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Research Article

TEACHERS' PERSPECTIVES ON SPIRAL PROGRESSION IN MATHEMATICS 7: A QUALITATIVE ANALYSIS USING THE ADAPTED KIRKPATRICK MODEL

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Abstract

This study evaluated the implementation of the spiral progression approach in Mathematics 7 from teachers' perspectives using the Adapted Kirkpatrick Evaluation Model as an analytical framework. Conducted in selected public secondary schools in the LOCATU (Loon–Calape–Tubigon) Sub-Congressional District 1, Schools Division Office of Bohol, the study employed a descriptive-qualitative research design. Twelve (12) Mathematics 7 teachers were purposively selected based on school size classification and experience in implementing the spiral progression approach. Data were collected through semi-structured interviews and analyzed using thematic analysis following Braun and Clarke (2006). The Kirkpatrick Model was adapted to the educational context by aligning its four levels with teachers' perspectives: Reaction (teachers' responses), Learning (teachers' observations of students' understanding and engagement), Behavior (instructional practices and pedagogical adjustments), and Results (perceived outcomes of implementation). Findings revealed that teachers perceived the spiral progression approach as structurally complex and fragmented, resulting in discontinuity of lessons and misalignment with learners' readiness. Teachers reported weak retention, limited conceptual mastery, and difficulty in connecting mathematical concepts across topics. They employed adaptive instructional strategies such as scaffolding, differentiated instruction, collaborative learning, and curriculum modification, indicating increased instructional burden and systemic gaps. Furthermore, the spiral progression approach contributed to limited student preparedness for advanced mathematical concepts, weak long-term retention, and persistent foundational learning gaps. Its effectiveness was constrained by issues in sequencing, pacing, and instructional alignment. The study recommends curriculum refinement, strengthened instructional support, and improved coherence in content sequencing under the MATATAG Curriculum.

Keywords: Spiral progression approach, Mathematics 7, Teachers' perspectives, curriculum implementation, Adapted Kirkpatrick Evaluation Model, MATATAG Curriculum, thematic analysis.

INTRODUCTION

The spiral progression approach is a key feature of the Philippine K to 12 Mathematics curriculum, designed to promote cumulative learning through the gradual revisiting of concepts with increasing complexity. Anchored in the theory of Bruner (2009), the approach supports the idea that learners develop deeper understanding when concepts are revisited and expanded over time. In the Philippine context, this approach was institutionalized through Republic Act No. 10533 and reinforced through Department of Education policies mandating its implementation in Mathematics instruction. Under the MATATAG Curriculum, the spiral progression approach continues to be implemented to strengthen foundational learning and improve content sequencing (Department of Education, 2023). However, despite its theoretical grounding, concerns persist regarding its effectiveness in classroom practice. Studies have reported challenges related to content sequencing, learner readiness, and instructional coherence, indicating a gap between curriculum design and classroom implementation (Perez *et al.,* 2020; Dio, 2020; Oliva, 2023). Existing evaluation frameworks, such as the Context–Input–Process–Product (CIPP) Model, have been widely used in curriculum assessment. However, these models tend to focus on program-level evaluation and may not adequately capture teachers' experiences and instructional responses in classroom contexts (Zhang *et al.,* 2011). This limitation highlights the need for a more context-sensitive framework that examines curriculum implementation from the perspective of teachers. To address this gap, the present study adopts the Kirkpatrick Evaluation Model, originally developed for training evaluation, and adapts it to the educational context. The model consists of four levels reaction, learning, behavior, and results and has been widely applied due to its systematic structure in evaluating participant experiences and outcomes (Kirkpatrick & Kirkpatrick, 2006; Bates, 2004). Recent studies have also demonstrated its applicability in educational settings, particularly in evaluating instructional practices and learning outcomes (Kusmiati, 2025; Gallant *et al.,* 2026). Despite existing studies on spiral progression, limited research has examined its implementation using a structured evaluation framework that captures teachers' perspectives across multiple dimensions of classroom practice. This study aimed to evaluate the implementation of the spiral progression approach in Mathematics 7 from teachers' perspectives in selected public secondary schools in the LOCATU Sub-Congressional District 1, Schools Division Office of Bohol. By applying the Adapted Kirkpatrick Evaluation Model, the study sought to generate context-sensitive insights that can inform curriculum refinement, instructional support, and policy development. This study employed a descriptive-qualitative research design to examine teachers' perspectives on the implementation of the spiral progression approach in Mathematics 7. The study was conducted in selected public secondary schools in the LOCATU Sub-Congressional District 1, Schools Division Office of Bohol. Twelve (12) Mathematics 7 teachers were purposively selected based on the following criteria: (1) currently teaching Mathematics 7, (2) having direct experience in implementing the spiral progression approach, and (3) being

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assigned to schools classified as small/medium or large based on total student enrolment. Six participants were drawn from small/medium schools and six from large schools to ensure representation across instructional contexts. Data were collected through semi-structured interviews anchored on the Adapted Kirkpatrick Evaluation Model. The instrument underwent pilot testing to ensure clarity and relevance. Ethical protocols, including informed consent, confidentiality, and voluntary participation, were strictly observed. Data were analyzed using thematic analysis following Braun and Clarke (2006). Interview transcripts were coded, categorized, and organized into themes, which were aligned with the four levels of the Adapted Kirkpatrick Evaluation Model: Reaction, Learning, Behavior, and Results. To ensure rigor, credibility, dependability, and confirmability were established through systematic coding, verbatim transcription, and alignment with raw data.

RESULTS AND DISCUSSION

This study examined teachers' perspectives on the implementation of the spiral progression approach in Mathematics 7 using the Adapted Kirkpatrick Evaluation Model. Themes generated through thematic analysis were organized into four levels: Reaction, Learning, Behavior, and Results.

Teachers' Perspectives on the Spiral Progression Approach (Reaction Level)

Findings revealed that teachers perceived the spiral progression approach as structurally complex and fragmented, characterized by discontinuity of lessons and lack of conceptual coherence. Participants described abrupt transitions across mathematical strands, resulting in difficulty in maintaining logical progression of concepts. These findings support previous studies indicating challenges in curriculum sequencing and coherence. Bruner (2009) emphasized that learning becomes meaningful when concepts are revisited systematically; however, when sequencing is inconsistent, the intended cumulative learning is not achieved. Similarly, Perez et al. (2020) reported that teachers often hold mixed or negative perceptions of the spiral progression approach due to implementation challenges, while Oliva (2023) noted that, although the approach is theoretically beneficial, practical difficulties persist in classroom application. Teachers also expressed ambiguity in understanding the rationale of spiral progression, suggesting gaps in conceptual clarity and professional preparation. This aligns with Bartolome (2023), who emphasized that teachers' level of understanding significantly influences the effectiveness of curriculum implementation. Within the Kirkpatrick framework, sustained negative or conditional responses at the reaction level indicate deeper structural and instructional concerns affecting overall program effectiveness (Bates, 2004).

Teachers' Observations of Students' Learning (Learning Level)

At the learning level, teachers consistently observed weak retention, limited conceptual mastery, and difficulty in connecting mathematical concepts across topics. Students were described as struggling to recall prior knowledge and apply it to new lessons, indicating gaps in vertical coherence. These findings are consistent with Dio (2020), who identified discontinuities in spiral curriculum implementation that hinder students' ability to connect prior and new knowledge. Similarly, Schmidt et al. (2002) emphasized that curriculum coherence is essential for continuity in learning progression, while Schmidt et al. (2005) highlighted that well-sequenced curricula support meaningful conceptual development. Teachers also noted that the effectiveness of the spiral progression approach was conditional on learners' readiness, with students who have weak foundational skills experiencing greater difficulty. This supports Orale and Uy (2018), who described the phenomenon of a "broken spiral," where lack of mastery of prerequisite concepts leads to ineffective learning progression.

Instructional Practices and Pedagogical Adjustments (Behavior Level)

In response to the identified challenges, teachers reported implemented adaptive instructional strategies, including scaffolding, differentiated instruction, collaborative learning, and curriculum modification. These practices were necessary to address gaps in understanding and improve lesson coherence. This finding aligns with the perspective of Michael Fullan (2016), who emphasized that the success of educational reforms depends largely on how teachers interpret and implement curriculum policies in classroom practice. Similarly, Abaiz et al. (2025) found that while the MATATAG Curriculum supports foundational learning, teachers encounter challenges related to pacing, time constraints, and limited resources. Saro et al. (2024) further reported that teachers adapt instructional strategies to meet curriculum demands but require additional training and support. However, these adaptations resulted in an increased instructional burden, as teachers were required to reteach concepts, reorganize lesson sequences, and supplement instructional materials. Bacud and Futalan (2024) noted that while spiral progression allows reinforcement of concepts, it may lead to fragmented understanding when transitions are not well managed. These findings highlight that effective implementation relies heavily on teacher intervention rather than the inherent structure of the curriculum. Within the Kirkpatrick framework, the behavior level reflects how learning translates into practice. The need for extensive instructional adjustments suggests that teachers are compensating for structural limitations in the curriculum, raising concerns about sustainability and consistency of implementation.

Perceived Outcomes of Implementation (Results Level)

At the results level, teachers perceived that the spiral progression approach contributed to limited student preparedness for advanced mathematical concepts, weak long-term retention, and persistent foundational learning gaps. Despite repeated exposure to concepts, students were reported to struggle with mastery and application. These findings are consistent with Batidor and Casinillo (2021), who reported that while improvements may occur in specific areas, overall student performance remains below satisfactory. Oliva (2023) also found that challenges in pacing and content delivery affect mastery, while Tarver (2015) emphasized that ineffective instructional strategies contribute to poor retention in mathematics. Conversely, Narli (2011) highlighted that meaningful, concept-based instruction is necessary to improve long-term retention, suggesting that repetition alone is insufficient without coherence and depth.

Furthermore, comparative studies by Ocumen and Callaman (2025) indicate that while the Philippine curriculum emphasizes flexibility, it lacks the depth and mastery-based progression observed in high-performing systems. These findings suggest that structural and instructional factors significantly influence the outcomes of the spiral progression approach. Within the Kirkpatrick model, results represent the overall effectiveness of a program. In this study, the perceived outcomes indicate that while the approach has theoretical merit, its effectiveness is constrained by issues in sequencing, pacing, and instructional alignment.

Across all four levels, the findings revealed a consistent pattern of misalignment between curriculum design and classroom implementation. Teachers' responses (Reaction), observed learning difficulties (Learning), instructional adaptations (Behavior), and perceived outcomes (Results) collectively indicate that the spiral progression approach is not fully realized in practice. This supports Zhang et al. (2011), who argued that traditional evaluation frameworks often fail to capture classroom-level realities. By contrast, the Adapted Kirkpatrick Evaluation Model proved to be a context-sensitive and teacher-centered framework, effectively capturing the dynamic relationship between teachers' experiences, instructional practices, and student outcomes. Overall, the findings highlight that the effectiveness of the spiral progression approach depends not only on its theoretical design but also on curriculum coherence, instructional support, and alignment with learners' needs, particularly within the context of the MATATAG Curriculum.

Conclusion

The present study evaluated the implementation of the spiral progression approach in Mathematics 7 using the Adapted Kirkpatrick Evaluation Model. Findings revealed that the approach, while theoretically grounded, is perceived as structurally complex and fragmented, resulting in discontinuity of lessons and misalignment with learners' readiness. Teachers observed weak retention, limited conceptual mastery, and difficulty in connecting concepts across topics. In response, they implemented adaptive instructional strategies, which increased instructional burden and highlighted systemic gaps. The approach contributes to limited student preparedness, weak long-term retention, and persistent learning gaps.

The study demonstrates that the Adapted Kirkpatrick Evaluation Model provides a context-sensitive framework for evaluating curriculum implementation from teachers' perspectives. It highlights the need for curriculum refinement, strengthened instructional support, and improved coherence in content sequencing under the MATATAG Curriculum. The findings of this study have important implications for curriculum development and instructional practice. First, curriculum planners may consider revisiting the sequencing and coherence of mathematical concepts to ensure alignment with learners' readiness and promote mastery. Second, the increased instructional burden experienced by teachers highlights the need for strengthened professional development and instructional support systems. Finally, the use of the Adapted Kirkpatrick Evaluation Model demonstrates the value of teacher-centered evaluation frameworks in capturing classroom-level realities, which may inform future curriculum evaluation studies.

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