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Research Article

Implementing the Japanese Lesson Study as a professional development tool in South Africa

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Abstract

Continuous professional development is an integral part of the professional life of teachers since learning is a life-long activity. Lesson study is a practical approach to promoting teachers' professional development. Lesson study refers to teachers' classroom-based collaborative research to bring teachers together to work collaboratively to plan a lesson. In South Africa, there is a dire need for teachers' professional development due to many challenges in professional development in this country. However, there is very little documented research into the implementation of lesson study in South Africa. This study explored the Japanese Lesson Study to improve teaching quality and to learn in South Africa. The researchers adopted qualitative research with an interpretivist paradigm to explicit participants' experiences of lesson study. A purposive sampling technique was employed to select three participants in a school from Gauteng Province, South Africa. The findings revealed that participants appreciated the workshop and gained knowledge of a good understanding of the lesson study. All the participants acknowledged the awareness of their professional development as a motivating factor for them to continue to plan and work together. The researchers recommended that lesson studies be implemented with teachers from different grades and phases. School leaders should become ambassadors for setting up communities of practice within their schools, districts and provinces. Further studies should be carried out with similar grades in a phase and also in phase planning.

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Introduction

Continuous professional development (CPD) is an integral part of the professional life of teachers. Many teachers in South Africa are desperate for ongoing (PD) since learning is a lifelong activity. The Department of Basic Education

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(DBE, 2011) promotes the creation of professional learning communities (PLC) as a school-based programme and initiative to promote professional teacher development. This is well articulated in the Integrated Strategic Planning Framework for Teacher Education and Development in South Africa 2011–2025 (ISPFTED) (DBE, 2011), which encourages all school principals to become active participants in promoting professional learning communities in their schools. According to Avalos (2011), PD is an essential process that envisages knowledge promotion and growth. The knowledge gained through PD programmes enables teachers to practice it for their learners' benefit. Despite the department's vision of CPD and the establishment of learning communities, there are many challenges to quality PD in South Africa. Many teachers who enter the world of work find themselves unprepared to teach the subjects allocated to them (Deacon, 2016).

Furthermore, according to Green et al. (2011), these newly appointed teachers were not given or exposed to PD training or workshops in South Africa. Deacon (2016) further reported that many newly appointed teachers are often given subjects to teach that were never specialised. To support professional teacher development, the researchers explored various strategies for improving the teaching practice. The researchers identified the Japanese Lesson Study, also known as '*Jugyō Kenkyū*', as a potential approach to enhance teachers' PD in SA. Since lesson study has been effective in Japan and improved the quality of teaching and learning, the researchers agreed on the importance of exploring participants' views and attitudes towards lesson study in South Africa.

Lesson Study as A Professional Development Strategy

What is Lesson Study?

Lesson study is typically defined as teachers' classroom-based collaborative research, which has its history in Japan, starting with Stigler and Hiebert's work which identified best practices from around the globe for improving classroom practice. It is viewed as a shared professional culture with the opportunity and potential to promote and enhance learning, enrich classroom activities and transform the school environment (Arani et al., 2010). Although lesson study as a professional teacher development practice originated in Japan decades ago, this practice is rapidly gaining popularity globally. Although there are many national and international variations of lesson study, the aim is to bring teachers together to work collaboratively to plan a lesson based on a common goal to be achieved. Most lesson studies, according to Groves et al. (2013), consist of the following essential components: the formulation of goals; group formulation of the lesson plan to achieve the goal; presentation of the lesson by one team member while other observe; group discussion and reflection; refinement and strengthening for the next group member to present the lesson. This follows a cyclic process. According to Fujii (2016), the lesson may be drafted before the initial group meeting in the Japanese context. This approach allows for robust and intense discussion of the lesson. Takahashi and McDougal (2016) explain that participants who join a lesson study session usually come to learn something new and novel, not only to refine a lesson. Lesson study is viewed as a highly collaborative model that encourages the development of a community of teachers willing to come together, share ideas, reflect upon their teachings and improve their practice (Stols & Ono, 2016).

Lesson study continues to show promising results for teacher and teaching enhancement (Hiebert & Stigler, 2017) and efficacy for the development of teacher's pedagogical content knowledge (PCK) (Coenders & Verhoef, 2018). Hervas and Medina (2020) state that lesson study consists of a standardised, cyclical process undertaken by a group of teachers. During the lesson study engagement, teachers carry out the following phases or steps:

- Set goals for the research lesson according to the subject, topic, students' knowledge gaps or learning challenges.
- Design the research lesson (instruction, methodology, activities, materials) that teachers will conduct so they can later analyse the research lesson.
- Implement the research lesson while the rest of the group observes and collects data according to the inquiry proposal.
- Reflect collaboratively in a post-lesson discussion.

Hervan and Medina (2020) emphasise that lesson study is a cycle of phases in which the original research lesson is created, deconstructed and reconstructed (reviewed, refined, designed and strengthened) for implementation (see Figure 1).

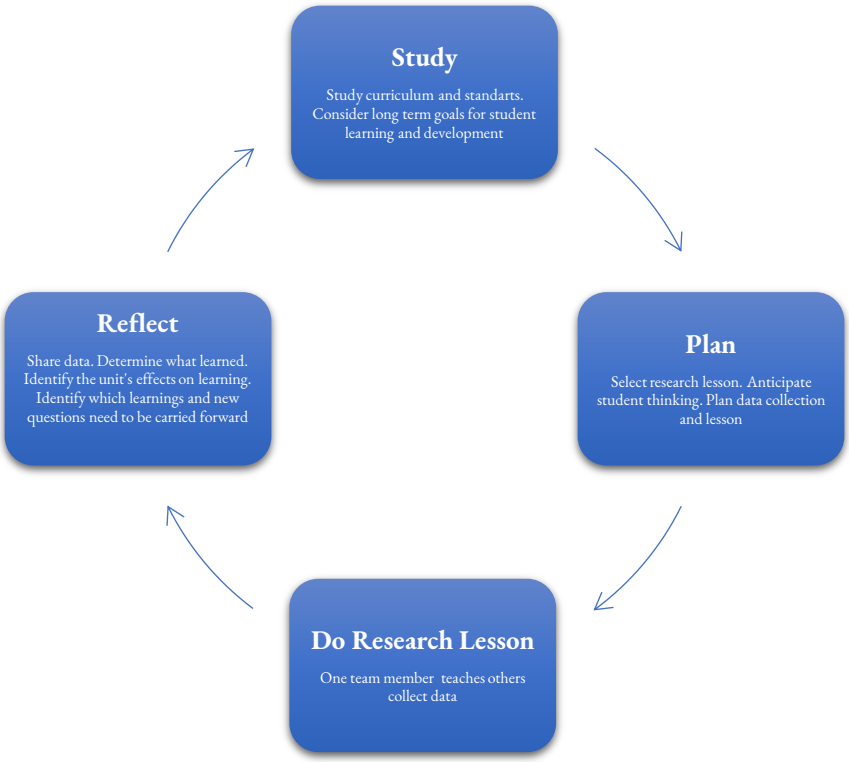

Figure 1. *Lesson Study Cycle adapted from Lewis (2008)*

Importance of Professional Development

Professional development is the term used in education to describe the activities that enhance the knowledge and skills of those in the workforce (Buysse et al., 2009). It involves the development of competence or expertise in a profession and the skills needed to improve performance in that profession (Department of Higher Education and Training [DHET], 2016). Effective PD implies both a change in teacher knowledge and practices and a change in the outcomes of learner learning (Darling-Hammond et al., 2017). Within the context of the proposed research, PD includes the LS activities in which teachers engage that are designed to improve their expertise and overall teaching quality.

"Professional development is the process whereby people's professionalism may be considered to be enhanced, with a degree of permanence that exceeds transitoriness" (Evans, 2014:17). In expounding this stance, PD implies a change in the behavioural (work performance), attitudinal and intellectual (professional-related knowledge) orientation of teachers (Evans, 2014). PD is, therefore, a multi-dimensional and personal process, moving beyond merely changing teachers' outward behaviours to changing their inner mindsets. PD can be characterised as a process whereby teachers learn (knowledge and skills), then learn about learning (pedagogical content knowledge) to transform this knowledge into practice that benefits their learners, ultimately allowing teachers to become better at what they do (Avalos, 2011, DeMonte, 2013; Yoonet al., 2007).

Teachers' PD is addressed in the Department of Basic Education's (DBE) (2015) Action Plan for 2015–2019. The goal of improving professionalism in teaching (goal 16) describes the DBE's vision to strengthen and improve teacher capacity in the country. This goal confirms the DBE's Integrated Strategic Planning Framework for Teacher Education and Development in South Africa 2011–2025 (ISPFTED) (DBE, 2011). Although it is common practice to plan PD around new teaching practices or ideas, PD should begin with a focus on student outcomes (Guskey, 2014; Patton et al., 2015). Dufour (2004:6) aptly describes the fundamental purpose of education as "not simply to ensure that students are taught but to ensure that they learn". If teachers take the time to investigate what their learners are learning, their PD can be more specifically targeted to improve their lessons and assessments (Stewart, 2014). It has been suggested that teachers use their classroom assessment results as a comparative platform to determine the percentage of learners who

are improving in proficiency and establish learner-centred PD (DuFour, 2004; Guskey, 2014). Brodie (2013) describes how, through the analysis of learner errors, teachers can understand their learners' needs and begin to understand their own needs as teachers by identifying their own conceptual and educational gaps.

Lesson Study and Professional Learning Communities

According to the DBE, the ISPFTED strategy envisions multiple approaches to strengthen the PD of teachers in South Africa. One stream of thought involves establishing professional learning communities (PLCs) in schools (DBE, 2011). The plan acknowledges that realising this goal requires external input by introducing well-trained facilitators. It is believed that these PLCs would allow teachers to integrate their professional knowledge with cutting-edge research and help teachers keep track of development trajectories. Furthermore, PLCs would enable teachers better to understand the use of the curriculum and textbooks.

Although the ISPFTED predicted that "subject-based and issue-based PLCs [will be] widely established" by 2017 (DBE, 2011), there is very little evidence of this at the school level. The time is ripe for LS to come onto the South African stage, as it fulfils all the criteria of a well-tried and reliable method for establishing PLCs within schools and districts. With a growing body of evidence proving that LS is a highly effective and flexible method of teacher development (Cajkler et al., 2014; Dudley, 2013; Lewis et al., 2012; Hunter & Back, 2011), South Africa is lagging in implementing, analysing and documenting this PD tool. LS tempts us with a pragmatic road map for PD, which fits into the larger plan of the DBE (DBE, 2011). However, like with any map, without those brave enough to attempt the journey, the destination will always remain a theoretical possibility and not a proven reality.

Aim and Problem of Study

This paper aimed to explore teachers' experience of lesson study as a PD tool within a South African context. Effective teaching acts on learner success. The DBE has proposed improving teaching practice through the ISPFTED, but there have been some challenges. One such challenge is the poor course quality offered based on the top-down approach, and a second is the lack of know-how to create collaborative learning communities from the bottom up. These challenges set the stage for implementing Japanese LS as a PD tool at the school level. This is still a relatively undocumented and emerging approach in the South African context.

Methods

Research Model

Since the researchers aimed to elicit participants' lived experiences (interpretivism), a qualitative research method of a descriptive nature was adopted for this study. Maree (2020) states that interpretivism is the participants' subjective view, allowing them to discuss their experiences without inhibitions or restrictions. In line with Smith et al. (2009), this approach implies recognising the authentic and unique reading of the valuable experiences that need to be represented. In this context, the descriptive research design, the researchers were able to elicit a detailed account of the participants' lived experiences regarding lesson study, its benefits and challenges in a South African context. According to Yin (2018) and Venketsamy and Hu (2022), case studies offer researchers the opportunity to intensely study a person or a group of people to gain a deeper understanding of the phenomena (lesson study as a PD tool). In this study, the participants were from the Early Childhood Education, a school in Gauteng that accommodates learners from Grades R-2.

Participants

The participants in this study consisted of three (3) teachers, all from Grade 1 class of the same school. The table below presents the three participants in the study. There is evidence that these participants have numerous years of experience, except for one teacher, who was newly appointed at the school. All teachers had their specialisation and qualification in Foundation Phase teaching. All teachers had an NQF 7 qualification, a minimum requirement for teachers in a South African school. All participants in this study were white females teaching in a well-established and resourced school in an upper socioeconomic area in Gauteng. In most Early Childhood Education and Foundation Phase, more female

teachers are employed than males; however, this situation is gradually transforming in South Africa, where male students enter the profession as Foundation Phase teachers.

Table 1. *Structure of Participants*

Participant number	Current grade of teaching	Years of teaching experience	Qualification level	Currently, teaching phase in which she specialised?	Code
1	Grade 1	19	NQF 7	No	T1-G1-F
2	Grade 1	1	NQF 7	Yes	T2-G1-F
3	Grade 1	14	NQF 7	No	T3-G1-F

Data Collection Tools

Data were collected from semi-structured interviews and classroom observations. Before the semi-structured interview, the researchers organised a workshop on lesson study with the participants.

Workshop on Lesson Study

The workshop on lesson study aimed to discuss and provide a background to lesson study. This workshop was conducted on 1 April 2019 for 2 hours with teachers. In this mini-workshop, participants were allowed to discuss lesson study, collaboration and implementation at the classroom level. Once the workshop was completed, the participants were informed to implement their learnings into a classroom situation. Participants were given a month before the interviews were scheduled to elicit their experiences. Interviews took place on 25 May 2019.

Semi-structure Interview Form

The researcher developed the semi-structured interview form, which focused on participants' experience of lesson study within a South African context (Annexure 1). The semi-structured interview form asked questions about the understanding of lesson study, their views of lesson study implementation and how they would like to be supported to use lesson study as a PD tool effectively. Also, one question focused on the challenges of lesson study. To ensure that the questions were appropriate for this study, the researcher followed the guidelines proposed by Maree (2020), that questions should be open-ended to allow participants the opportunity of sharing their lived experiences; use language that the participants can understand; avoid negative or leading questions and keep questions as short as possible. To ensure the validity of the questionnaire, it was presented to two staff members in the Early Childhood Education Department at the University of Pretoria to critique and advise whether the questions were clear, concise and unambiguous. Since there were no severe modifications, the researcher agreed that the instrument was valid and could be implemented.

Data Analysis

To analyse the data and identify appropriate themes and subthemes, the researcher employed Creswell's steps in data analysis. All the data were transcribed and analysed by organising and sectioning responses into units, synthesising them, identifying patterns, and ascertaining which data was essential and needed to be shared (Creswell, 2014).

Ethics

The University of Pretoria granted ethics approval to conduct this study (Ref EC 19/09/01) and the Gauteng Education Department. For ethical purposes, the researchers reached out to each participant with a formal letter of invitation outlining the project and requesting their participation. Participants had to sign the consent form agreeing to participate in the study. They were informed of voluntary participation and were not obligated to remain throughout the study. All three participants consented to participate in the face-to-face interview. They were guaranteed anonymity and confidentiality of their participation. They were informed that during the reporting phase, pseudonyms would be used. The table above presents the codes used in the findings section of the study.

Procedure

The researcher conducted the group workshop and, after that, one group interview of approximately 40 minutes with the three teachers. The group interview allowed participants to share their personal experiences of lesson study in the classrooms. The group interview also made participants aware that the other participants shared the challenges they experienced. Interviews took place in May 2019 at the schools where the staff were employed. All interviews took place after school hours to prevent disrupting class time. The interview with the subject advisor was arranged, and the researcher and the subject advisor met at the school.

Results

Implementing Japanese Lesson Study as a Professional Development Tool in South Africa: Teacher's Experiences

Implementing Japanese lesson study as a PD tool in South Africa was categorised into two broad themes: teacher's knowledge and understanding of lesson study and teacher's experiences in implementing lesson study in their classrooms. In the context of this paper, verbatim quotes are used as evidence in the results, for these allowed for authentic representations of the participants' voices.

This section presents findings that emanated from the participants' responses regarding lesson study in a South African context.

Theme 1: Teacher's Knowledge and Understanding of Lesson Study

The Japanese lesson study (*Jugyō Kenkyū*) is a relatively new concept in South Africa as a tool for professional teacher development. Since most South African teachers are desperate and eager for CPD and the sharing of good practice, the participants in this study indicated they were keen and showed enthusiasm and confidence to participate. During the workshop session, each participant stated;

> T1-G1-F, "*I have been in the system for almost two decades and am always looking for new ways to improve my teaching and learning. I am delighted that I am getting an opportunity of experiencing a different kind of teacher development programme, 'Lesson study'.*"
>
> T2-G1-F, "*I am a first-year teacher, and this training will definitely improve and shape me into a better teacher. I am looking forward to lesson study*."
>
> T3-G1-F, "*I am always eager to attend workshops and training for my own growth and development. This is a good opportunity to learn about a Japanese approach to teaching and learning. We can only improve our teaching in the classroom by learning good practices from other countries*."

From the participants' voices, it is noticeable that there is a high degree of eagerness for growth and development among the participants.

During the workshop session, the researchers asked the participants to share their understanding of the concept of lesson study'. According to T1-GR-F, *"My understanding of lesson study is taking a lesson and studying its different components, that is the planning, time allocation, content to teach and resources."* T1-G1-F stated, *" I think is it about how you teach a lesson to your class, what methods you use in the early grades, for example, group work, whole-class teaching or individual teaching."* T1-G2-F mentioned that *"it is about studying a lesson and improving it each time. Trying something new with the lesson*."

The researchers observed that participants had some understanding of the lesson study and explained to them that their interpretation of 'was acceptable'.

The interviews with the participants took place on 25 May 2019, giving them enough opportunities to work collaboratively and implement lesson study in their class. Post the workshop; there was overwhelming enthusiasm and response regarding their understanding of 'lesson study'. According to T1-G1-F, she stated,

"*Lesson study is about all teachers coming together and planning a lesson. All the teachers own this lesson in the phase for a particular grade.*" T2-G1-F, "*Agreed with T1-G1-F. However, she went on further to indicate that lesson study is about collaboratively working together to improve on a lesson. It is more than just planning a lesson together, and it is about sharing ideas and improving on the ideas.*" In her response, T2-G1-F said, "*How I understand lesson study is more about learning from each other. It is about planning, sharing ideas, teaching, observing and improving the lesson. In the end, we all must develop a final lesson that will be the best.*"

T1-G1-F also added,

"*Lesson study is about developing the best lesson and eventually sharing that lesson with other teachers. To me lesson study is about developing a model lesson which any teacher can take and use in their classroom.*"

The researchers have observed that the participants had a good understanding of the concept lesson study.

Theme 2: Teachers' Experience in Implementing Lesson Study

After the workshop on lesson study with the participants, they were informed that they needed to work together, develop their lesson, and implement it in their classes. The researchers asked the participants to share their experiences of the lesson study. All participants, T1-G1-F, T2-G1-F and T3-G1-F, concurred that the lesson study experience was a positive and enlightening experience for each of them. T3-G1-F said,

The lesson study experience helped me to learn so much from my colleagues. I used to plan my lessons independently and thought they were the best ones. Working with my colleagues, I realised that sharing different ideas about a lesson has helped me improve my teaching and presentation of lessons to my class.

T2-G-F mentioned

Being new to the profession, I have gained much from my two senior teachers. They shared different approaches to teaching a maths lesson. My experience was positive, and I am excited because the final lesson was much better than the one we initially planned. Each time we met, our lesson improved, and we had new ideas and used different resources to teach our lesson.

According to T1-G-F, she said,

My experience of Japanese lesson study is so phenomenal. I am pleased to work collaboratively with other teachers and share ideas and good practices. The lesson study meetings encouraged me to research the latest methodologies to teach maths [since this was the lesson we planned]. I am now looking at how other teachers are approaching lesson studies in their countries, which has given me new insight into teaching and learning.

The response from the participants was encouraging. The researchers probed to enquire the process the participants followed regarding lesson study development, planning, implementation and reflection. The process the participants followed was cyclic. Figure 2 below illustrates the lesson study process followed by the participants.

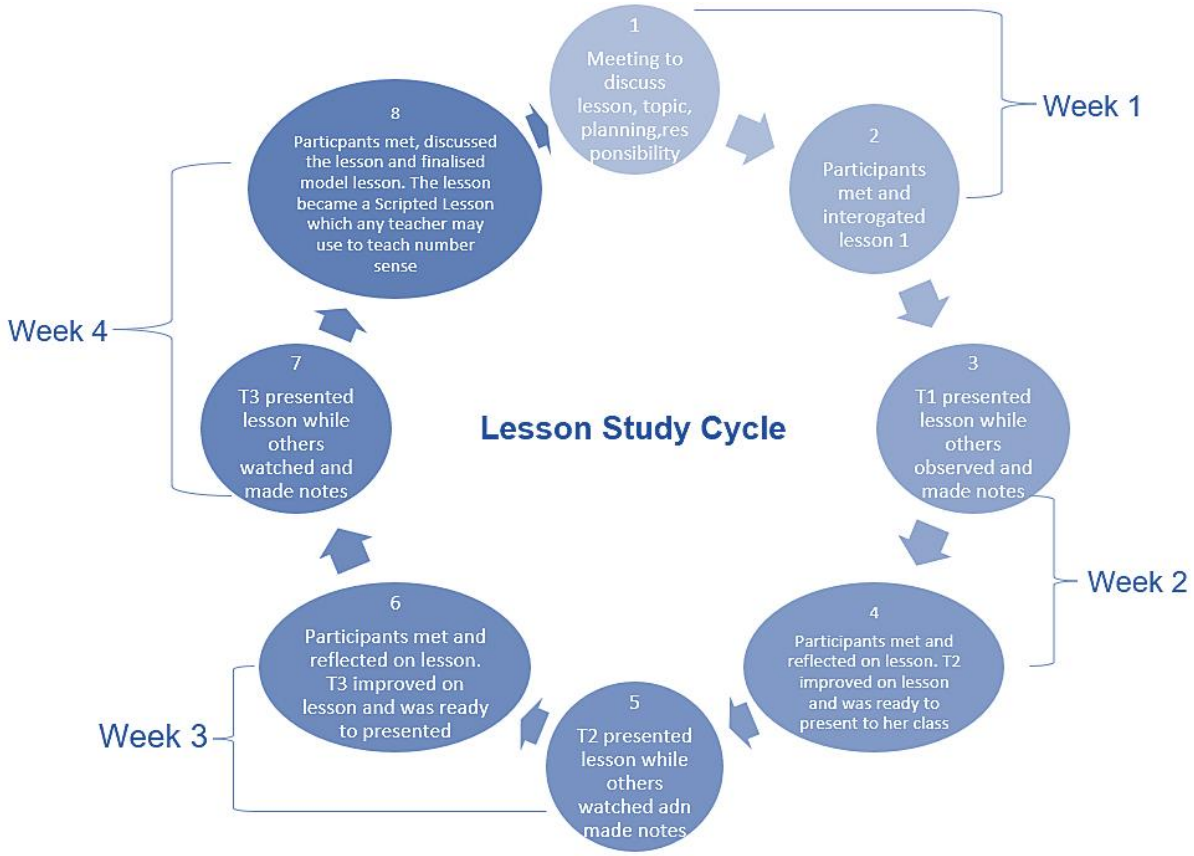

Figure 2. *Lesson Study Cycle*

Step 1: According to the participants, they initially met and discussed the lesson, topic, activities, presentation approach, resources and assessment. They then decided that T1 would prepare the first lesson on number sense and present it for discussion with T2 and T3 in the next meeting.

Step 2: In this meeting, the participants reviewed the lesson, and it was T1's responsibility to present it to her class. The other two participants would observe and make copious notes on the presentation, content, learner involvement, activities, use of resources, and assessment.

Step 3: T1 presented the lesson to her class while participants T2 and T3 observed the lesson.

Step 4: All the participants met and reflected on the lesson presentation. They provided feedback and worked collaboratively to improve the lesson. T2 was responsible for improving the lesson to present to her class.

Step 5: T2 presented the lesson to her class while T1 and T3 observed the lesson.

Step 6: All the participants met and reflected on the lesson presentation by T2. They provided feedback and worked collaboratively to improve the lesson. T3 was responsible for improving the lesson to present to her class.

Step 7: T3 presented the lesson to her class while T1 and T2 observed the lesson.

Step 8: All the participants met and commented on the lesson. Feedback was given and the team worked enthusiastically together and strengthened the lesson. This lesson was finalised and the team agreed that the various inputs and comments from the participants improved the final lesson. The final lesson became a Scripted Lesson Plan for other teachers to use.

Although the lesson cycle was long and took almost a month to finalise, the participants stated;

> *The lesson study cycle was a worthwhile activity, allowing them to observe each other's lessons and interactions in the different classes. Each meeting helped strengthen the lesson and the outcome was a 'polished lesson'.*

To delve into the participant's learning from the lesson study process, the researchers requested the participants to share how they have grown or developed through the lesson study process. The participants indicated that their content knowledge was improved through the lesson study process. T2-G1-F said, "*Through collaboration, reflection and discussion, I realised that my content knowledge of early number sense has increased exponentially*." The interviews showed

several clear examples of how the lesson study process improved content knowledge. The teachers' mathematics vocabulary was enhanced, and they began to understand that mathematics has its language made up of signs and symbols.

Participants also indicated that the lesson study process had impacted their pedagogical content knowledge. All the participants agreed that sharing tips and ideas revealed diverse pedagogical approaches to teaching mathematics among teachers. T1-G1-F stated,

> *While observing both T2-G1-F and T3-G1-F, I have noticed that different educators approach lessons differently. Introducing stories, rhymes, and songs was a brilliant idea to excite the learners for the mathematics lesson. I enjoyed the counting rhymes and bingo [to help learners identify numbers]. This is something I would use in my future lessons.*

The participants, especially teachers who were more than a decade in the system, stated that pre-existing didactic approaches often stifle teachers' teaching and learning. It became apparent that some teachers had a very structured outlook toward teaching mathematics. Their teaching style can be described as more dependent on worksheets and meticulous handwriting, developing fine motor control or emergent literacy. Collaborative planning and reflection allowed participants to reflect on their teaching approaches.

Another phenomenal development among teachers is relying on as minimal textbooks as possible. All participants agreed that a wealth of knowledge, experience and ideas exists within the phase. The lesson study approach allowed participants to 'tap into' each other's knowledge and experience of teaching number sense in the early grades.

The lesson study process opened up the conversation and thinking that reinforced the link between teaching and learner understanding. Participants agreed that each class of learners is different; therefore, lessons should be adapted to accommodate all learners and their different learning styles.

From the participants' quotes, it is encouraging to note that the lesson study has positively impacted all participants. To probe further into their experiences, the researchers asked the participants what some of the challenges they experienced with lesson study were. According to T2-G1-F, she said, *"In the beginning, it was overwhelming and scary for me. I am a newly qualified teacher, and I have to teach a lesson in front of my more experienced colleagues."* T1-G1-F and T3-G1-F both indicated that their challenge was the lesson study cycle. The cycle required all teachers to meet and discuss the lesson at each week's end. They both agreed that time was a significant challenge for them. Despite this challenge, the participants agreed they needed to meet weekly to improve their lesson study.

Figure 2. *Teachers Engaging in LS Planning Source: https://www.sec-ed.co.uk/best-practice/running-your-own-lesson-study/*

Figure 3. *SA Teachers in Japan: LS Reflection Author's own Photo in Japan with Delegates*

Discussion

The findings revealed that participants appreciated the workshop and felt they gained knowledge regarding a good understanding of lesson study. The initial workshop with teachers on lesson study profoundly impacted their knowledge and understanding of the concept of lesson study. According to the DBE (2011), initial meetings and workshops before any programme impact teachers' knowledge and understanding of the phenomena. Participants in this study were able to identify the essential elements of the lesson study process, such as initial meetings, observation of lessons,

collaboration and reflection. In their study, Arani et al. (2010) emphasise the importance of these processes for improving lesson study. They further agreed that lesson study is a collaborative effort by all involved in the process. The participants in this study emphasised the importance of collaboration and reflection. They agreed that both these processes enhanced their knowledge and understanding of teaching number sense content in the early grades.

The participants revealed that despite the lesson study process being long and tedious since they had to meet weekly, they agreed that the cyclic process is integral to lesson study. Helmbold, Venketsamy, and van Heerden (2021) argue for implementing the lesson study cyclic process. She states that this process allows for reflection and improvement of the lesson and aids in refining, strengthening and redesigning the next lesson. The participants concurred with this argument. They also found that the weekly meetings benefit the improvement of the lesson.

According to Spaull (2015), many teachers in South Africa struggle to teach mathematics due to the lack of content and pedagogical content knowledge. Participants in this study agreed that content and pedagogical content knowledge are attained mainly through ongoing PD. The collaborative nature of the lesson study enhanced the participant's content and pedagogical content knowledge, as mentioned by T2-G1-F, who found that she benefitted enormously from her very experienced colleagues. She implemented their various strategies to teach number sense in the early grades. Also, the more experienced participants shared their view that they found the lesson study as an opportunity of deviating away from basic worksheets and textbook-based teaching and learning.

Serrat (2017) states that CoPs are successful only when collaboration, willingness, and eagerness to share are prepared to provide critical feedback. Collegial communities of practice promote the sharing of knowledge, good practice and learning from each other (Darling-Hammond & McLaughlin, 2011). This view is also shared by Wenger-Trayner (2015), indicating that the passion and synergy between people who interact regularly support reflection and growth for continuous PD. This study found that the participants were eager and willing to share their knowledge and expertise. This collaboration, participation and enthusiasm to work together to improve teaching and learning assisted in professionally developing each other. Doig et al. (2011) state that planning a lesson study research lesson is a collaborative and personal process. This process requires in-depth reflection on a lesson's required mathematical content [number sense]. They further articulate that the use of an appropriate pedagogical approach is fundamental.

Another fundamental development the participants attained was the research lesson's teaching and observing. In this study, each participant was allowed to present the lesson to their class. Seleznyov (2018) and Takahashi and McDougal (2016) agree that in a lesson study, it is always essential for one member of the planning team to be encouraged to teach the research lesson to the class while the others are observing (*kenkyu jugyou*). The participants in this study acknowledged that this was a strength of lesson study as a PD tool. Takahashi et al. (2013) agree that lesson teaching and observing offers participants the opportunity to enact and investigate the team's hypothesis about high-quality teaching and learning. T3-G1-F mentioned that it is vital that observers of the lesson study are attentive and focused on the outcomes. This view concurs with Thomson et al. (2015), who stress the importance of teachers remaining highly attentive to the purposes of observation, not merely the processes and documentation around observation.

The influence of lesson study on the PDof early grade teachers profoundly impacted participants. All the participants acknowledged the awareness of their PD as a motivating factor for them to continue to plan and work together. The participants enjoyed the collaboration process with their colleagues. Curiosity was a motivator, with a desire to see the outcome of the process, including the actual presentation of the lesson itself.

Conclusion

LS is a well-established Japanese PD method that has garnered international recognition since the turn of the century. South Africa faces considerable challenges in the PD of its teachers (DBE, 2011), yet recognises the need to "improve the quality of teacher education and development in order to improve the quality of teachers and teaching" (DBE, 2011). There is very little documented research into the implementation of LS in South Africa, even though the method matches the ISPFTED goal of establishing PLCs for PD to be implemented at a school level. Furthermore, there is no documented research into the implementation of LS in the early grades of South Africa and little international

precedence for early grade LS research in general. This study attempts to address the lack of documented research on LS primarily in South Africa through investigating a case study in a local primary school, particularly for the development of mathematics teachers in the early grades.

Recommendations

Although evidence suggests that impressive professional gains were made through lesson study, emanating from the findings and the discussion, the researchers recommend the following:

- Lesson study should be implemented with teachers from different grades and phases. The collaboration across the grades and phases will strengthen teachers' knowledge of the curriculum. Teachers will have an overview of the curriculum across the grades and phases. This knowledge will assist them in planning for sequence and progression,
- School leaders should become ambassadors for setting up communities of practice within their schools, their districts and provinces,
- That communities of practice can develop into network learning communities. These network learning communities can be organised nationally and internationally, where teachers can share good practices. This would further encourage national and international partnerships between schools and countries
- Lesson study should be an ongoing PD tool to support and motivate novice and experienced educators since learning is a life-long activity.

Recommendations for Further Research

The study sample was small and focused on only three Grade 1 teachers in the Foundation Phase. Therefore, further studies should be carried out with similar grades and in phase planning. The authors envisage that findings will be more effective in developing scripted lessons for more subjects in the Foundation Phase. Lesson study across the phase will strengthen teachers' understanding and expectations for the sequence and progression of the lesson.

Limitations of Study

This study was limited to only one school in one district within the Gauteng Province in South Africa. The participants in this study were only Grade 1 teacher. The authors believe this study should be emulated in other grades and phases in more districts and schools to yield similar or dissimilar findings.

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Biodata of Author

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Annexure 1. *Semi-structured Interview Form*

UNIVERSITEIT VAN PRETORIA UNIVERSITY OF PRETORIA YUNIBESITHI YA PRETORIA Faculty of Education
Semi-structured Interview Form
Gender: Male ( ) Female ( ) Age : ...
Interview Questions
Q1. What is your understanding of lesson study?
Q2. Did you hear of the Japanese term *Jugyō Kenkyū*'.
Q3. Please explain your understanding of collaborative teaching and learning.
Q4. What is your experience of lesson study implementation?
Q5. Please share good practices that you benefitted from lesson study workshops held together.
Q6. What is your views regarding other teachers observing your lessons?
Q7. Please share your experiences regarding post lesson planning.
Q8. What were some of the challenges of lesson study you had experienced?