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Exploring Teachers' Beliefs About Quality Pedagogical Practices in The Context of Lesson Study: A South African Case-Study

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Abstract

Effective continuing professional development (CPD) should acknowledge teachers' beliefs about quality teaching and create collaborative opportunities to refine practice. This qualitative case study examined secondary teachers' beliefs about quality pedagogical practices within a lesson study (LS) program in Gauteng, South Africa. Sixteen teachers (Economic and Management Sciences, Physical Sciences, Geography, and First Language) were purposively selected to participate in semi-structured interviews, classroom observations, and reflective journaling. Findings indicate that teachers initially associated quality with academic achievement, differentiation, collaboration, reflective practice, effective communication, problem-solving, and morality, positions largely compatible with social constructivism. Participation in LS, organized around planning, teaching, observing, and reflecting on research lessons, strengthened a community of practice and shaped beliefs through collaboration, shared reflection, and the development of teacher identity, agency, and self-efficacy. The study recommends institutionalizing LS within professional learning communities to sustain CPD and deepen learner-centered pedagogical content knowledge (PCK).

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Introduction

Teachers' beliefs play a decisive role in how classroom practice is enacted and how professional development (PD) initiatives translate into sustained change (Fives et al., 2015). In South Africa, secondary teachers often face large classes, limited resources, and constrained opportunities for ongoing CPD conditions that challenge the development and application of pedagogical content knowledge (PCK) (Mjobo et al., 2025). Within such contexts, PD models that intentionally start from teachers' beliefs and foster collaboration are more likely to improve practice and learner outcomes. Lesson Study (LS) provides a classroom-embedded, collaborative approach in which teachers jointly plan a research lesson, teach it, observe, collect evidence of learning, and reflect

to iteratively refine their pedagogy (Cajkler et al., 2014).

Prior international and local work associates LS with improvements in instructional quality, teacher learning, and school-based communities of practice. Yet there is limited empirical insight into how LS shapes teachers' beliefs about what counts as quality pedagogical practice in South African secondary schools, particularly across subjects and within diverse, multilingual settings. Addressing this gap, the present study investigates teachers' initial beliefs and examines how participation in LS influences those beliefs. This study draws on Vygotsky's social constructivism and Wenger's communities of practice. Social constructivism views learning as co-constructed through interaction, emphasizing scaffolding and inquiry-based approaches (Biggs & Tang, 2011). Communities of practice theory frames teacher learning as situated participation, where identity and agency evolve through collaborative engagement (Wenger, 1998). Guided by social constructivism and the communities of practice perspective, this study positions teacher learning as emerging from collaborative activity, shared inquiry, and reflective dialogue (Wenger, 1998). The researcher therefore asks: (1) What are secondary teachers' initial beliefs about quality pedagogical practices prior to engaging in LS? and (2) How does participation in LS shape these beliefs?

The study employed a qualitative case design with purposive sampling of sixteen secondary teachers from Johannesburg North District (EMS, Physical Science, Geography, and First Language). Data sources included semi-structured interviews to elicit initial beliefs, observations, and reflection journals during LS cycles to capture belief shifts, and inductive coding to derive themes (McMillan & Schumacher, 2010). By tracing belief trajectories alongside LS activities, the study illuminates how collaboration and reflection mediate changes in teachers' conceptions of quality practice. The findings inform the design of PD that is contextually responsive, leverages communities of practice, and strengthens learner-centered PCK.

Literature Review

Teacher Beliefs and Pedagogical Practices

Teachers' beliefs significantly influence classroom practices and the success of professional development initiatives (Fives et al., 2015). Beliefs shape how teachers interpret quality teaching, whether focused on learner-centered knowledge construction or teacher-led instruction. Research indicates that beliefs can either enable or hinder adaptation to innovative pedagogies (Sabarwal et al 2022). Effective PD must therefore account for these beliefs to foster meaningful change

Teachers' beliefs, both explicit and implicit, shape instructional decisions, teacher-student interactions, and ultimately student learning outcomes, although belief-practice alignment is not always straightforward (Laine & Tirri, 2023). Recent conceptual work argues that entrenched sociocultural systems filter into classroom processes via teacher beliefs, affecting expectations, interactions, and achievement, especially for underserved learners (Wolf & Brown, 2023; Dignath et al., 2022).

Meta-analytic evidence shows that components of teachers' belief systems, cognitive appraisals, emotions, and self-efficacy are flexible and responsive to targeted programs, with training producing medium to large shifts towards more inclusive, effective practices.

Teachers' beliefs shape instructional decisions and student outcomes, though alignment between beliefs and practice varies across contexts (Wolf & Brown, 2023; Laine & Tirri, 2023). Meta-analytic and review evidence indicate that belief systems, cognitive appraisals, emotions, and self-efficacy are responsive to targeted programs (Dignath et al., 2022).

Growth Mindset and Beliefs about Intelligence

Studies show that mindset influences pedagogy. Systemic review by Robinson and Bond (2025) shows that teachers' mindsets about the malleability of intelligence relate to growth-oriented practices. Teachers holding growth mindsets, such as the belief that abilities can be developed, are more likely to adopt growth-oriented classroom practices, fostering student motivation and achievement. However, systematic reviews also highlight tensions between belief endorsement and consistent enactment without training and supportive systems (Laine & Tirri, 2023). These findings reinforce the importance of professional learning designs that explicitly surface

and develop teachers' beliefs alongside pedagogical repertoires (Dignath et al., 2022).

Belief–Practice Alignment Through Professional Development

Beliefs are regarded as drivers of change in practice when linked to PD initiatives. Evidence from literacy PD shows that teachers whose beliefs increasingly align with program principles tend to see greater student progress, especially when they attribute learning gains to new practices learned in PD (Rodgers et al., 2022; Wolf & Brown, 2023).

A study by Rodgers et al. (2022) demonstrated that shifts in literacy-oriented teacher beliefs, prompted by professional development, were associated with improved student gains, especially when teachers connected PD content to visible student learning. Martinez et al. (2024) highlighted how teachers' beliefs about student learning and family engagement shaped their instructional shifts and responsiveness when working with emergent multilingual learners during an action research PD program.

Constructivist Beliefs, Observation, and Collaborative Learning

Teachers endorsing constructivist beliefs are more likely to value observation, feedback, and reflective dialogue mechanisms that reduce stress about being observed and increase willingness to participate in ongoing peer learning (Laine & Tirri, 2023). This aligns with social constructivist views of teacher learning as co-constructed through interaction and inquiry and suggests that communities of practice thrive when teachers' beliefs support collaborative sense making (Chen et al., 2022; Wolf & Brown, 2023).

Expectations, Equity, and Inclusive Practices

Teachers' expectations and biases can differentially shape interactions and opportunities contributing to persistent achievement gaps; modelling how belief expressions influence relationships clarifies mechanisms linking beliefs to outcomes (Wolf & Brown, 2023; Dignath et al., 2022). Targeted training and practical experience in inclusive settings can shift underlying attitudes and self-efficacy for inclusion, moving teachers toward more equitable and responsive teaching (Laine & Tirri, 2023).

Beliefs in Low-Resource and LMIC Settings

In low and middle-income contexts, teachers' beliefs about students' capabilities and their own efficacy can dampen instructional ambition; however, practice-embedded programs that generate visible student gains can shift beliefs toward greater agency and high expectations (Youth Impact/Science of Teaching, 2024; Wolf & Brown, 2023). This suggests the importance of PD designs that make learning progress visible and tie belief change to concrete classroom evidence a core rationale for iterative, classroom embedded approaches like Lesson Study (Chen et al., 2022).

Lesson Study as Professional Development

Lesson Study (LS) is a collaborative, classroom-based PD model originating in Japan and adapted globally (Fernandez & Yoshida, 2004; Cajkler et al., 2014). LS involves cycles of joint lesson planning, teaching, observation, and reflection, enabling teachers to refine practice through evidence-based dialogue. Studies highlight LS's potential to improve instructional quality and build communities of practice (Yoshida, 2012).

Recent empirical and review studies confirm that Lesson Study strengthens teacher learning via collaborative cycles, with documented gains in self-efficacy and practice (Cerruto et al., 2023; Vermunt et al., 2023). Theory-based evaluations in STEM contexts show how LS mechanisms (joint inquiry, evidence use) produce multi-level outcomes and offer robust evaluation models (Follmer et al., 2024; Brown et al., 2025).

Technology-enhanced LS sustains collaboration in virtual/hybrid formats while preserving core features (Huang et al., 2023; Hrastinski, 2021). Engagement factors—intellectual curiosity and CPD culture predict stronger participation; self-actualizing motives deepen involvement in research lessons. A scoping review identifies collaborative strategies and strategic planning as key levers for enhanced pedagogy and student outcomes, prominently in mathematics. Evidence across systems shows that LS supports the development of PCK in both novice and experienced teachers via design-enact-reflect phases, despite time and resource constraints (Coenders & Verhoef, 2018; Fluminhan et al., 2022).

In low-resource settings, first-time facilitators and participants shift from role division toward mutual ownership and reflective practice over repeated cycles (Mwadzaangati, 2024).

Methodology

Research Design

The study adopted an interpretivist–constructivist qualitative case study to understand how secondary school teachers' beliefs about "quality" classroom practices are expressed and reshaped in the context of Lesson Study (LS). The design privileges participants' meanings and situated practice while tracing change across collaborative LS cycles (McMillan & Schumacher, 2010).

Setting and Context

The study was conducted in one urban, multicultural secondary school in the Johannesburg North District (GDE). Typical contextual constraints, such as large classes, limited resources, and constrained CPD time, motivated the choice of a classroom-embedded PD model. These conditions also framed teachers' initial beliefs and priorities.

Participants

Using purposive sampling, the researcher invited 16 teachers across four subjects: Economic and Management Sciences (EMS; n=4), Physical Science (PS; n=4), Geography (G; n=4), and First Language (FL; n=4). Inclusion criteria were: (i) willingness to engage in collaborative planning and observation; (ii) active classroom appointment; and (iii) representation across subjects to examine cross-disciplinary belief patterns. Participants were coded by subject (e.g., EMS T1–T4).

Lesson Study Procedure

The researcher implemented LS as a structured cycle with four core phases that are explained below as follows (Fernandez & Yoshida, 2004; Cajkler et al., 2014).

- PLAN – Teachers co-design a research lesson anchored in shared learner challenges and curriculum goals. Teachers predict learner responses during the planning of the research lesson and agree on observation foci.
- TEACH – One teacher enacts the research lesson with their class while colleagues observe with attention to learner thinking and task demands.
- OBSERVE – Observers collect evidence on learner engagement, misconceptions, discourse, and task performance using agreed-upon tools.
- REFLECT & REVISE – The team conducts an evidence-informed debrief; compares predictions with observed learning; revises the lesson and records design rationales.

Two cycles were completed per subject group, with documentation retained for cross-case comparison. The lesson study process was conducted between May 2023 and February 2024.

Data Collection

To elicit teachers 'beliefs and capture change, the researcher triangulated three sources: (i) semi-structured interviews that were conducted with teachers prior participation in the LS program to probe beliefs about "quality" practices; (ii) non-participant observation field notes taken during the research lessons with structured templates encompassing learner behaviors', discourse and task performance; and (iii) teachers' reflection journals (during LS) documenting sense-making, design rationales, and perceived changes. Artefacts such as lesson plans, revised tasks, and learner work samples provided additional evidence.

Ethical Considerations

The researcher obtained permission from the provincial Department of Education and school leadership. Ethical clearance certificate was granted by the Research Ethics Committee of the university with project number: REC Ref #: REC2023/05/001. Participants received information sheets and gave written consent. Data were anonymized using subject-based codes; files were stored on encrypted drives with restricted access. Any quotations used in reporting preserve anonymity. Participants were coded as follows: Economics and Management Sciences: EMS T1, EMS T2, EMS T3, and EMS T4. Physical Science: PS

T1, PS T2, PS T3 and PS T4 Geography: G T1, G T2, G T3 and G T4. First Language: FL T1, FL T2, FL T3, and FL T4.

Data Analysis

Analysis proceeded inductively using iterative coding. First-cycle open coding identified belief statements and practice descriptors within interviews, journals, and field notes. Axial coding grouped segments into themes (e.g., academic achievement, differentiation; collaborative learning, reflection, communication, problem-solving, morality/values; LS challenges; LS outcomes). Constant comparison across subjects and LS cycles traced belief shifts and practice enactment. Memos captured emerging interpretations linking evidence to the conceptual framework.

Trustworthiness

Credibility was pursued through triangulation (interviews, observations, reflective journals, artefacts), prolonged engagement across LS cycles, and peer debrief during reflection meetings. The researcher maintained an audit trail of planning templates, observation tools, and revision records, and used member-checking of theme summaries with participants during the final LS meeting. Transferability is supported by a thick description of context and procedures, and dependability by systematic documentation of decisions.

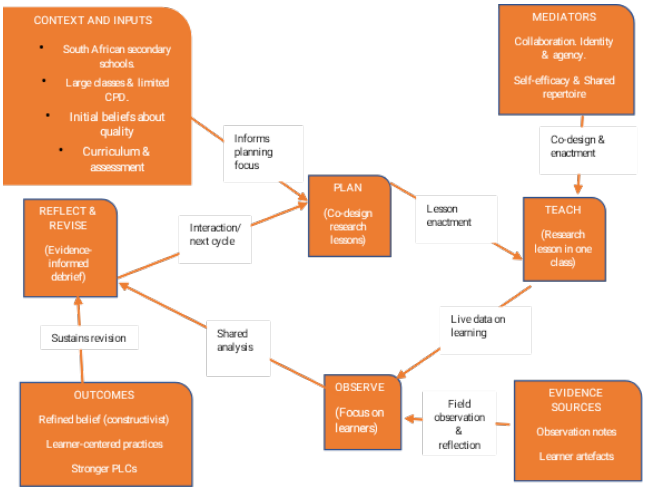

Fig. 1: Lesson Study cycle adapted from (Fernandez & Yoshida, 2004; Cajkler et al., 2014)

Researcher Positionality and Reflexivity

The facilitator-researcher balanced coaching and inquiry roles. Reflexive notes tracked influence on task selection, observation foci, and debrief facilitation. The researcher explicitly foregrounded learner thinking over teacher performance to mitigate evaluation anxiety during observation.

Lesson Study Cycle

Figure 1 shows the Lesson Study cycle implemented in this study (Plan → Teach → Observe → Reflect & Revise), with contextual inputs, mediators, evidence sources, and outcomes.

Results and Discussion

The findings indicate that most participants hold the belief that quality is the ability to assist learners in achieving learning objectives and good academic performance, differentiated teaching, collaborative learning, effective communication, problem-solving skills, and reflective teaching and morality. Teachers' initial beliefs about quality pedagogical practices and how participating in the LS program shaped them are discussed in the following themes.

Theme 1: Academic Achievement: Reinterpreting quality beyond achievement

Participants strongly associated quality teaching with helping learners meet objectives and achieve strong pass rates. The comments were noted from EMS T1 and EMS T2, respectively: *"Quality teaching means ensuring learners pass exams and meet objectives."* (EMS T1). *"You must know that in our country, as a teacher, I am measured and respected when my learners achieve good outcomes."* (EMS T2).

The findings show that teachers initially equated quality with academic achievement (meeting objectives, strong pass rates), a view captured in the quotes from EMS T1 and EMS T2. While this performance orientation reflects accountability pressures, participation in Lesson Study (LS) broadened teachers' conceptions to include deep understanding, application, and higher-order thinking evidenced in the research lessons. This shift is consistent with pedagogical models emphasizing learner-centered outcomes and meta-cognitive development and mirrors international LS

reports that move teachers' focus from "coverage" to learning quality through collaborative design and evidence-informed reflection (Cajkler et al., 2014). This means that LS can reposition achievement as a byproduct of robust thinking and transfer, rather than an end, aligning teachers' beliefs with a constructivist perspective.

Vygotsky's theory emphasizes learning as socially mediated within the Zone of Proximal Development (ZPD). The shift from a narrow focus on academic achievement to including deep understanding, collaborative learning, and reflective practice demonstrates how social interaction and dialogue scaffold cognitive development. Wenger's communities of practice view the LS cycles as collective activities where teachers engage in joint enterprise, sharing repertoires and reflecting together, thus strengthening their professional identities and practices.

Theme 2: Differentiated teaching: From intention to enactment

Teachers emphasized adapting teaching to diverse readiness levels and learning profiles as a hallmark of quality practice. EMS T3 commented that: *"A teacher has to be conscious of accommodating smart learners and the ones who are always struggling with learning."* (EMS T3). Within LS planning meetings, differentiation became more intentional through agreed scaffolds, varied tasks, and targeted supports that were co-designed and refined after observation. This moved differentiation from a general intention to a concrete plan enacted in the research lesson.

In alignment with Vygotsky's theory (1978), differentiation corresponds to tailored scaffolding within individual learners' ZPDs, respecting diverse learning needs and promoting adaptive social mediation. This also reflects Wenger's concept of accommodating diverse learner identities and trajectories within the community, ensuring inclusive participation and identity negotiation.

Theme 3: Collaborative learning

Participants also highlighted structured group work and peer interaction as central to learner-centered pedagogy. LS reinforced this stance by modelling collaboration among teachers themselves and by designing tasks that required explanation, peer feedback, and joint problem solving. The result was a closer alignment between teachers' beliefs and classroom routines that make collaboration visible. *"Group work helps learners share ideas and learn from each other."* (PS T3)

In amplifying the finding above, the teachers' beliefs in collaborative learning were long-standing. Beliefs in collaborative learning (PS T3) shifted from general endorsement to purposeful group routines (structured roles, discourse prompts, artefact-based sharing). This means that LS provided the design–enact–reject cycle that turns beliefs (what teachers value) into repeatable classroom routines (what teachers do), thereby strengthening belief–practice alignment. This is reinforced by Rodgers et al. (2022) and Wolf & Brown (2023), who found that teachers whose beliefs increasingly align with program principles tend to see greater student progress, especially when they attribute learning gains to new practices learned in PD.

Collaborative learning and teaching are core principles of the LS PD process. Wenger's framework situates teaching and learning within a social community where identity, participation, and shared practices evolve through mutual engagement. The LS cycles represent a community of practice where teachers collectively design, enact, and reflect on lessons, strengthening shared repertoires and joint enterprise.

Theme 4: Reflective practice

Reflection emerged as a cornerstone of effective teaching, strengthened by LS debriefs. GT1 commented: *"Quality teaching is when I do my reflections every time, thinking about issues and solutions to bring into the teaching of a lesson."* (G T1). In addition, FL T4 said: *"After each lesson, I think about what worked and what needs improvement."* (FL T4)

Teachers' quotes highlight reflection as a personal value (G T1; FL T4). Through LS, reflection became collective, and evidence-based: teachers used observation notes, learner artefacts, and agreed criteria to refine pacing, questioning, and task design. This evolution fits the communities of practice perspective, where mutual engagement, joint enterprise, and shared repertoire elevate reflection

from habit to professional inquiry and growth (Wenger, 1998). This means that LS institutionalizes reflective practice as a collaborative routine, raising the quality of pedagogical judgment and reducing variance in classroom decision-making. (Cheung & Wong, 2014)

Theme 5: Effective communication: making communication explicit

Academic language proficiency, particularly English, was viewed as critical for demonstrating conceptual understanding.

"Learners must express themselves clearly in English to show understanding." (EMS T2)

Teachers emphasized that learners must "*express themselves clearly in English"* (EMS T2). This belief aligns with social constructivism and communities of practice theories, respectively. Vygotsky (1978) highlights language as a critical tool for mediation; embedding academic language and discourse-rich tasks facilitates cognitive development through social interaction. Wenger's theory (1918) sees this as expanding the community's shared repertoire, enriching the tools and practices that members use to engage and learn.

LS discussions made this belief actionable by embedding discourse rich tasks, modelling talk moves (e.g., explain–justify–challenge), and planning language supports (sentence frames, concept word banks). This implies that when communication is designed, not assumed, teachers see clearer links between academic language and higher-order thinking and can intentionally support multilingual classrooms.

Theme 6: Problem-solving skills: guided autonomy

Teachers linked quality teaching to cultivating independent thinking and transfer. LS designs increasingly incorporated inquiry sequences and graduated scaffolding that developed higher-order problem solving, steering lessons away from directive, "spoon feeding" approaches toward guided autonomy. Participants indicated that: "*Teaching should not spoon-feed learners; they should take initiative on their own and solve problems.*" (L T1)

Teachers wanted learners to "*take initiative … and solve problems"* (L T1). LS lesson designs increasingly included inquiry sequences, graduated scaffolds, and productive struggle, shifting instruction from directive "spoon feeding" to guided autonomy. The transition from directive teaching to guided autonomy in problem-solving reflects scaffolding that gradually transfers responsibility to learners, fostering independent thinking. This transition exemplifies Vygotsky's scaffolding process, where responsibility is gradually transferred to learners, fostering independence and self-regulation within their ZPD. Wenger's perspective interprets this as evolving participation, where learners move from peripheral to fuller engagement and identity formation within the community.

This finding suggests that LS helps teachers sequence cognitive demand, which is a key pathway to developing transfer and independent reasoning.

Theme 7: Morality / Values in disciplinary learning

Teachers viewed values education as integral to quality practice across subjects. LS cycles helped embed ethical reasoning within disciplinary tasks and facilitated peer discussion on age-appropriate moral content and classroom norms, strengthening holistic outcomes alongside academic learning.

"Teaching learners how to think and act like a good businessperson … is the number one priority in every topic I discuss in class." (L T3)

"Teaching of good morals should be a practice in all subjects, not only Life Orientation." (PS T2)

The incorporation of values and morality into disciplinary learning demonstrates the community's shared repertoire extending beyond academic goals to holistic development. While Vygotsky's theory centers on cognitive and social mediation, the integration of values and morality extends the social context of learning, emphasizing holistic development through mediated discourse. Wenger's framework situates this as part of the community's shared repertoire and joint enterprise, where the learning community negotiates not only knowledge but also ethical and moral dimensions.

The implication is that LS offers a practical vehicle for integrating character and citizenship aims with disciplinary goals, advancing a more holistic definition of classroom quality.

Theme 8: Positive Outcomes of Lesson Study

Teachers reported clear professional benefits. LS strengthened a sense of community among teachers and elevated confidence to trial new strategies, as alluded to by EMS T2 and PS T3, respectively. "*Working together made me feel part of a professional community*." (EMS T2)

"*I gained confidence in trying new strategies after seeing them succeed.*" (PS T3)

Furthermore, LS deepened reflective practice and improved lesson design as observed by FL T1 and G T4.

*"Lesson Study helped me reflect more deeply on my teaching." (*FLT1)

"Collaborating with colleagues improved my lesson planning skills." (G T4)

Finally, LS diversified instructional repertoire through peer observation and feedback.

"I now value feedback from peers; it makes me a better teacher." (EMS T4)

"Observing others taught me new ways to engage learners." (PS T2)

These gains point to identity, agency, and self-efficacy as key mediators of change. The professional benefits reported in this theme, such as increased confidence, collaboration, and reflective growth, underscore identity formation and agency within the teaching community, as advocated by Wenger's theory. This suggests that LS cultivates the intrapersonal and interpersonal resources that sustain pedagogical change, and teachers feel capable, connected, and committed. The findings are consistent with Cerruto et al. (2023) and Vermunt et al. (2023), who found Lesson Study to have a positive effect on teacher self-efficacy and practice

Theme 9: Challenges Faced by Teachers

Despite positive momentum, teachers reported practical challenges. Time constraints and schedule coordination were among the challenges experienced. EMS T3 and GT1 commented as follows:

"It was hard to find time for planning because of our workload." (EMS T3)

"Sometimes we disagreed on lesson objectives, which delayed progress." (G T1)

In addition, resource limitations, uneven participation, and initial discomfort with observation were common. These realities signal the need for administrative support, facilitation norms, and protected planning time to sustain LS. The following comments were made by participating teachers:

"Being observed made me nervous; I felt judged." (FL T2)

"Limited resources made it difficult to implement some strategies we discussed." (PS T4)

"Coordinating schedules for all teachers was a big challenge." (EMS T4)

*"Not everyone contributed equally during planning, which caused tensio*n." (G T3)

This means that contextual conditions and how LS is facilitated matter. Small structural shifts such

Table 1: Summary of the findings

Theme	Key Points
Teachers' Initial Beliefs About Quality Practices	- Good Academic Achievement - Differentiated Teaching - Collaborative Learning - Reflective Practice - Effective Communication - Problem-Solving Skills - Morality
Impact of Lesson Study (LS) on Teachers' Beliefs	- Fostered Collaboration and Community of Practice - Enhanced Teacher Identity and Agency - Improved Interpersonal Skills (listening, tolerance, acceptance of criticism) - Built Confidence and Self-Efficacy - Challenges: Group conflicts and reluctance to share ideas

as protected time, clear roles, and shared tools can transform challenges into productive friction that advances learning.

The results align with social constructivism (knowledge co-constructed through interaction) and communities of practice (learning as situated participation), explaining why collaboration and reflection are central to belief change (Wenger, 1998). They also echo recent LS evidence showing gains in self-efficacy, collaborative skill, and lesson design quality, including hybrid/virtual LS variants that maintain core features while expanding access (Cerruto et al., 2023; Vermunt et al., 2023; Huang et al., 2023; Hrastinski, 2021; Coenders & Verhoef, 2018; Fluminhan et al., 2022). This case adds South African evidence to a growing body of work demonstrating LS's ability to translate beliefs into practice across diverse contexts and modalities.

Table 1 displays the summary of the findings

Conclusion

This study demonstrates that Lesson Study (LS) is a powerful professional development approach for reshaping teachers' beliefs and practices in South African secondary schools. Initially, teachers equated quality teaching with academic achievement and coverage of content. Through LS cycles of collaborative planning, observation, and reflection, these beliefs evolved toward learner-centered, constructivist practices that emphasize differentiation, problem-solving, and reflective inquiry. LS also strengthened teachers' sense of professional identity, agency, and self-efficacy, while fostering a culture of collaboration and continuous improvement.

Despite challenges such as time constraints and resource limitations, the positive outcomes, including improved lesson design, deeper reflection, and enhanced collegiality, underscore LS's potential as a sustainable model for professional learning. To institutionalize LS, schools and districts should embed it within professional learning communities, allocate dedicated time for joint planning and observation, and provide facilitation support. In addition, districts should embed language and inclusion support, build discourse routines and scaffolds for multilingual classrooms within LS designs.

The limitations of the current study are that a single-site case and a limited number of LS cycles constrain generalizability. Time and resource constraints may have limited the depth of lesson revision. Maintaining a focus on inquiry-driven dialogue is another issue, as the facilitator's skill level impacts the depth of discussion during post-lesson reflections. Additionally, finding a balance between facilitator input and teacher independence remains a persistent tension that can either limit or weaken collaborative inquiry. Future research should explore longitudinal impacts of LS across multiple cycles and subjects, as well as strategies for scaling LS in diverse educational contexts.

Declaration of conflicting interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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