the World Bank Association has played a great role in Oman's educational field. For example, the unsatisfactory results of TIMMS forced the MOE to respond to the pressure of globalisation by re-examining the current educational situation; based on that, the MOE & World Bank (2012) attributed the students' drawbacks in TIMSS and PIRLS to the in-service training programmes offered to the teachers are not meeting the teachers' needs.

  I can argue here that globalisation appears to be a double-edged sword that has both positives and negative aspects. I agree with Al-Harthi (2002), that globalisation contributes towards shaping the education through the Basic Education reform, thereby forcing the MOE to follow the global direction towards a better students' achievement, as it appears from the World Bank (2012) report. On the other hand, I assume that implementing a new model from another culture requires a considerable thought and planning if it is to be successful. Since the current study depends on a Japanese model of professional development, certain aspects need to be considered

such as cultural, social and political factors.

I bear in my mind that the domination of other cultures may damage Muslims' and Arabic cultural heritage and cause them to lose their identity (Al Abri, 2011). Accordingly, by identifying the challenges, I can prepare myself well to meet such challenges that might be faced with the globalization. Although the common value of collaboration within Lesson Study shared by the two cultures, which is evident in some Omani studies like Al Maskiri, (2016), Al Rawahi, (2016) and Al Hamdi (2014), there remain several cultural differences between Japanese and Omani culture in regard to teaching. For instance, the culture of collaborative teaching and providing feedback to colleagues has developed only slightly in Omani schools; on the other hand, Japanese teachers have a well-developed sense of how their students learn and think (Saito and Atencio, 2013), this is based on the continuous examining of their students' needs in the classroom. That is, the Japanese teachers have already been trained, to try to put themselves in their students' position in order to foster students learning through the process of Lesson Study (Fernandez et al., 2003). This is completely different from Omani teachers, according to the current professional development, where completing certain steps in the Teachers' Guide Book is more important. Moreover, Saito and Atencio (2013) note that the difference between Japanese teachers and other teachers is that the former view themselves as researchers regarding their own teaching practice. However, collaboration has not taken on the same form and depth within Omani teachers, whereas it remains mostly a matter of coordination and arrangements.

3.8 Impact of lesson Study on teachers' professional development

Lesson Study is grounded on the idea that teachers' professional development occurs during social interaction and engaging in reflective dialogue with a group of teachers; for example, planning sessions and post class conference. To advocate critical reflection among teachers, Gutierez (2015:319) classified reflection into three categories: 'descriptive reflection' when a teacher views classroom events as random experiences and states perspectives not based on prior experience; 'analytical reflection' when the teacher thinks how his/her teaching procedures affect students learning and thus shares possible ways to improve instructional practice; 'critical reflection' as a teacher shares the importance of understanding the philosophical basis of teaching in the constant examination of emerging instructional practices.

Traditionally, particularly in the BE system, teachers are given a chance to reflect during formal supervisory visits where the supervisors' role is to judge the teachers' performance, supervisors therefore used to assess teachers' ability to reflect; this makes teachers uncomfortable to reflect deeply upon their performance. Later, teachers gain the confidence to reflect during peer observation and team teaching practice as an in-formal and non-judgemental practice. However, the space and time allowed remains very limited because this happens once or twice per semester. Within this study, in contrast, I wish to change the practice of reflection among Omani teachers; that is, reflective teacher in Lesson Study requires not simply recall thoughts and ideas; instead, they need to analyse, evaluate and propose actions with their colleagues in constructive process to become self-directed learner (Watanabe, 2016).

Teachers professional development refers to ' The professional growth a teacher achieves as a result of gaining increased experience and examining his/her teaching systematically (Glattohrn,1995:41). In fact, there are many researchers investigated the impact of Lesson Study on teachers' professional development. For example, an action research study was conducted by Antrim (2007) to examine whether Lesson Study as a means of professional development has a positive impact on teachers' professional practice. The researcher reported the participants view through observation and reflection, field notes, along with the focus group, and pre and post interviews. Themes were analysed for general patterns to show that the teachers' observation of each other and discussion of the teaching and learning improved teachers' practice. Similar findings were reported by Sitton (2006) who found that though the challenges that the teachers faced, like the careful planning required and the time this took, there was an overall improvement in teaching reading instructions during the Lesson Study episodes. The findings derived from lesson plans analysis, as well as a review of interviews and journal entries. Harle (2008) reported equivalent findings, since the participants in his study concurred that the Lesson Study process was meaningful because it provided them with structures and strategies that helped them to improve their teaching and promoted collaboration with their peers. In addition to the previous studies, Chong and Kong (2012) conducted an exploratory study in Singapore to review the effect of Lesson Study upon 12 teachers' self-efficacy. The results obtained from the classroom observations, teachers discussions and interviews showed that Lesson Study fosters problem solving, influences decision making, and promotes classroom management.

Despite the fact that all these studies found that Lesson Study has a positive impact on teachers' professional practice, certain drawbacks were also observed; for example, these studies have a limited number of participants (4-8) participants, and none of them provide explicit, in depth details about how the teachers' discussion during planning sessions and post class conferences led to practical improvements in the classroom situation. The analysis of the data is general, while the teachers' discussion is not built on the students' needs, which is the main focus of Lesson Study as stated by (Dudley,2011). Even though the researchers suggested

several tools of data collection, such as, field notes, teachers' journal, analysis of students work, eventually, interviews are the main source of data whereas other methods tend to be neglected.

4. Methodology

4.1 Research design and phases of implementation

In the current study, I focus on how Lesson Study affects teachers teaching practice through the discussions (talk) in the post-class conference. Thus, I am interested to see whether any improvements could be observed in the teacher's teaching practice following the post–class conferences. Moreover, I also investigate whether teachers critically reflect upon their performance during the post class conferences throughout the Lesson Study process. I built my study plan on Dudley's (2011c) Lesson Study framework, as follows:
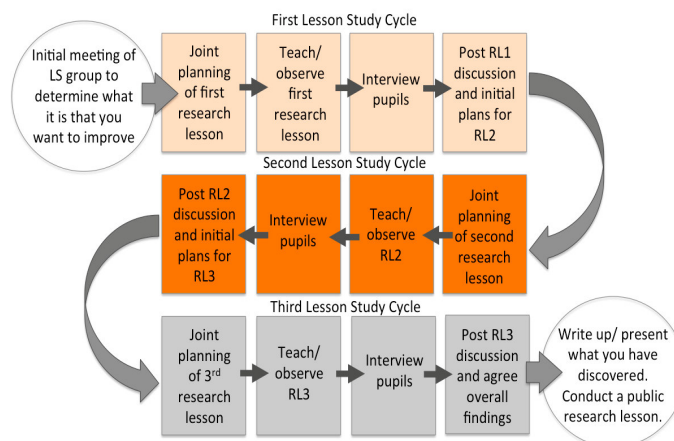

Figure 2: Lesson Study cycles adapted from (Dudley, 2011b)

As a first attempt at Lesson Study implementation, I chose one Cycle One School from grades (1-4). The academic reputation of the school and the warm team spirit among the staff as well as its situation, closer to my house, were factors that prompted me to choose this school. On this basis, together with the Lesson Study group, we proposed a Lesson Study plan, so it would be easier for me to follow the process and for teachers to work according to specific time line. Three pre-classroom observations of the three teachers (one observation for each) were audio recorded in the preliminary phase of this study, prior to the commencement of the process implementation. Due to the circumstances of the school schedule on that day, I only took 30 minutes to observe each teacher although the normal length of the lesson was 40 minutes. Then a meeting with the teachers was arranged. At the end of the meeting, we signed together the 'Lesson Study Group Protocol' to ensure that all members can work together and develop trust together, and all members are considered as equal learners (Dudley, 2015:6). A presentation based on how to implement Lesson Study approach to promote teachers' professional development was organised for the teachers to orient them regarding the Lesson Study process and requirements. Teachers from other subject departments were welcome to attend the meeting since they were eager to know about this new approach. After that, the Lesson Study group teachers conducted several short meetings prior to the planning phase in order to investigate their students' difficulties. Based on their day to day observations and previous year report, the team decided to focus on learner-centred teaching as long-erm goal of the programme.

4.2 Phase One (Lesson One)

On 09.30.2016, the three teachers met together with their senior teacher to plan the first Lesson Study. They decided upon a class, a lesson and learning outcomes to be achieved. The team chose the lesson according to the plan and objectives of the curriculum and their students' needs. Together, they scheduled the steps and the instructional materials to be implemented as well as the visual aids. Regarding students' interviews, it was optional and left to each teacher's choice. On 20.03.2016, teacher (1) conducted the first Lesson Study in grade 4/1, period 3. The lesson was observed by the other two teachers, the senior teacher, an out-side specialist and myself. I audio- recorded the lesson and at the same time me and the other observers and I wrote field notes. On the same day, particularly period 6, the team held a post-class conference to debrief the lesson which lasted for 90 minutes. At the end of the discussion, certain points were agreed upon for further improvement.

4.3 Phase Two (Lesson Two)

The teachers met again on 06.04.2016 and decided upon a lesson and learning outcomes. The lesson was performed in grade two with the topic of 'food items', which involved students revising the names of food and drinks. Teacher (2) conducted the lesson on 13.04.2016 following the procedure that was agreed upon by the

team. The lesson was attended by the Lesson Study group members, the senior teacher and one supervisor. On the same day, a post-class conference was held to debrief the lesson. The senior teacher started the discussion and voiced concern that the lesson lacked some communicative strategies and it was not as challenging as it could have been. Others shared ideas about how to improve their teaching strategies to support students' communicative abilities. At the end of this phase, all members noted the action plan. Consequently, the SET (Senior English Teacher) prepared a workshop about questioning techniques and students English fluency, attended by all English staff. At the end of the session, she provided the teachers with an article about 'Promoting group work & collaborative learning' to be discussed at the following meeting.

4.4 Phase Three (Lesson Three)
With emphasis on the previous comments arising from the second lesson discussion, the teachers met again on 04.05.2016 and planned for the third Lesson Study. One teacher agreed to conduct the lesson in grade one. In this lesson, the team suggested planning a lesson using PowerPoint, as it would liven up the material and facilitate students' interaction in the lesson. The lesson was managed on 11/05/2016 and was based on the Jolly phonics programme. In the post-class conference, which was piloted directly after the lesson observation, the Lesson Study group members discussed the lesson in depth with the knowledgeable other members. At the end of the discussion, the whole group came up with certain comments. On the last day of the Lesson Study implementation, the teachers expressed their interest in this experience and commented that they liked the collaborative work and that sharing thoughts and alternatives approaches together was very beneficial for them. They intended to include Lesson Study in the next semester annual plan and share it with other subject groups.

4.5 Study Participants
Three English language teachers took part in this study, all working at a Cycle One school with varying experience (between 10-15 years). The participating teachers were all Omani female teachers who speak Arabic as their first language and all have a different training background. The students in this study were taken from grades 1-4 Cycle One Basic Education schools. Regarding this study, all classes consisted of Omani students who have an Arabic language backgrounds. The students had completed three years of learning English. The age of the students ranged from 6-11 and the class size ranged from 30 to 32 students. The text books used for the lessons were especially designed for Basic Education. The group of knowledgeable others included two supervisors and one senior English teacher who at the same time acted as a facilitator, given that she was the most experienced member of the group. They were highly qualified and experienced in the Cycle One curriculum. The role of the knowledgeable others was mainly focused on supporting and giving advice for further development, so their role was more developmental rather than judgmental in nature. In other words, their role was mainly focused on supporting and giving advice for further development. There are not any formal or informal reports to be written upon teachers' performance for any types of assessment.

4.6 Ethical Issues
Each teacher involves in this research study self-selected to participate in the Lesson Study group. I have no supervisory role over any of the teachers. I will insure the highest level of objectivity by providing for multiple data collecting tools to limit bias of any one sample. Teachers will be informed that their participation is totally voluntary and they can leave the study at any time. Permission from the principals and the school governorate will be decided as well. The participants are also guaranteed of confidentiality. The researcher will request their permission to audiotape interviews and discussions. Consent forms for teachers as well as parents will be issued.

4.7 Main researcher's role
The researcher in this study was playing an active role and this is in complete harmony with a qualitative approach adopted for this study. Data was collected through classroom observations, post–observation discussions, and participants' field notes. Creswell (2007) assumes that several models of analysis appropriate for understanding qualitative data; he added that most studies will be richer and findings are more convincing when interpretive analytic processes are used. Thus, the observations, reflection sessions and field notes are to be coded, reviewed and analysed. Besides, relations between the data and research questions are to be compared and analysed.

4.8 Research questions and methods for data collection
For the data gathering, mixed methods including qualitative and quantitative case study were used in order to provide a holistic description and analysis of the phenomenon (Merriam, 1998). I am intended to use qualitative analysis to allow me to look at individuals while not losing sight of the social context (Watanabe, 2017:14). Quantive analysis, on the other hand was chosen to analyse the transcripts' data that are based on the teachers' discussions which cannot precisely be recognized in the initial qualitative analysis. To estimate the study's

trustworthiness, the triangulation, (mixed methods) of resources were utilised to explore the influence of the Lesson Study model of professional development. This method is backed by Merriam and associates (2002:202), who ensured that triangulation can be used to collect data through various resources, methods and investigators to provide evidence and confirmation. My role in this study was active and this is in complete harmony with the qualitative approach adopted for this research. Although I did not participate in the post-class conference discussions, my role was to organize sessions with the school administration, audio record all the classroom observations and post-class conferences, as well as write my field notes throughout the three Lesson Study cycles.

Table 1: Research questions and methods for data collection

Research Questions	Data collection methods
1. What improvements, if any, can be observed in the teachers' practice following the post-class conferences conducted within the Lesson Study framework?	• Classroom observations • Audio recording lessons • Field notes
2 . Is there any observable development in the teachers' ability to reflect critically on their teaching performance during post-class conferences conducted in a Lesson Study framework?	• Audio recording post-class conferences • Field notes

5. Data Analysis, Findings and Discussion

I found thematic analysis to be a possible approach that could be used in this study to answer my research questions. Thematic analysis is defined as 'a method for identifying, analyzing and reporting patterns within data (Braun and Clarke, 2006:79). In this study, the themes were identified based on their prevalence across the data set; moreover, the choice of these themes depended on their relevance to the research questions. To illustrate the understanding of the data set through its interconnecting themes and subthemes, Braun and Clark (2006) proposed the following six-phase guidelines which describe the method for organizing the data into themed meanings as shown in Table below.

Table 2: Six-phase guidelines proposed by Braun and Clark (2006)

Phase	Description of the process
1.Familiarise yourself with your data	Transcribe the verbal data (if necessary), read and re-read the data, note down the initial ideas.
2.Generate the initial codes	Code interesting features of the data in a systematic fashion across the entire data set, collate data relevant to each code.
3.Search for themes	Collate the codes into potential themes, gather all of the data relevant to each potential theme.
4. Review the themes	Check if the themes work in relation to the coded extracts and the entire data set, generating a thematic 'map' of the analysis.
5.Define and name the themes	Undertake ongoing analysis to refine the specifics of each theme, and the overall story that the analysis tells, generate clear definitions and names for each theme.
6. Produce the report	The selection of vivid, compelling extract examples, the final analysis of the selected extracts, relating back of the analysis back to the research question and literature, and producing a scholarly report on the analysis.

5.1 Research Question One

 'Can post-class conferences conducted in a Lesson Study framework contribute to improvement in teachers' teaching practice?'

To answer this research question, the transcripts of the pre-research lesson observations (the lessons recorded before implementing the Lesson Study cycles) and research Lesson Study observations (the lessons recorded within the Lesson Study cycles) for the three teachers as well as my field notes were analysed. In the pre-research lesson, teacher (1) has conducted a more teacher-centred lesson whereas in the second lesson most students were involved in the participation even though the weaker ones seemed mostly shy and reluctant to participate. This was evident from figure (2), which demonstrates that teacher (1) could not develop her students to undertake much independent learning in the pre-research lesson. In fact, only (4) minutes were given to students compared with (20) minutes in the Lesson Study class. It was clear from transcript (1), based on the pre-research lesson, that the teacher intervened in the students' learning instinctively, so the presentation stage over dominated the practice one:

Transcript (1)

> T: Where is a giraffe? where is a giraffe? Yes Ahmed…
> Ss: Here…(pointing)
> T: Where is a camel?...a camel...where is the word camel?
> Ss: …
> T: Is this a camel?

In the research lesson; however, teacher (1) has gained some knowledge from her team discussion to take a back seat and provide an extra turn for students to work independently. The reflection during the post-class conference revealed that teacher (1) realised that she needs to vary her teaching techniques and to focus more on the learner-centred approach to allow the students to practice writing on their own, then ask for a group check; for example,

Transcript (2)

> Teacher 1: Yes…I do agree with you…students need more practice by themselves….may be in this lesson the time wasn't enough for more practice… I think the students need more focus on writing…they need a model at the beginning then they have to write on their own

Regarding the teacher's time management, the analysis shows some indications that teacher (1) could prioritise her lesson steps adequately in the research Lesson Study compared with the pre research lesson. The transcripts revealed that she spent most of the time in her pre research lesson eliciting the day, date and the topic title from the students without bearing in her mind the learning outcomes to be achieved by the end of the lesson.

Though grade four students were expected to make full statements and interact with others according to the general assessment requirement from MOE, however, the students used limited spoken language in both lessons, with rather few examples seen in her research lesson. This might be attributed to the fact that this first lesson was highly taught by a teacher-centred approach, where the teacher's talking time was thoroughly recognised throughout the transcripts. As noticed from the transcripts 3 and 4, the teacher already knows the answers, and she was simply testing the students' knowledge by using a lot of display questions. Over-reliance on display questions affected the students negatively, as they were simply inferring from what was written in the textbook or echoing the teachers' words. However, there are a few examples from the research lesson to suggest that teacher (1) has thought about giving more chance to the students to produce meaningful sentences instead of simply echoing what she said:

Transcript (3)

> T: Yes,use the superlative "est", use fastest or slowest
> Ss: Maryam is slowest
> T: Maryam?... Maryam was the slowest?
> Ss: No
> T: yes Mohammed
> Ss: Salim was the slowest

On the basis of the post-lesson discussion of the first research study, the group decided to improve their teaching ability through concentrating on the learner-centred approach, focusing on input and practice, and varying the questioning techniques in the next Lesson Study phase. It appears that teacher 2 used TTT (Teacher Talking Time) excessively which limited the amount of students talking time. There was a limited indication throughout the transcripts of the pre-research lesson that the students have acquired the material, instead, they were solely echoing the teacher's words. It seems that teacher 2 has gained some knowledge from the Lesson Study group discussion on how to refine her way of thinking regarding independent and collaborative learning. It was noticed that more time was allocated to the students collaborative learning compared with her first lesson. An analysis of the research lesson revealed that the teacher could organise more activities and focus more on learner-centred rather than teacher-centred teaching which was evident from the time allocated to group work and the reduction of TTT, as noticed from her post-lesson discussion:

Transcript (4)

> Teacher 2: In this lesson I tried to vary my teaching techniques ….to make my lesson more child-centered lesson ….so I tried to give the students more time to work in groups …. I like the idea when they cooperate with each other and with the other groups …..and try to help each other

Moreover, teacher (2) has shown some awareness in her second lesson regarding using appropriate instructional materials such as realia of food items. With regard to her pre-research lesson, she was mainly focussed on TPR (Total Physical Response), flash cards and word cards. However, as a result of the group discussion in the post-class conference, the teacher varied her materials in the second lesson to stimulate her students to recycle the core vocabulary. Similar to teacher (1), teacher (2) used more display questions which led to limited spoken language on the part of the students. However, in the research lesson, there are some examples of some meaningful negotiation between the teacher and students instead of just recycling and echoing what the teacher said; for example,

Transcript (5)

> T: With whom do you…usually go to   the   picnic? With your
>   father?…mother?…grandma?…sisters? with whom….
> Ss: Father and mother
> T: Yes…with your family…good…do you know the meaning of "picnic"

As a result of the Lesson Study group discussion, teacher (3) has decided to change her teaching routine from the beginning. She started her lesson by discussing the learning outcomes with her young learners who were tried to use simple words to restate the purpose of the lesson with the teacher. Given the limited collaborative activities given in her first lesson, however, the teacher tried to create a competitive and enthusiastic atmosphere in her research lesson instead. She used games, activities and competitions, so the students were engaged with her; for example:

Transcript (6)

> T: …look at here…today we are going to start with…something   …what is this?
> Ss: Bag
> T: Yes …what is inside this bag…guess…what is here in this bag?
> Ss: Ashyaa (in Arabic)
> T: Yes things….like what?....
> Ss: pencil
> T: A pencil…
> Ss: book

In contrast with the previous two research lessons, teacher (3) used PowerPoint as additional digital tool to teach short reading texts to grade one students who were wholly engaged with the material. In contrast with the previous two lessons, however, teacher (3) showed a remarkable improvement in her approach to teaching, demonstrated by the number of referential questions (24) raised in her research lesson compared with the number of display questions (19).

Transcript (7)

> T: So… where do they live?
> S: In the farm
> T: In the farm….do you know hen?
> Ss: Yes
> T: Where do hens live?
> Ss: In the hen house
> T: Excellent…what about horses….where do they live?
> Ss: A farm
> T: What do we call it?
> Ss: A farm house

This result might be attributed to the collaborative work among the team to share insights and experiences together; also it might be attributed to the teachers motivation and their willingness to change.

To sum up, regarding question one, the data indicated some improvement in teachers teaching quality practices throughout Lesson Study lessons compared with the teachers lessons observed before the Lesson Study implementation. On the basis of the recorded materials, the data revealed that the teachers, progressively, have acquired some knowledge that assists them to follow up rich post class conference. That was clearly evident in the performance of the third teacher, who was overwhelmed to improve her teaching performance.

5.2 Research Question Two
' Can any development be observed in teachers' ability to critically reflect on their teaching performance during post-class conferences over the period of the study'
To answer research question two, three post-class conferences were recorded. This procedure was followed by writing transcripts of the recorded material. The data transcripts of the post lesson conferences were analysed by using the Revised Bloom Taxonomy, introduced by Anderson et al. (2001). The hierarchical, categorised and sophisticated framework of the Bloom Taxonomy assisted in analyzing and rating teachers' reflection level and providing rationale for each particular category. Then, the transcripts of each teachers' reflection was analysed into two categories: a high level of reflection (which includes analyse, evaluate and create) and a low level of reflection (which includes remember, understand and apply).
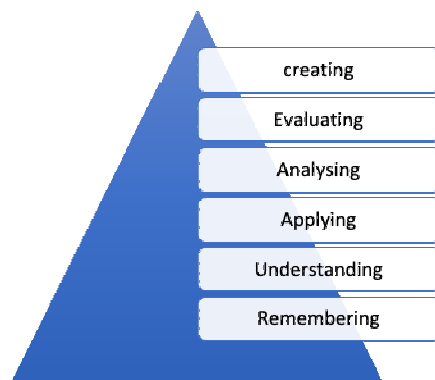
Figure 3: The Revised Bloom Taxonomy, adapted from Anderson et al. (2001)

Table 3: Reflective questions based on the revised Bloom Taxonomy, adapted from Papass (2013):

Revised Bloom Taxonomy		Teachers' reflection
Remembering	What did I do?	What was the lesson? Did it address all the content? Was it completed on time?
Understanding	What was important about what I did? Did I meet my goals?	Can I explain the major components of the lesson? Did I follow best practices and address the standards?
Applying	When did I do this before? Where could I use this again?	Did I build on content, product or process from previous lessons? How does this lesson scaffold the learning for the next lesson? How could this lesson be modified for different learners?
Analysing	Do I see any patterns or relationships in what I did?	What background knowledge and skills did I assume students were bringing to the lesson? Were the instructional strategies I used the right ones for this assignment? Do I see any patterns in how I approached the lesson?

Revised Bloom Taxonomy		Teachers' reflection
Evaluating	How well did I do? What worked? What do I need to improve?	Were my assumptions about student background knowledge and skills accurate? Were any elements of the lesson more effective than other elements? Did some aspects need improvement? Were the needs of all learners met?
Creating	What should I do next? What's my plan?	How would I incorporate the best aspects of this lesson in the future? What changes would I make to correct areas in need of improvement?

Table 4: Category of teacher's reflection according to the revised Bloom Taxonomy:

reflection category	Revised Bloom Taxonomy	Teacher 1	Teacher 2	Teacher 3
Low level of reflection	Remember	19	16	7
	Understand	10	9	8
	Apply	9	8	15
High level of reflection	Analyse	9	9	14
	Evaluate	8	10	13
	Create	3	2	3

The lessons taught and discussed by a group of teachers during the process of Lesson Study provide various opportunities for critical reflection on the part of the teachers. The second question of the study is to investigate if any development can be observed in the teachers' ability to reflect critically on their teaching during the post-class conference throughout the process of Lesson Study. The Revised Bloom Taxonomy (Anderson et al., 2001) was adopted as a framework for analysis of the quality of the reflection.

The results from figure (5) revealed that the whole six categories of the Revised Bloom Taxonomy were noted and identified across the provided data. The overall analysis of the transcripts revealed that there exists a level of reflection over the three phases of the Lesson Study. The existence of the whole levels of the taxonomy throughout the transcripts suggests that the teachers have gained some confidence to extend their strengths and work on their weaknesses through reflecting upon their performance in the classroom. The data suggest that

there is a high frequency of using the 'remembering category', which is considered as a low level of reflection, particularly for teachers 1 & 2, (19) and (16) respectively. On the other hand, the other categories remain stable at approximately the same level of reflection. For example, both teachers scored between (8-10) for evaluation, analysis, application and understanding, which indicates a gradual but stable development towards a high level of reflection. That might be due to the major role of the group discussion and the knowledgeable others who were enhancing and prompting teachers to share and make attempts at 'evaluating', for example,

Transcript (8)

> Teacher 1: yes, it is important because the children can't say sentences ….and they need more group

Moreover, when it was commented by the group that the students were in need of more writing practice since, only two of the five groups were able to complete the task, this point empowered the teacher (1) to think deeply about the reason and let her work out the reasons why the task was not completed. Thus, she said, she moved from 'remembering' level to 'evaluate' level, as she said:

Transcript (9)

> Teacher 1: The mistake was I put "fastest" without
>   "the" and put the name [first]

Besides, she could propose some recommendations as an action plan for further improvement. She said that students need more focus on writing. They need a model and to be given more chance for students to write on their own.

Transcript (10)

> Teacher1: I think the students need more focus on writing...they need a model at the beginning
> then they have to write on their own

What the teacher suggested and recommend in her post-class conference indicates that, she has gradually moved from the remembering level of reflection to analysis and evaluation although the 'remembering' is dominant. In other words, the teacher has gained some awareness and confidence from the experience of negotiation with others and ultimately tried to improve her teaching through reflecting upon her performance. In contrast, teacher (3) significantly marked the highest level of reflection as she scored (14) and (13) for "analyse" and "evaluate" respectively. The data shows that teacher (3) has gained considerable confidence and willingness to share insights in comparison to her colleagues. In other words, teacher (3) could shift her attention from a primary focus on recalling and stating what just she did, for example,

Transcript (11)

> Teacher 3:…the learning outcomes have been achieved…the students are able to revise the sounds and they
>   could blend some words and they could read the text and… I read with them the first 2 sentences and then I
>   let them read the rest on their own…so they could read the text by themselves

Gradually, teacher 3 moved to more developed stage of analysing and evaluating of her students' needs, for example,

Transcript (12)

> Teacher 3: ….when we were planning the lesson,….I except the students to hear the sounds of the song, play with the song and hear the reading text…but...unfortunately I missed that today…because the recorder didn't work properly

This result might refer to the sufficient time given to the third teacher to learn from the process in comparison with her colleagues who did not have the same amount of time. What was interesting from the data presented is that all of the teachers approximately earned the lowest scores for the 'create' category. According to my assumption, this might be attributed to the fact that the teachers have not been very well trained to generate their own action plans at the end of the discussion; instead, they have been accustomed to receiving their action plans from the senior teacher who has the authority to recommend the required training for the teachers.

To sum up, the analysis of the lesson conferences indicates that the teachers' classroom practices continued to be refined and developed since they were involved in continuous discussion and problem-solving practices through the Lesson Study process. The combination of mixed experiences shows some evidence to facilitate the outcome of Lesson Study implementation and provide guidelines through helping the teachers to be more conscious and critical about their own instructional strategies. What is significant is that the collaborative team was not only pointed out the areas for improvement in the lessons but also affirmed areas which were effective and meaningful. Unlike the traditional way of reflection in individual post lesson discussion, where the teachers simply self-reported and the role of the supervisor is predominant, the teachers in the Lesson Study process practised a collaborative and developmental way of reflection.

6. Conclusion

The objective of this study was to investigate whether the Lesson Study approach has an effect on teacher's professional development across Lesson Study classroom conferences.

With regard to question one, about the improvements could be observed in teachers' practice as a result of post-class conferences within the Lesson Study process, the data revealed a gradual improvement in teachers teaching quality practices throughout Lesson Study lessons compared with the teachers lessons observed before the Lesson Study implementation. The findings show that the teachers have moderately gained some knowledge to recognise their strengths and weaknesses throughout the Lesson Study discussions, which in turn, helps them to conduct successful research lessons according to the recorded materials analysis. The improvement, according to the documented materials, was seen in the third teacher's lesson. With constant support from her colleague and knowledgeable others, she succeeded in conducting a well-structured lesson, paying notable attention to the learners needs and learning styles. Throughout the Lesson Study, the teachers acquired more knowledge of pedagogy, enhancing their capabilities in preparing and presenting better lessons.

In regard to question two, it was shown that collaborative reflection among the Lesson Study team enhanced the teachers critical reflection. Although the data analysis demonstrated that two teachers still remain in the low-level category of reflection, at the beginning of the process phase, the third teacher, however, showed a significant improvement in her reflection level. The examined data demonstrated that collaborative reflection among the Lesson Study participants helps teachers to view and analyse classroom outcomes aside from personal or critical views. Teachers have acquired some knowledge to improve and modify their teaching practice through sharing their reflections with others, given that they have been provide ample opportunity throughout the Lesson Study phases to look back and review their classroom events deeply and precisely with both their colleagues and outside assistants.

From the theoretical perspective, the results of this study confirmed what Vygotsky (1962) hypothesised regarding the importance of sociocultural theory: learner construction of knowledge is the product of social interaction among a group which is highly visible in this study through the collaboration among the Lesson Study group. Moreover, the study emphasised the significant role of speaking and thinking, as Vygotsky (1962) affirmed, which interwove the teachers' experience in this study as an example of the inter-functional relationship for further understanding and knowledge acquisition. In other words, teachers have a dual function, according to the Vygotsky's sociocultural theory, first while reflecting upon their performance in the post-class conference to share ideas and thoughts regarding their teaching practice; and later, the teachers try to put into practice their own assumptions based on what they have agreed in the discussion to improve their teaching practice. The findings support Vygotsky's assumption regarding the zone of proximal development. Thus, there was a kind of negotiation between the teachers and knowledgeable others in which the later tend to help teachers through discussions, including mediation, to take on additional responsibility to move from the zone of 'social regulation' to a new level of self-regulation (Wertsch, 1991), or in other words "self-reflection" through problem-solving to explore what works and what does not (Rogoff, 1995). Under the notion of ZPD, as Wilhem et al. (2001) assumed, with enough assisted practice given by collaboration with colleagues, within a post-lesson discussion, the teachers gradually internalised the strategies for gaining the knowledge about teaching practice with the scaffolding of knowledgeable others, a notion affirmed by (Collins, Brown, & Newman, 1989).

Added to this, the outcomes emerged from this analysis confirmed what Oshima et al. (2004) hypothesised in the literature: that Lesson Study can cause a remarkable improvement in teachers' quality of teaching through a 'reflexive', recursive and collaborative process which forms a key part of the professional inquiry and provides a structure to enable colleagues to craft knowledge (Fernandez & Yashida,2004). Furthermore, the amount of reflection emphasised the two types of Schon's (1983) assumptions which are 'reflection in action' or 'thinking on your foot' and 'reflection on action', although the reflection on action type has been significantly viewed in the post-lesson conference and has a notable impact on the teachers ability to improve. Schon's conjecture of 'reflection in action' and 'on action' has been evidently demonstrated throughout the discussions carried out by the teachers to illustrate the teachers' 'trial' and 'error' to move towards purposeful 'on the spot decisions' for professional improvement.

The findings presented in this study suggest that professional experience through the collaborative Lesson Study model can provide a worthwhile platform for Omani teachers to strengthen their teaching practice and reflective learning. However, it is clear that this takes considerable time and effort. In light of this result, the benefit of adapting Lesson Study in the Omani context is apparent, and certainly another broader investigation would only offer more assurance.

7. Lesson Study adaptation in Omani context

The results of this study suggest that individual development is built a long-term process, connecting teachers to the current classroom contexts and provide opportunities for classroom observation and discussions with colleagues. This study also provides additional perspectives on how to view in-service professional development in Oman. Thus, Lesson Study is considered an opportunity that stakeholders might examine as a reform policy for teachers' professional development since it fits with current calls for a more bottom-up collaborative approach. Besides, the Lesson Study process should not only to be implemented in the Ministry of Education as

in-service professional development but also in the Ministry of Higher Education with pre-service teachers as proposed by Cerbin and Kopp (2006). Moreover, evaluating the current teachers' professional practices is highly needed. The current study offers a glimpse into Omani teachers' future professional development. For a better teacher's practice, there should be a stronger connection between the training and classrooms, which are considered an arena for teachers' professional growth. The MOE should also pay a considerable attention to the school-based activities. The current teachers' perceptions of certain current school-based activities, such as team teaching, peer observation, model lesson and action research, raise additional concerns for Omani educators, particularly, those from the Supervision Department. The study also shows that the Lesson Study purpose is not to plan a perfect lesson, but rather, to follow an inquiry-based process of continuous improvement, so 'mistakes can be treasures' (Perry and Lewis, 2008:380). The process of LS in this study led to a change in the Omani teachers' way of thinking regarding the importance of investigating learning rather than teaching and raising awareness about students' learning. Therefore, the teachers could review their instructional knowledge and consider their assumptions about their own students.

8.   Acknowledgement

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