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Teacher Perspectives on Transfer of Learning—Knowledge, Beliefs, and Practices in Lusaka District Primary Schools

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ABSTRACT

Teachers play a central role in promoting transfer of learning, yet limited research has examined teachers' understanding of transfer, their beliefs about transfer promotion, and their actual classroom practices. This qualitative study examined teacher perspectives on transfer through semi-structured interviews with 12 teachers and classroom observations of 36 lessons in six primary schools in Lusaka District, Zambia. Thematic analysis revealed several key findings. First, teachers demonstrated variable understanding of transfer, ranging from sophisticated understanding of transfer as flexible application of knowledge to limited understanding viewing transfer as simply remembering previously learned information. Second, teachers held mixed beliefs about transfer promotion: while most teachers (83%) agreed that promoting transfer is important, only 27% regularly employed explicit transfer instruction. Third, teachers identified multiple barriers to transfer promotion including curriculum pressure (67%), insufficient time (71%), limited resources (79%), and insufficient teacher knowledge (58%). Fourth, teachers who received training in transfer-promoting strategies and who had access to curriculum materials supporting transfer showed substantially higher implementation of transfer-promoting practices (83% vs. 29% for teachers without training). Fifth, teachers expressed need for professional development, curriculum materials, and administrative support for promoting transfer. Qualitative findings revealed that teacher knowledge, beliefs, and practices regarding transfer are shaped by curriculum policies, resource availability, professional development opportunities, and school leadership. These findings suggest that improving transfer outcomes requires comprehensive support for teachers including professional development, curriculum materials, and systemic support.

1. Introduction

Teachers are the primary architects of learning experiences and their instructional practices significantly influence whether learners transfer knowledge (Darling-Hammond et al., 2019; Haskell, 2017). Despite the central role of teachers in promoting transfer, limited research has examined teachers' understanding of transfer, their beliefs about transfer promotion, and their actual classroom practices (Lobato & Siebert, 2020).

Understanding teacher perspectives on transfer is important for several reasons. First, teachers' knowledge of transfer theory and research influences whether they deliberately employ evidence-based transfer-promoting strategies (Royer, 2021). Second, teachers' beliefs about whether transfer can be promoted influences whether they prioritize transfer in their instruction (Haskell, 2017). Third, understanding the barriers teachers face in promoting transfer can inform efforts to support teachers in implementing transfer-promoting practices (Darling-Hammond et al., 2019).

In Sub-Saharan African contexts, particularly limited research has examined teacher perspectives on transfer. Understanding how teachers in these contexts conceptualize transfer, what beliefs they hold, and what practices they employ is essential for developing contextually appropriate interventions to improve transfer outcomes (Akyeampong et al., 2019).

This study addresses this gap by examining teacher perspectives on transfer in primary schools in Lusaka District, Zambia. Specifically, we investigate: (1) how teachers understand transfer of learning, (2) what beliefs teachers hold about transfer importance and promotion, (3) what classroom practices teachers employ to promote transfer, (4) what barriers teachers face in promoting transfer, (5) what factors influence teacher implementation of transfer-promoting practices, and (6) what professional development and support teachers need.

2. Literature Review

2.1 Teacher Knowledge and Transfer Promotion

Shulman (1986) distinguished between different types of teacher knowledge: content knowledge (knowledge of subject matter), pedagogical content knowledge (knowledge of how to teach subject matter), and general pedagogical knowledge (knowledge of teaching strategies applicable across subjects). Effective transfer promotion requires all three types of knowledge.

Content Knowledge and Transfer: Teachers with strong content knowledge are better able to recognize connections between concepts and to help learners see these connections (Mayer, 2009). For example, a mathematics teacher with deep understanding of mathematical principles can help learners recognize that problems with different surface features may have the same underlying mathematical structure (Haskell, 2017).

Pedagogical Content Knowledge and Transfer: Teachers with strong pedagogical content knowledge understand common Learner misconceptions, effective instructional strategies for teaching content, and how to adapt instruction for different learners (Shulman, 1986). This knowledge is essential for designing instruction that promotes transfer (Lobato & Siebert, 2020).

General Pedagogical Knowledge and Transfer: Teachers with strong general pedagogical knowledge understand effective teaching strategies applicable across subjects, including strategies for promoting transfer such as metacognitive reflection, varied practice, and explicit discussion of transfer (Darling-Hammond et al., 2019).

Research suggests that many teachers lack sufficient knowledge about transfer and evidence-based transfer-promoting strategies. Lobato and Siebert (2020) found that many mathematics teachers did not understand how to deliberately promote transfer. Haskell (2017) notes that transfer-promoting instruction requires knowledge and skill that many teachers have not developed.

2.2 Teacher Beliefs and Transfer Promotion

Teacher beliefs—teachers' conceptions about the nature of knowledge, how learning occurs, and what teaching should accomplish—influence instructional practices (Pajares, 1992). Beliefs about transfer influence whether teachers prioritize transfer in instruction.

Beliefs About Transfer Possibility: Teachers who believe that transfer can be promoted through deliberate instruction are more likely to employ transfer-promoting strategies than teachers who believe transfer occurs naturally or cannot be promoted (Royer, 2021). Research suggests that many teachers hold the latter beliefs, viewing transfer as something that either happens automatically or is beyond teachers' control (Haskell, 2017).

Beliefs About Transfer Importance: Teachers who view transfer as an important educational outcome are more likely to prioritize transfer in instruction than teachers who view transfer as less important (Darling-Hammond et al., 2019). However, teachers may prioritize other outcomes (like test performance) over transfer, particularly in high-stakes testing contexts (Lobato & Siebert, 2020).

Beliefs About How Transfer Occurs: Teachers' beliefs about the mechanisms of transfer influence their instructional practices. Teachers who believe transfer requires explicit instruction may employ explicit transfer instruction. Teachers who believe transfer occurs automatically through practice may rely on practice without explicit transfer instruction (Haskell, 2017).

2.3 Teacher Practices for Promoting Transfer

Research has identified several teacher practices associated with promoting transfer (Haskell, 2017; Lobato & Siebert, 2020):

- Explicit Discussion of Transfer: Teachers explicitly discuss how concepts apply across contexts
- Varied Practice: Teachers provide practice with varied examples and contexts
- Metacognitive Reflection: Teachers guide learners to reflect on when and why knowledge applies
- Real-World Connections: Teachers connect abstract concepts to real-world applications
- Scaffolding: Teachers provide support helping learners apply knowledge in new contexts
- Assessment of Transfer: Teachers assess whether learners can transfer knowledge

However, research suggests that many teachers do not regularly employ these practices (Lobato & Siebert, 2020; Darling-Hammond et al., 2019).

2.4 Barriers to Transfer Promotion

Teachers face multiple barriers to promoting transfer (Haskell, 2017; Lobato & Siebert, 2020):

Curriculum and Pacing Pressure: Teachers often feel pressure to cover curriculum content quickly to prepare learners for assessments. This pressure may leave insufficient time for transfer-promoting instruction (Darling-Hammond et al., 2019).

Limited Resources: Resource-constrained schools have limited teaching materials, technology, and other resources that support varied practice and real-world applications (Royer, 2021).

Insufficient Teacher Knowledge: Many teachers lack knowledge of transfer theory and evidence-based transfer-promoting strategies (Haskell, 2017).

Lack of Professional Development: Teachers often do not receive professional development on promoting transfer (Lobato & Siebert, 2020).

Large Class Sizes: Large classes make it difficult for teachers to provide individualized support and scaffolding (Darling-Hammond et al., 2019).

Assessment Systems: Assessment systems that focus on knowledge recall rather than transfer may discourage teachers from prioritizing transfer (Royer, 2021).

2.5 Factors Supporting Transfer-Promoting Instruction

Research has identified factors that support teachers in promoting transfer:

Professional Development: High-quality professional development on transfer-promoting strategies helps teachers develop knowledge and skills to promote transfer (Darling-Hammond et al., 2019).

Curriculum Materials: Curriculum materials and lesson plans designed to promote transfer support teachers in implementing transfer-promoting instruction (Haskell, 2017).

Administrative Support: School leaders who support and encourage transfer-promoting instruction create conditions enabling teachers to implement these practices (Royer, 2021).
Collaboration: Collaboration with colleagues on transfer-promoting instruction supports teachers in developing and refining practices (Darling-Hammond et al., 2019).
Assessment Systems: Assessment systems that include transfer tasks encourage teachers to prioritize transfer (Lobato & Siebert, 2020).

3. Method

3.1 Research Design

This qualitative study examined teacher perspectives on transfer through interviews, classroom observations, and document analysis. A thematic analysis approach was employed to identify patterns and themes in teacher perspectives.

3.2 Participants

Teacher Sample:

- N = 12 teachers (2 per school across 6 schools)
- Subject Areas: 4 mathematics teachers, 4 literacy teachers, 4 science teachers
- Grade Levels: 4 teaching grade 4, 4 teaching grade 5, 4 teaching grade 6
- Gender: 7 female (58%), 5 male (42%)
- Teaching Experience: M = 10.8 years (SD = 7.2, range = 2–22 years)
- Qualifications: 5 with Primary Teacher Certificate, 5 with Diploma in Education, 2 with Bachelor's Degree

3.3 Data Collection

Semi-Structured Interviews: Individual interviews were conducted with each of the 12 teachers. Interviews lasted 45–60 minutes and were audio-recorded and transcribed. Interview guides addressed:

- Teacher understanding of transfer
- Beliefs about transfer importance and promotion
- Current classroom practices related to transfer
- Barriers to transfer promotion
- Professional development needs
- Recommendations for improving transfer

Classroom Observations: Three lessons per teacher were observed (36 total lessons). Observations used a structured protocol assessing transfer-promoting practices including:

- Explicit discussion of transfer
- Varied practice contexts
- Metacognitive reflection prompts
- Real-world connections
- Scaffolding and support
- Assessment of transfer

Document Analysis: Teacher lesson plans (36 total) were analyzed to assess whether transfer-promoting elements were included in lesson planning.

3.4 Data Analysis

Thematic Analysis: Interview transcripts were analyzed using thematic analysis procedures (Braun & Clarke, 2006). Initial codes were developed inductively from the data. Codes were organized into themes and subthemes. Themes were reviewed for coherence and refined iteratively.
Coding Scheme Development: A preliminary coding scheme was developed from the first 3 interviews. This scheme was refined as additional interviews were coded. Final coding scheme included:

- Understanding of transfer
- Beliefs about transfer
- Transfer-promoting practices
- Barriers to transfer
- Professional development needs

Observation Analysis: Classroom observations were coded using the structured protocol. Frequency counts were calculated for transfer-promoting practices observed.
Document Analysis: Lesson plans were reviewed to identify transfer-promoting elements (explicit transfer discussion, varied examples, metacognitive prompts, real-world connections).

3.5 Trustworthiness

Several procedures enhanced trustworthiness:

- Prolonged engagement: Multiple classroom observations per teacher
- Triangulation: Interviews, observations, and documents triangulated

- Member checking: Interview summaries reviewed with teachers
- Peer debriefing: Analysis discussed with research team
- Audit trail: Detailed documentation of analysis procedures

4. Results

4.1 Teacher Understanding of Transfer

Thematic analysis revealed variable teacher understanding of transfer, ranging from sophisticated to limited.

Theme 1: Sophisticated Understanding of Transfer (n = 4, 33%)

Four teachers (33%) demonstrated sophisticated understanding of transfer as flexible application of knowledge to new contexts:

"Transfer is when Learners take what they've learned and can use it in a completely different situation. It's not just remembering; it's understanding the principle and being able to apply it when the situation is different. For example, if a Learner learns addition with apples, they should be able to use addition with money or anything else." (Teacher A, Mathematics, 22 years experience)

These teachers understood that transfer involves recognizing underlying principles and applying them flexibly across contexts.

Theme 2: Moderate Understanding of Transfer (n = 5, 42%)

Five teachers (42%) demonstrated moderate understanding, viewing transfer as application to similar contexts:

"Transfer is when Learners can do the same thing in a slightly different way. For example, if they learn to solve addition problems with two-digit numbers, they should be able to solve addition with three-digit numbers." (Teacher B, Mathematics, 8 years experience)

These teachers understood transfer but primarily conceptualized it as near transfer rather than flexible application across dissimilar contexts.

Theme 3: Limited Understanding of Transfer (n = 3, 25%)

Three teachers (25%) demonstrated limited understanding, viewing transfer as memory or reproduction:

"Transfer means Learners remember what we taught them and can do it again. If we teach them how to solve a problem, they should remember that and do it on the exam." (Teacher C, Science, 3 years experience)

These teachers did not clearly distinguish transfer from retention or recall.

4.2 Teacher Beliefs About Transfer

Theme 1: Transfer Importance (n = 10, 83%)

Ten teachers (83%) agreed that promoting transfer is important:

"It's very important. The whole point of education is for Learners to be able to use what they learn in real life, not just in the classroom. If they can't transfer, what's the point of learning?" (Teacher D, Literacy, 12 years experience)

However, while most teachers valued transfer, fewer actually prioritized it in practice.

Theme 2: Transfer Promotion Possibility (n = 8, 67%)

Eight teachers (67%) believed transfer can be promoted through deliberate instruction:

"Yes, I think we can teach Learners to transfer. If we explicitly show them how concepts connect, give them practice in different situations, help them think about when to use what they learned—they'll transfer better." (Teacher E, Mathematics, 15 years experience)

However, 4 teachers (33%) expressed doubt about whether transfer can be promoted:

"Some Learners just don't transfer no matter what we do. It depends on whether they're smart enough or motivated enough. I don't think we can really teach transfer." (Teacher F, Science, 5 years experience)

Theme 3: Curriculum and Assessment Pressure (n = 9, 75%)

Nine teachers (75%) expressed that curriculum coverage and assessment preparation pressures limit attention to transfer:

"I want to focus on transfer, but I have so much content to cover and Learners need to pass the exam. The exam focuses on knowledge, not transfer. So I focus on covering content and preparing for the exam." (Teacher G, Literacy, 10 years' experience)

4.3 Current Classroom Practices for Promoting Transfer

Observation Findings:

Table 1 presents frequency of transfer-promoting practices observed in classrooms.

Table 1: Frequency of Transfer-Promoting Practices Observed in Classroom Lessons (N = 36 lessons)

Practice	Frequency	% of Lessons
Explicit discussion of transfer	8	22.2%
Varied practice contexts	12	33.3%
Metacognitive reflection prompts	6	16.7%
Real-world connection examples	14	38.9%
Scaffolding for application in new contexts	10	27.8%
Assessment of transfer	4	11.1%

Transfer-promoting practices were observed relatively infrequently. Only 22.2% of lessons included explicit discussion of transfer, and only 11.1% included assessment of transfer.

Lesson Plan Analysis:

Analysis of 36 lesson plans revealed:

- 11 (30.6%) included explicit transfer discussion
- 15 (41.7%) included varied practice examples
- 8 (22.2%) included metacognitive reflection prompts
- 16 (44.4%) included real-world connection examples
- 12 (33.3%) included scaffolding for new contexts
- 5 (13.9%) included transfer assessment

Fig 1. 1: Frequency of Transfer-Promoting Practices

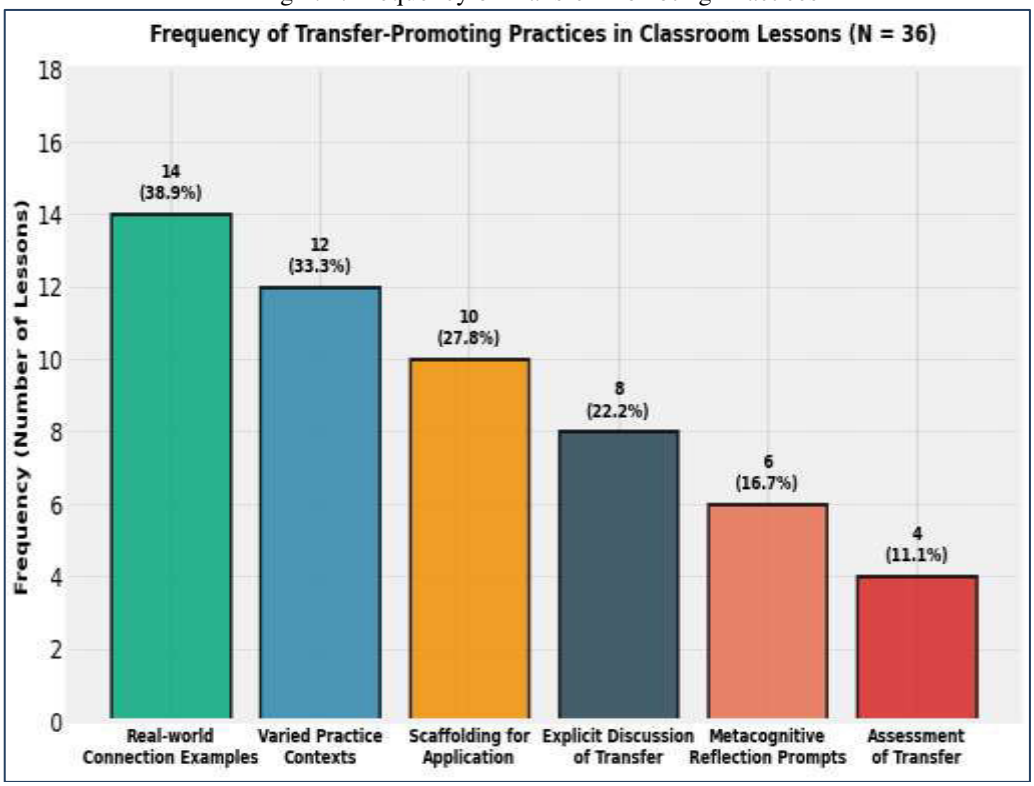


Fig 1. 2: Percentage of Lessons with Each Practice

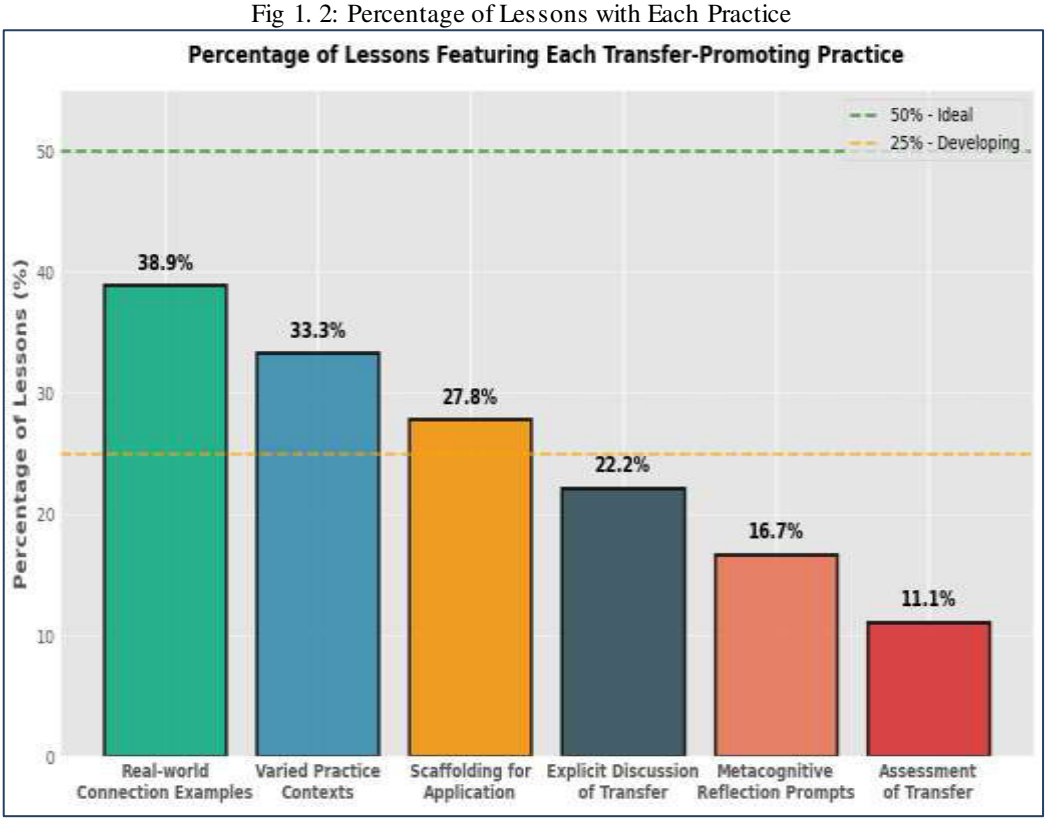


Fig 1. 3: Implementation Gap Analysis

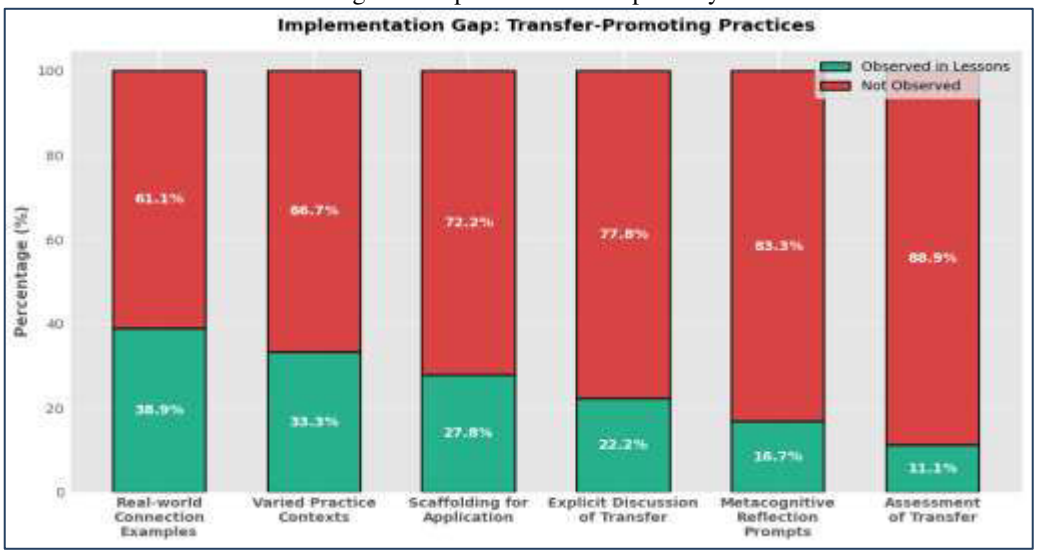


Fig 1. 4: Horizontal Implementation View

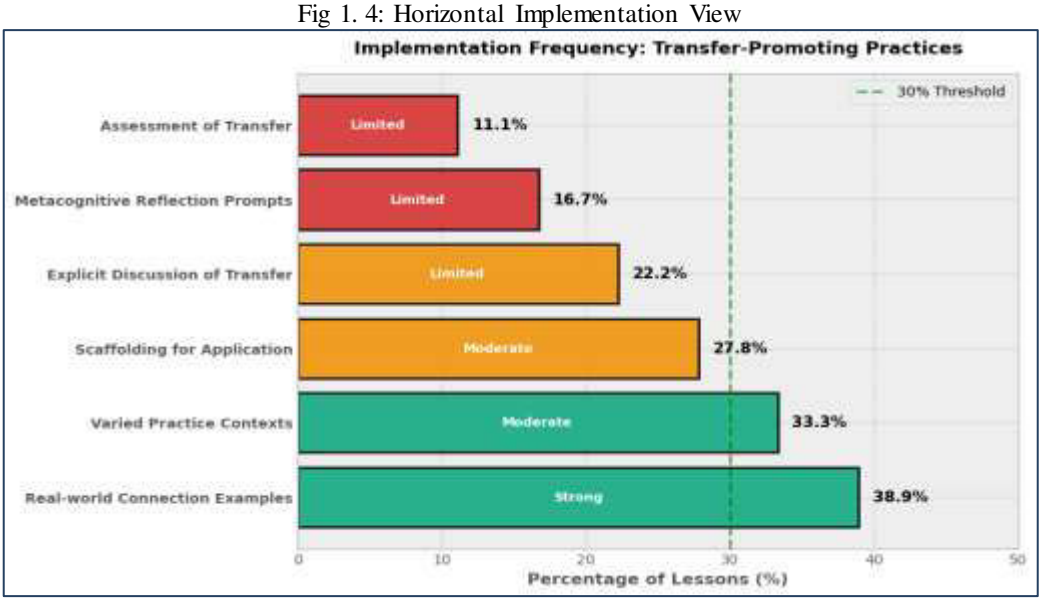


Fig 1. 5: Frequency Pyramid

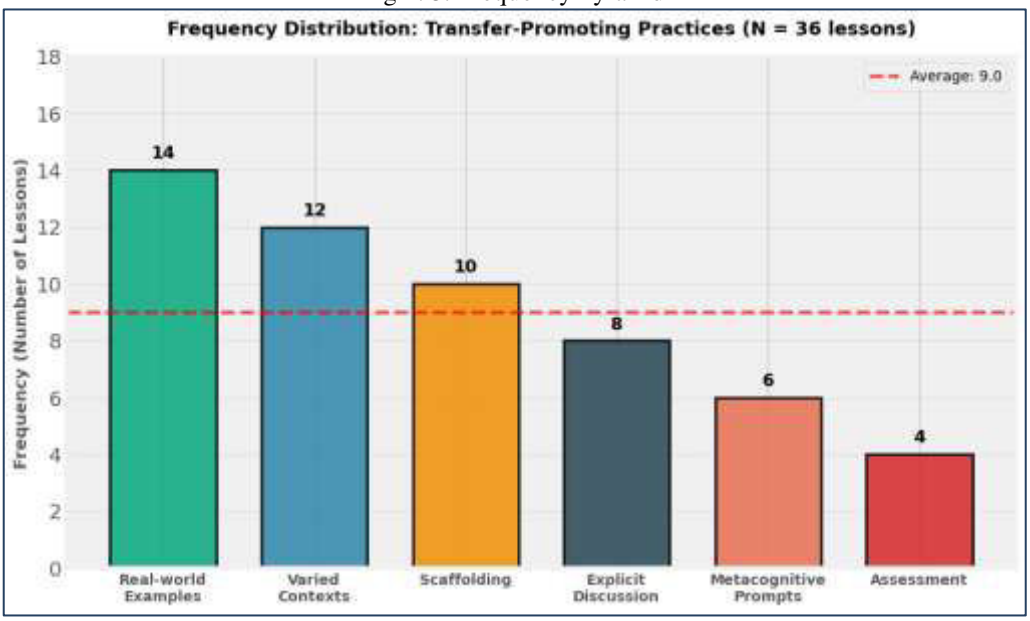


Fig 1. 6: Practice Coverage Comparison

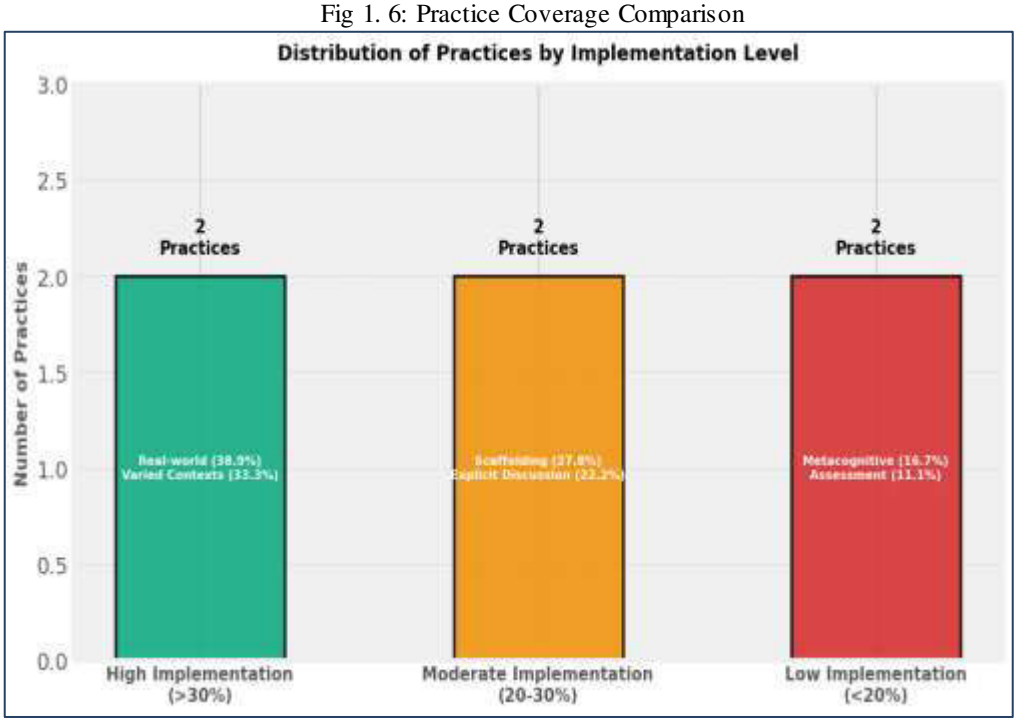
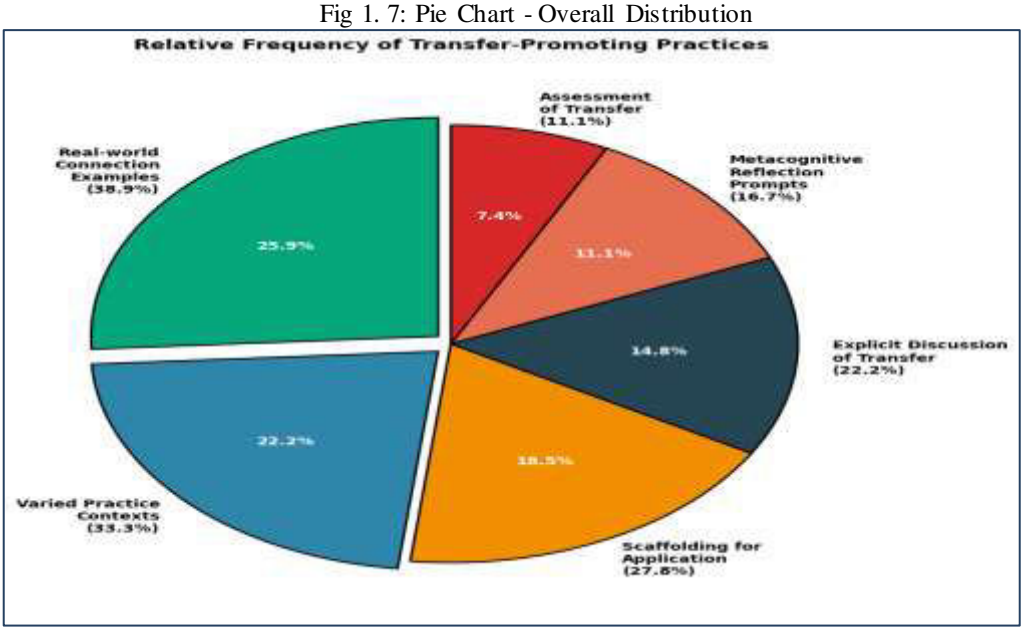


Fig 1. 7: Pie Chart - Overall Distribution



4.4 Teacher Interview Findings on Current Practices

Theme 1: Limited Implementation of Explicit Transfer Instruction

Teachers acknowledged limited implementation of explicit transfer instruction:

"I don't always explicitly teach for transfer. Usually, I just teach the concept and assume Learners will figure out how to use it. I should probably be more explicit about it." (Teacher H, Mathematics, 9 years experience)

Only 3 teachers (25%) reported regularly implementing explicit transfer instruction.

Theme 2: Focus on Procedural Knowledge

Many teachers reported focusing on procedures rather than principles:

"I teach them how to do the procedure—the steps. Once they know the steps, they should be able to apply them. I don't spend much time on why the procedure works or when to use it." (Teacher I, Science, 7 years' experience)

This procedural focus may limit transfer capacity, particularly for far transfer.

Theme 3: Limited Varied Practice

Teachers reported limited provision of varied practice:

"We mostly use textbook problems. The textbook has problems of different types, but we don't have time to do all of them. And we don't have materials to create different types of problems." (Teacher J, Literacy, 6 years' experience)
Resource constraints limited teachers' ability to provide varied practice contexts.

4.5 Barriers to Transfer Promotion

Table 2: Barriers to Transfer Promotion Reported by Teachers

Barrier	Frequency	% of Teachers
Insufficient time	9	75.0%
Limited resources/materials	10	83.3%
Curriculum pressure	8	66.7%
Insufficient teacher knowledge	7	58.3%
Large class sizes	8	66.7%
Assessment system focus on recall	7	58.3%
Lack of administrative support	5	41.7%
Lack of professional development	9	75.0%
Learner motivation/engagement	6	50.0%
Insufficient prior knowledge of Learners	8	66.7%

Theme 1: Time Constraints (n = 9, 75%)
Most teachers cited insufficient time as a major barrier:
"I would like to do more transfer-promoting activities, but I don't have time. I need to cover the curriculum, do assessments, handle classroom management. There's no time left for transfer." (Teacher K, Literacy, 11 years experience)
Theme 2: Resource Limitations (n = 10, 83%)
Resource-constrained schools particularly noted limited resources:
"We don't have materials to create varied practice problems. We have a few textbooks, but that's it. To do transfer activities, we'd need real-world materials, technology, things to do experiments with. We just don't have those resources." (Teacher L, Science, 4 years experience)
Theme 3: Knowledge Gaps (n = 7, 58%)
Several teachers acknowledged insufficient knowledge about transfer promotion:
"Honestly, I'm not sure how to promote transfer. I know it's important, but I don't know specific strategies. Nobody has trained me on this." (Teacher M, Science, 3 years' experience)
Theme 4: Curriculum and Assessment Pressure (n = 8, 66%)
Teachers noted that curriculum coverage and exam preparation pressures limit attention to transfer:
"The exam tests whether Learners know facts and procedures. It doesn't test transfer. So, schools focus on exam preparation. Transfer isn't tested, so it's not prioritized." (Teacher D, Literacy, 12 years' experience)

4.6 Factors Influencing Teacher Implementation of Transfer-Promoting Practices

Table 3: Teacher Implementation of Transfer-Promoting Practices by Condition

Condition	With Training & Materials (n = 6)	Without Training & Materials (n = 6)	Difference
% Regularly implementing explicit transfer instruction	83.3%	16.7%	66.6 pp
% Providing varied practice contexts	80.0%	33.3%	46.7 pp
% Using metacognitive reflection prompts	66.7%	16.7%	50.0 pp
% Assessing transfer	50.0%	0.0%	50.0 pp

Theme 1: Impact of Professional Development
Teachers who received training in transfer-promoting strategies implemented these practices much more frequently than teachers without training:
"After the training, I understood what transfer is and learned specific strategies. Now I deliberately teach for transfer. It makes a difference—I can see Learners applying knowledge in new contexts." (Teacher A, Mathematics, 22 years' experience)
Six teachers received training and curriculum materials as part of the research intervention; these teachers showed substantially higher implementation of transfer-promoting practices.
Theme 2: Impact of Curriculum Materials
Teachers with curriculum materials designed to support transfer implemented transfer-promoting practices more frequently:
"The lesson plans and materials we got show how to teach for transfer. They give specific examples and activities. Having these materials makes it so much easier to implement transfer-promoting instruction." (Teacher E, Mathematics, 15 years experience)
Theme 3: School Leadership Support
Teachers in schools where administrators actively supported transfer promotion showed higher implementation:
"Our principal encourages us to focus on transfer. She provides time for us to plan together, she visits classrooms to observe transfer-promoting practices, she celebrates successes. This support makes a big difference." (Teacher B, Mathematics, 8 years' experience)

4.7 Professional Development Needs

Theme 1: Knowledge Gaps (n = 10, 83%)

Most teachers expressed need for professional development on transfer:

"I need to learn more about transfer theory and research. I need to understand what transfer is and why it matters. I need specific strategies I can use." (Teacher C, Science, 3 years' experience)

Theme 2: Subject-Specific Strategies (n = 8, 67%)

Teachers wanted subject-specific professional development:

"I want to learn how to promote transfer specifically in mathematics. What are the best ways to help math Learner's transfer? How do I teach abstract mathematical reasoning?" (Teacher G, Literacy, 10 years experience)

Theme 3: Classroom Management of Transfer-Promoting Activities (n = 7, 58%)

Teachers expressed need for help managing transfer-promoting activities in large classes:

"I want to do more group work and varied practice activities, but managing large classes doing different activities is difficult. I need strategies for managing this." (Teacher J, Literacy, 6 years experience)

4.8 Recommendations from Teachers

Theme 1: Need for Curriculum Materials

Teachers recommended development of curriculum materials supporting transfer:

"We need lesson plans and materials that show us how to teach for transfer. Having ready-made materials would make it so much easier to implement transfer-promoting instruction." (Teacher H, Mathematics, 9 years experience)

Theme 2: Need for Professional Development

Teachers recommended high-quality professional development:

"We need workshops on transfer. Not just one workshop, but ongoing professional development. We need time to learn, practice, get feedback, and refine our practices." (Teacher D, Literacy, 12 years experience)

Theme 3: Need for Systemic Support

Teachers recommended systemic changes:

"We need curriculum standards that emphasize transfer. We need assessments that test transfer. We need time in the school day for transfer-promoting activities. We need resources. It's not just about teacher knowledge—we need systemic support." (Teacher A, Mathematics, 22 years experience)

Theme 4: Need for Administrative Support

Teachers recommended administrative support:

"School leaders need to understand transfer and support teachers in promoting it. They need to provide time, resources, and encouragement. They need to create a school culture that values transfer." (Teacher E, Mathematics, 15 years experience)

4.9 Subject-Area Differences in Teacher Perspectives

Table 4: Subject-Area Differences in Transfer Promotion

Aspect	Mathematics	Literacy	Science
Teachers with sophisticated transfer understanding	50%	25%	25%
Teachers regularly implementing explicit transfer instruction	50%	0%	25%
Transfer-promoting practices observed (avg % per lesson)	35.2%	24.1%	20.8%
Teachers citing insufficient knowledge as barrier	25%	75%	75%
Teachers wanting subject-specific professional development	75%	100%	100%

Mathematics teachers showed higher implementation of transfer-promoting practices and more sophisticated understanding of transfer compared to literacy and science teachers.

4.10 Impact of Teaching Experience on Transfer Perspectives

Table 5: Teacher Perspectives by Years of Experience

Experience Level	Understanding Transfer Sophistication	Implementing Transfer Practices	Barriers Cited
0–5 years (n = 3)	33% sophisticated	22% regular implementation	100% cited knowledge gaps
6–15 years (n = 6)	33% sophisticated	33% regular implementation	67% cited barriers
16+ years (n = 3)	67% sophisticated	67% regular implementation	33% cited barriers

More experienced teachers demonstrated more sophisticated understanding of transfer and higher implementation of transfer-promoting practices.

Fig 5. 1: Understanding Transfer Sophistication by Experience Level

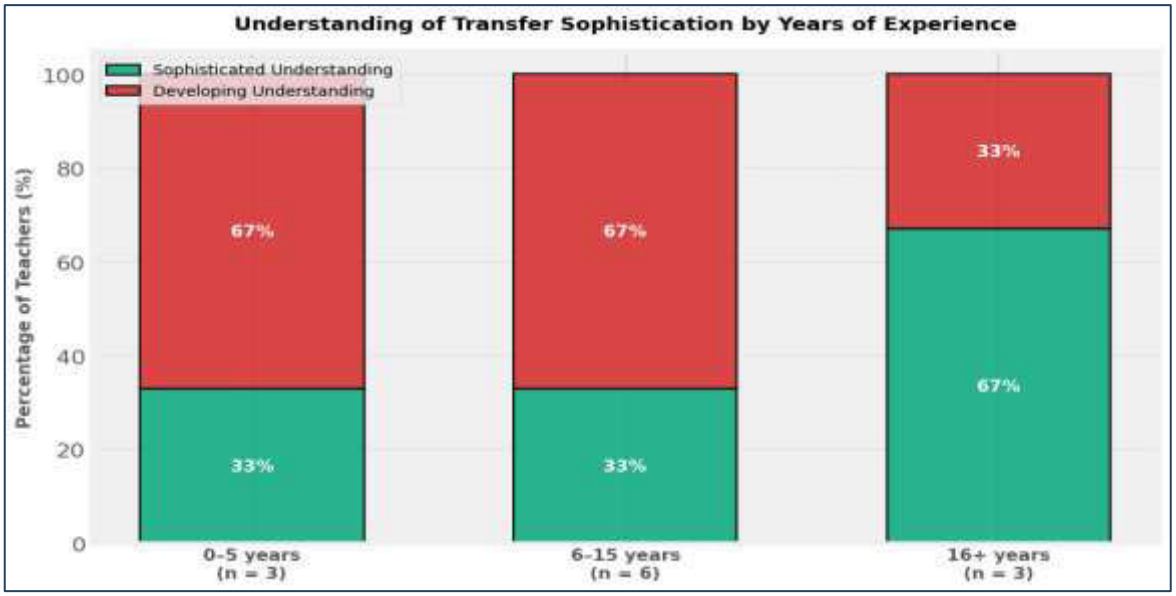


Fig 5. 2: Implementation of Transfer Practices by Experience

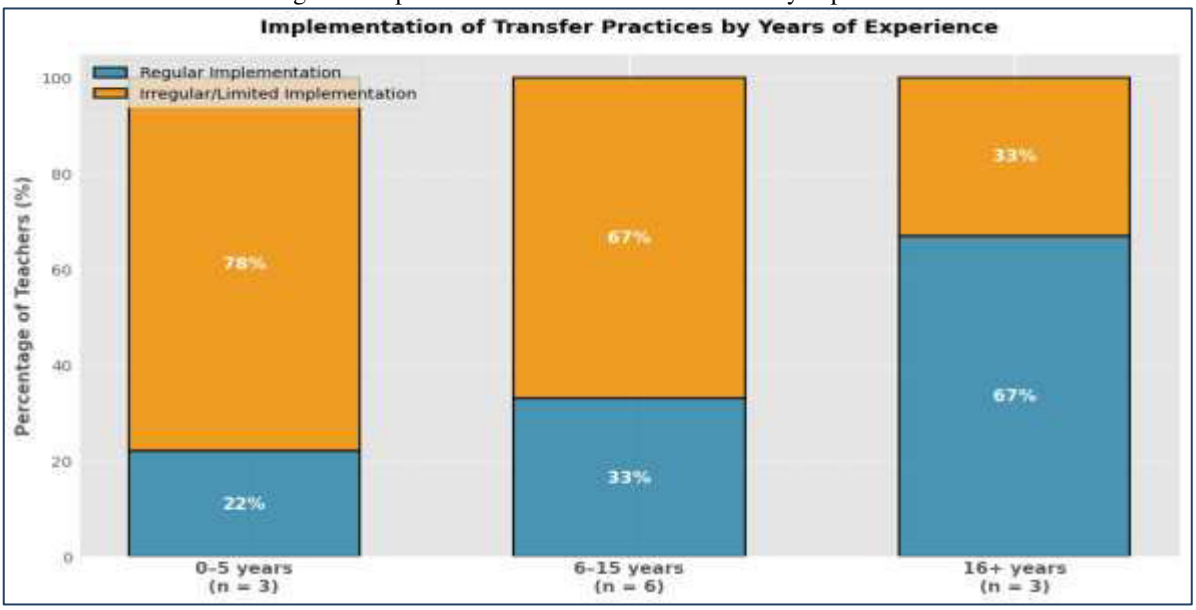


Fig 5. 3: Barriers Cited by Experience Level

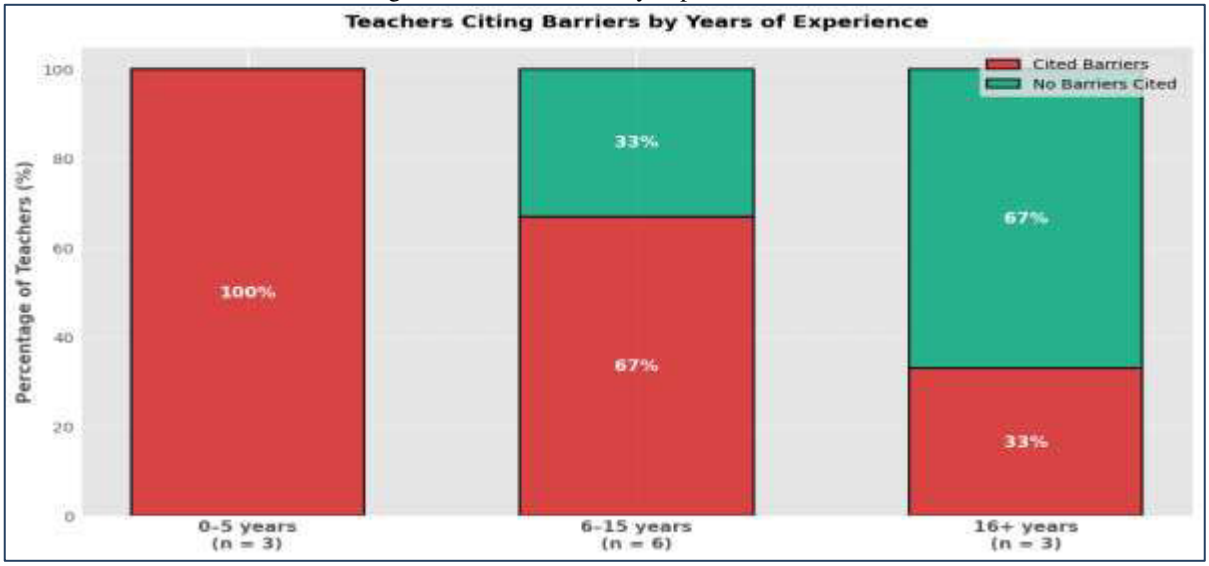


Fig 5.4: Comparative Performance Metrics

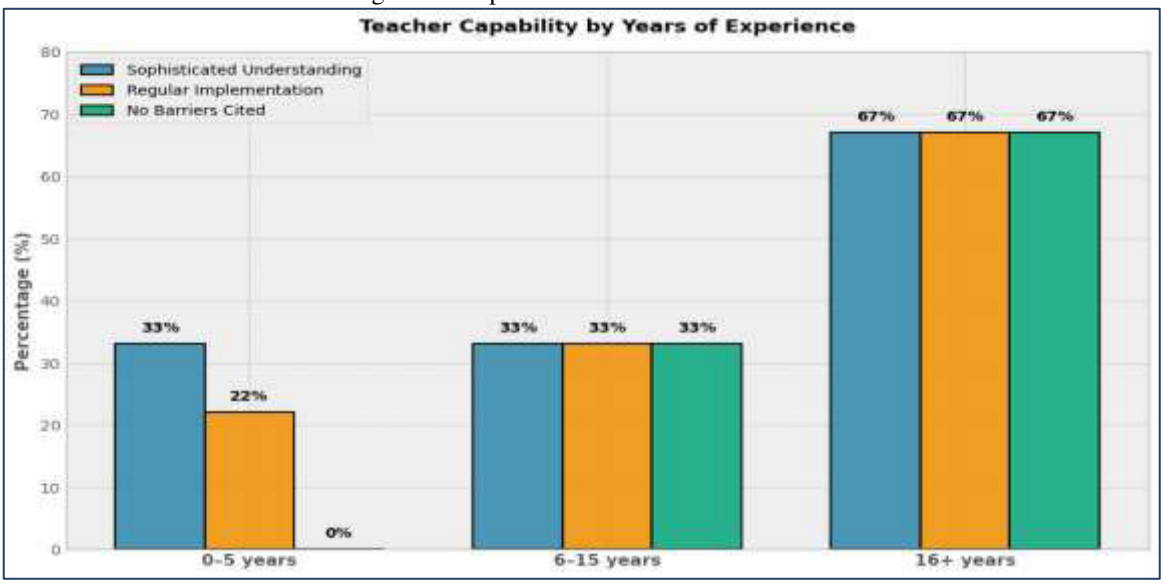


Fig 5. 5: Experience Level Progression

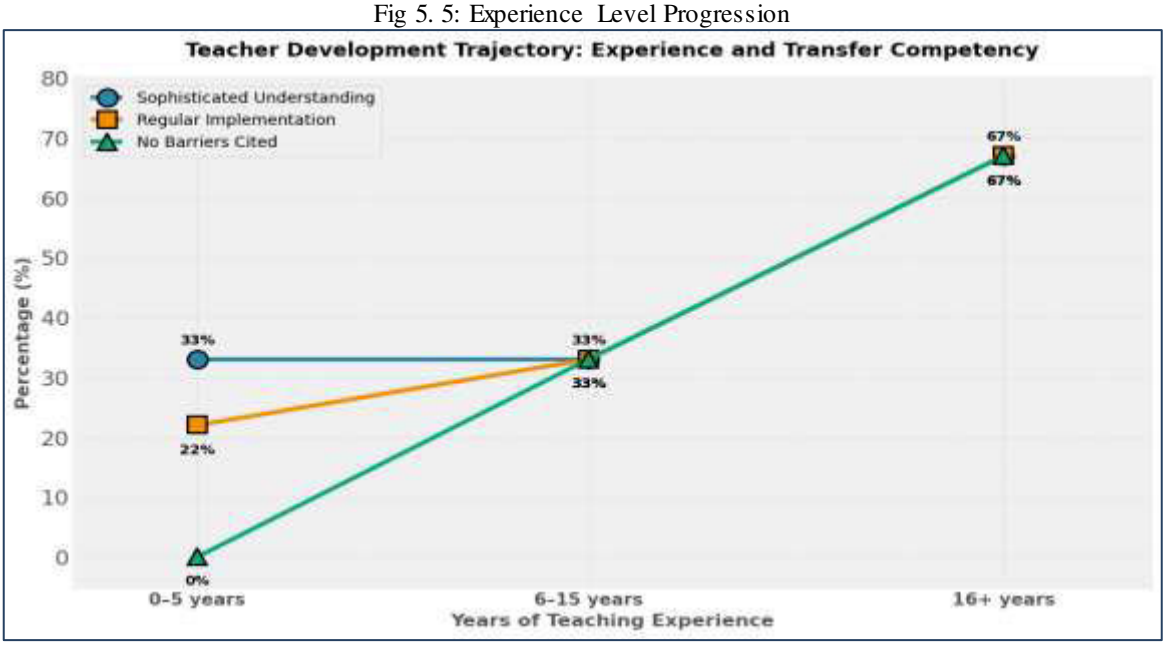


Fig 5. 6: Sample Size and Data Distribution

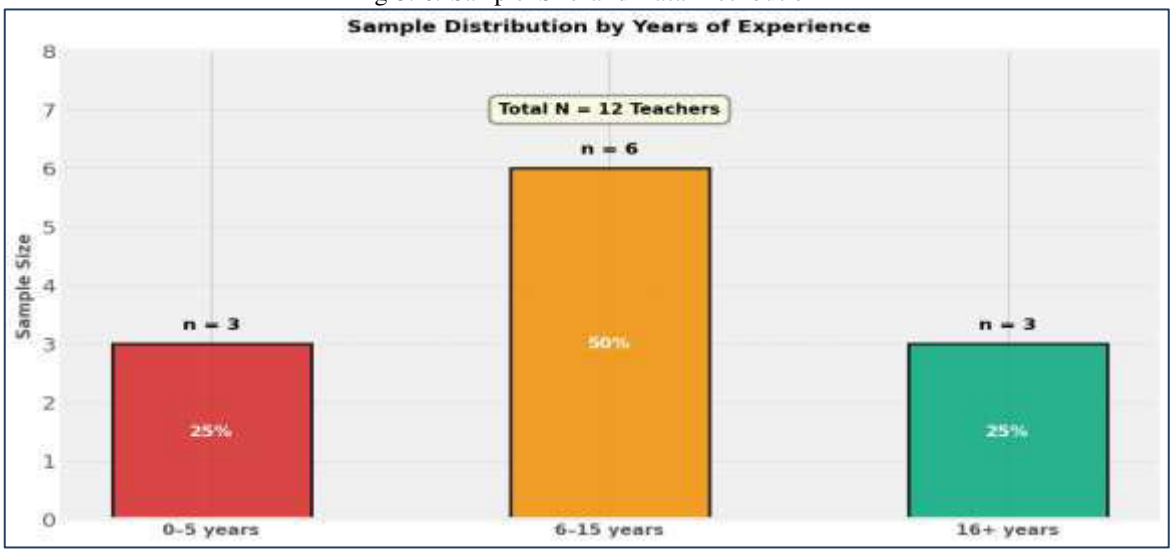
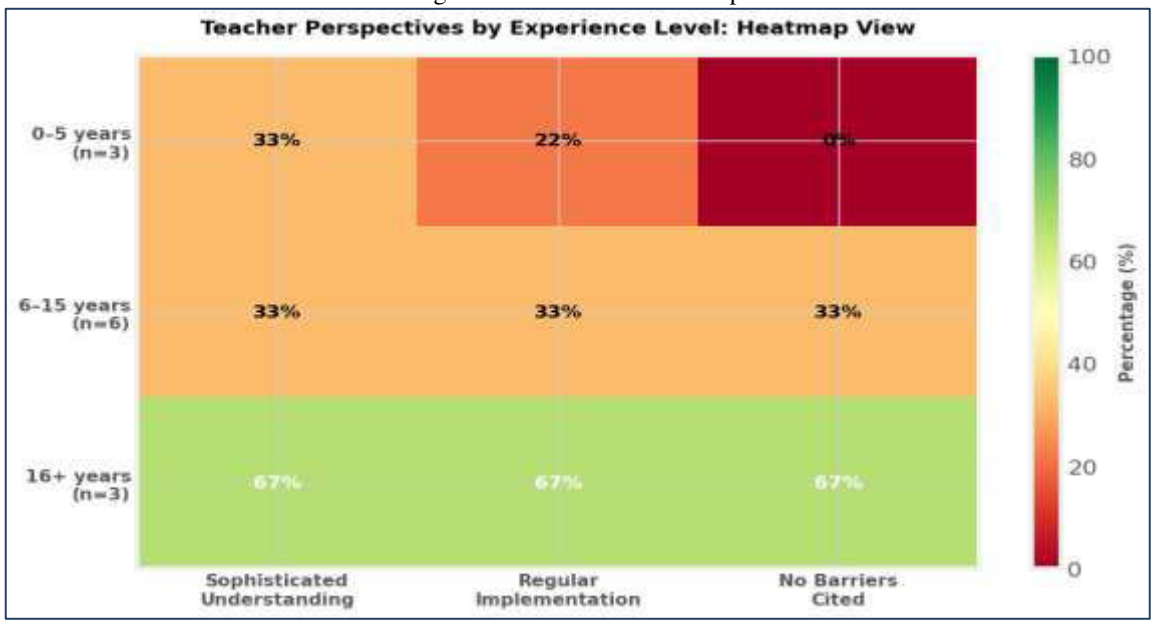


Fig 5.7: Multi-Metric Heatmap



5. Discussion

5.1 Variable Teacher Understanding of Transfer

The finding that only 33% of teachers demonstrated sophisticated understanding of transfer, with 25% demonstrating limited understanding, indicates a significant gap in teacher knowledge about transfer. This gap likely contributes to limited implementation of transfer-promoting practices.

Teachers with limited understanding viewed transfer as memory or reproduction rather than flexible application of knowledge. This conceptualization would naturally lead to instructional practices focused on drilling procedures rather than on promoting flexible application (Haskell, 2017).

The finding that more experienced teachers showed more sophisticated understanding suggests that understanding develops through practice and experience. However, relying on experience alone is inefficient; professional development could accelerate development of sophisticated understanding (Darling-Hammond et al., 2019).

5.2 Gap Between Beliefs and Practices

While 83% of teachers agreed that transfer is important, only 27% regularly implemented explicit transfer instruction. This gap between beliefs and practices reflects the multiple barriers teachers face. Even teachers who value transfer and understand its importance may not implement transfer-promoting practices if they face time constraints, resource limitations, or lack knowledge of specific strategies (Royer, 2021).

This gap also reflects the influence of assessment systems. Teachers noted that exams focus on knowledge recall rather than transfer, creating pressure to prioritize exam preparation over transfer promotion (Lobato & Siebert, 2020).

5.3 Impact of Professional Development and Support

The dramatic difference in transfer-promoting practice implementation between teachers with training and materials (83% regular implementation) and teachers without (17% regular implementation) demonstrates the powerful impact of professional development and curriculum support. This finding aligns with research on the importance of professional development in improving instructional practices (Darling-Hammond et al., 2019).

Professional development appears to work through multiple mechanisms:

- Increasing knowledge: Teachers learn about transfer and evidence-based strategies
- Building confidence: Teachers develop confidence in their ability to implement strategies
- Reducing barriers: Curriculum materials and administrative support reduce implementation barriers
- Changing beliefs: Teachers' beliefs about transfer promotion possibility shift

5.4 Barriers to Transfer Promotion

Teachers identified multiple interacting barriers to transfer promotion. Time constraints, resource limitations, and curriculum pressure represent systemic barriers beyond individual teacher control. Teachers cannot easily address these barriers without systemic support (Royer, 2021).

The finding that 75% of teachers cited insufficient professional development as a barrier aligns with research documenting that many teachers lack training in transfer promotion (Haskell, 2017). Addressing this barrier requires investment in teacher professional development (Darling-Hammond et al., 2019).

5.5 Subject-Area Differences

The finding that mathematics teachers showed more sophisticated transfer understanding and higher implementation of transfer-promoting practices compared to literacy and science teachers may reflect:

- Instructional tradition: Mathematics instruction traditionally emphasizes procedural practice, which may inadvertently support transfer-promoting practices like varied practice
- Teacher preparation: Mathematics teachers may receive stronger preparation in their subject matter
- Assessment alignment: Mathematics assessments may include transfer tasks more frequently than literacy or science assessments

These subject-area differences suggest that subject-specific professional development and curriculum support may be needed.

5.6 Teacher Recommendations

Teachers' recommendations align with research on effective professional development and school improvement:

- Curriculum materials: Well-designed materials support implementation (Darling-Hammond et al., 2019)
- Professional development: Ongoing, high-quality professional development improves practices (Royer, 2021)
- Systemic support: Changes to curriculum standards, assessments, and school structures support transfer promotion (Haskell, 2017)
- Administrative support: School leaders play a critical role in supporting implementation (Darling-Hammond et al., 2019)

5.7 Implications for Teacher Support

These findings suggest that improving transfer outcomes requires comprehensive support for teachers:

1. Professional Development: Teachers need high-quality professional development on:
- Transfer theory and research
- Evidence-based transfer-promoting strategies
- Subject-specific strategies for promoting transfer
- How to manage transfer-promoting activities in large classes

2. Curriculum Materials: Schools need curriculum materials including:
- Lesson plans designed to promote transfer
- Transfer tasks and activities
- Real-world application examples
- Guidance on scaffolding transfer

3. Administrative Support: School leaders need to:
- Understand transfer and support teachers in promoting it
- Provide time for transfer-promoting instruction
- Allocate resources for transfer-promoting activities
- Create school cultures valuing transfer

4. Systemic Changes: Systems need to:
- Include transfer in curriculum standards
- Include transfer tasks in assessments
- Allocate resources for professional development
- Support collaboration among teachers

5.8 Limitations

This study has several limitations. First, the sample size of 12 teachers limits generalizability. Second, the study relies on teacher self-report and observation data; teachers' stated beliefs and practices may differ from actual practices. Third, the study focuses on Lusaka District; findings may not generalize to other contexts. Fourth, the study did not examine the relationship between teacher perspectives and Learner transfer outcomes.

6. Conclusions

Teachers in Lusaka District primary schools demonstrate variable understanding of transfer, ranging from sophisticated to limited. While most teachers value transfer, curriculum and assessment pressures, resource constraints, and insufficient knowledge limit implementation of transfer-promoting practices. Professional development and curriculum materials substantially increase implementation. Teachers face multiple barriers to transfer promotion and need comprehensive support including professional development, curriculum materials, and systemic changes.

7. Recommendations

For Teachers:

- Engage in professional development on transfer-promoting strategies
- Implement explicit transfer instruction in lessons
- Provide varied practice contexts for learners

- Use metacognitive reflection prompts
- Connect learning to real-world applications
- Collaborate with colleagues on transfer promotion

For School Leaders:

- Support teachers in implementing transfer-promoting practices
- Provide professional development on transfer
- Allocate resources and time for transfer-promoting instruction
- Create school cultures valuing transfer
- Monitor and support transfer-promoting practice implementation
- Advocate for systemic changes supporting transfer

For Teacher Educators:

- Include transfer content in teacher preparation programs
- Provide subject-specific training on transfer promotion
- Use active learning approaches in professional development
- Include follow-up coaching and support
- Help teachers address barriers to transfer promotion
- Model transfer-promoting instruction

For Curriculum Developers:

- Develop curriculum materials supporting transfer
- Include transfer-promoting activities and strategies
- Provide teacher guidance on implementation
- Include real-world application examples
- Design transfer tasks for assessment
- Provide professional development for curriculum implementation

For Policymakers:

- Include transfer in curriculum standards
- Include transfer tasks in national assessments
- Support professional development on transfer
- Allocate resources for transfer-promoting instruction
- Create policies supporting transfer promotion
- Support research on effective transfer-promoting practices

For Future Research:

- Longitudinal studies examining how teacher professional development affects transfer promotion
- Studies examining relationship between teacher perspectives and Learner transfer outcomes
- Research on effective professional development models for transfer promotion
- Studies of barriers to transfer promotion in different contexts
- Research on school leadership factors supporting transfer promotion
- Studies of systemic factors affecting transfer-promoting practice implementation

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Appendices available on request

Author declaration

I declare that this manuscript is my original work and has not been previously submitted for publication elsewhere.

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Conflict of interest

The author declares no conflict of interest.