

Beyond Enactment: Instructional Durability in Teacher Education

Wachira Nicholas

Aga Khan University

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ABSTRACT

Teacher education research has generated substantial knowledge about how novice teachers learn to enact evidence-based practices during preparation and practicum experiences. However, less is known about whether these practices endure once teachers enter professional contexts characterized by competing demands, resource constraints, and reduced supervisory support. This study addresses this gap by introducing the concept of *instructional durability* and examining how evidence-based literacy practices are sustained, adapted, or diluted during the transition from teacher preparation to professional teaching.

Drawing on a longitudinal explanatory sequential mixed-methods design, the study followed novice teachers from practicum into their first year of teaching. Data were generated through classroom observations, interviews, and analysis of programme and instructional documents. Analysis examined relationships among preparation architecture, enactment capacity, contextual pressures, teacher agency, adaptation quality, and instructional durability.

The findings indicate that practicum enactment alone is an insufficient indicator of preparation effectiveness. Although most participants demonstrated competence in implementing evidence-based literacy routines during practicum, substantial variation emerged during first-year teaching. Teachers who engaged in productive adaptations were more likely to sustain the pedagogical functions and instructional intent of literacy practices despite contextual challenges, whereas diluting adaptations contributed to declining instructional quality and reduced opportunities for learner engagement, assessment, and feedback.

The study advances instructional durability as a framework for understanding the long-term effects of teacher preparation. It argues that preparation influences classroom practice not only through enactment capacity but also through teachers' ability to engage in principled adaptation that preserves instructional intent across changing professional contexts. Implications are discussed for teacher education, induction, and literacy reform.

Keywords: instructional durability; teacher education; literacy instruction; teacher agency; adaptation.

INTRODUCTION

Foundational literacy is widely recognized as one of the most important determinants of subsequent educational participation, achievement, and lifelong learning. The ability to read with understanding during the early years of schooling provides access to broader learning opportunities and influences learners' educational trajectories across the lifespan (UNESCO, n.d.; UNICEF, 2024a). Yet despite substantial investment in literacy reforms globally, many education systems continue to face persistent challenges in improving foundational literacy outcomes. Across low- and middle-income countries, large proportions of learners complete the early grades without achieving expected levels of reading proficiency, raising concerns about the quality of classroom instruction and the effectiveness of teacher preparation systems (World Bank, 2022; UNICEF, 2024a). Foundational literacy remains a major educational priority globally, with recent international monitoring reports indicating persistent challenges in ensuring that all learners acquire foundational reading competencies despite expanded investments in teacher development and instructional reform (UNICEF, 2023, 2024a).

Within these efforts, teacher education has emerged as a critical policy lever for improving literacy instruction. Governments, development agencies, and educational institutions increasingly emphasize the preparation of teachers capable of implementing evidence-based literacy practices associated with learner achievement (UNICEF, 2024b). Consequently, initial teacher education (ITE) programmes have expanded their focus on instructional approaches such as explicit phonics instruction, guided reading, formative assessment, structured feedback, and vocabulary development. Research suggests that when effectively enacted, these practices can enhance learners' opportunities to engage in meaningful literacy learning (Moats, 2020; Snow & Matthews, 2016).

Despite these advances, a persistent challenge remains. Although many novice teachers demonstrate competence in implementing evidence-based practices during coursework and practicum experiences, considerably less is known about whether such practices are sustained once teachers enter professional contexts characterized by competing demands, resource constraints, and reduced supervisory support. Practicum environments often provide structured opportunities for observation, feedback, mentoring, and guided reflection. In contrast, first-year teaching frequently requires novice teachers to navigate large classes, curriculum pressures, resource limitations, and diverse learner needs while exercising increasing professional autonomy (Feiman-Nemser, 2001; Ingersoll & Strong, 2011). Practices that appear robust during preparation may therefore evolve, weaken, or disappear as teachers adapt to these realities.

This challenge points to a broader limitation within teacher education research. Much of the literature has focused on teacher knowledge, beliefs, competencies, readiness, and classroom enactment during preparation (Darling-Hammond, 2006; Grossman et al., 2009; Jensen et al., 2018). Practice-based teacher education scholarship has significantly advanced understanding of how teachers learn to enact high-leverage instructional practices through representation, decomposition, approximation, and feedback (Ball & Forzani, 2009; Grossman et al., 2009; Lampert et al., 2013). However, comparatively little attention has been devoted to understanding what happens to these practices after teachers leave preparation programmes and assume full responsibility for classroom instruction.

Related scholarship in implementation science has examined issues of fidelity, adaptation, and sustainability, highlighting the ways interventions change as they move into practice (Century & Cassata, 2016; Durlak & DuPre, 2008; Wiltsey Stirman et al., 2019). Yet these constructs do not fully explain how teachers preserve the pedagogical purposes of evidence-based practices while adapting them to changing professional conditions. Fidelity emphasizes adherence to prescribed procedures, whereas adaptation and sustainability focus primarily on modification and continuation. Missing from these perspectives is a framework for understanding how novice teachers sustain the instructional intent and pedagogical functions of evidence-based practices as they negotiate the complexities of professional teaching. Comparatively little attention has been devoted to understanding what happens to instructional practices once teachers enter professional contexts, despite continuing calls for longitudinal research linking teacher preparation, professional practice, and learner outcomes (Menter, 2021).

To address this gap, this study introduces the concept of instructional durability. Instructional durability refers to the capacity of novice teachers to sustain the pedagogical functions and instructional intent of evidence-based practices across changing professional contexts while preserving opportunities for learner engagement, diagnostic assessment, and contingent feedback. Unlike fidelity, which focuses on adherence to particular forms of practice, instructional durability focuses on the preservation of core instructional purposes. The concept therefore provides a lens for examining not only whether practices persist but also how they are adapted and with what consequences for learners' opportunities to learn.

Although this study does not directly measure learner achievement, foundational literacy research consistently demonstrates that structured practice, formative assessment, feedback, and active learner participation are associated with improved literacy outcomes (Moats, 2020; Snow & Matthews, 2016). Consequently, instructional durability is significant because it influences the extent to which learners continue to experience these evidence-based conditions for literacy development.

Drawing on a longitudinal explanatory sequential mixed-methods study of novice teachers' literacy instruction, the article examines how evidence-based foundational literacy routines are enacted during practicum, adapted

during first-year teaching, and sustained under varying contextual conditions. The study argues that the long-term influence of teacher preparation depends not simply on teachers' initial enactment of evidence-based practices but on their capacity to engage in productive adaptation that preserves instructional intent over time.

Specifically, the study addresses the following research questions:

RQ1: How do preparation architectures influence novice teachers' enactment of evidence-based foundational literacy routines during practicum?

RQ2: How do contextual pressures and teacher agency shape adaptation of evidence-based literacy routines during first-year teaching?

RQ3: How does adaptation quality influence instructional durability and learners' opportunities to learn?

By addressing these questions, the study contributes to teacher education, literacy education, and implementation science in three ways. First, it advances instructional durability as a conceptual framework for understanding the long-term effects of teacher preparation. Second, it identifies adaptation quality as a critical mechanism linking preparation experiences to sustained instructional practice. Third, it demonstrates how instructional durability shapes learners' opportunities to engage in effective literacy instruction. In doing so, the study shifts attention beyond initial enactment toward the conditions under which evidence-based practices endure, evolve, or diminish during the transition from preparation to professional teaching.

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Practice-Based Teacher Education and the Problem of Sustained Practice

Over the past two decades, teacher education research has increasingly shifted from emphasizing what teachers know to examining how teachers learn to enact professional practice. This shift has been particularly evident within practice-based teacher education (PBTE), which seeks to make the work of teaching visible, learnable, and improvable through structured opportunities to observe, rehearse, enact, and reflect on instructional practice (Ball & Forzani, 2009; Grossman et al., 2009; McDonald et al., 2013). Rather than assuming that theoretical knowledge automatically transfers into classroom competence, PBTE emphasizes the development of professional judgment through engagement with authentic teaching practices.

Central to this perspective is the argument that effective teacher preparation requires carefully designed learning opportunities that enable novices to understand both the purposes and enactment of instruction. Grossman et al. (2009) identify three key pedagogies of practice representation, decomposition, and approximation that support teacher learning. Representation makes instructional practice visible through modelling, demonstration, and analysis of teaching. Decomposition breaks complex practice into constituent components that can be examined and learned. Approximation provides opportunities for rehearsal in settings that reduce complexity while preserving important features of authentic teaching. These pedagogies are strengthened through structured feedback and performance assessment, enabling novice teachers to refine their practice over time.

Research consistently demonstrates that programmes grounded in practice-based approaches are associated with stronger instructional performance and increasingly coherent approaches to the teaching and assessment of core practices (Jenset et al., 2018; Lampert et al., 2013; Matsumoto-Royo et al., 2021). However, most studies focus on immediate enactment rather than long-term sustainment. Consequently, while substantial knowledge exists regarding how novice teachers learn evidence-based practices during preparation, considerably less is known about whether these practices endure once teachers enter professional environments characterized by greater autonomy, reduced supervision, and competing demands.

This limitation is particularly important in foundational literacy education. Literacy teacher preparation programmes increasingly emphasize evidence-based instructional routines associated with phonological awareness, phonics, fluency, vocabulary, and comprehension development (Moats, 2020; Shapiro et al., 2024). Yet evidence regarding the persistence of these practices beyond practicum remains limited. Existing research

therefore provides only a partial understanding of teacher preparation effectiveness because it focuses primarily on initial enactment rather than sustained practice.

The present study addresses this limitation by examining not only whether novice teachers can enact evidence-based literacy practices during preparation but also whether they can sustain their pedagogical functions as they transition into professional teaching. Recent reviews of teacher preparation programmes similarly emphasize the importance of grounding literacy instruction in scientifically based reading research and foundational literacy competencies (NCTQ, 2023)

Fidelity, Adaptation, and Sustainability in Educational Practice

Questions regarding the sustainment of educational practices have been extensively explored within implementation science. A central concern within this literature involves understanding how interventions change as they are implemented across different settings and contexts. Three constructs have been particularly influential: fidelity, adaptation, and sustainability.

Implementation fidelity refers to the extent to which an intervention or practice is delivered as originally intended (Durlak & DuPre, 2008). Fidelity has traditionally been viewed as important because deviations from intended implementation may reduce effectiveness and compromise desired outcomes. Within educational contexts, fidelity measures are frequently used to assess whether teachers implement instructional programmes or pedagogical approaches according to prescribed procedures.

However, fidelity-based perspectives have increasingly been challenged for their limited responsiveness to contextual variation. Educational settings differ substantially in terms of resources, learner characteristics, institutional expectations, and professional cultures. Consequently, strict adherence to prescribed practices may not always be feasible or desirable. Contemporary implementation research therefore recognizes adaptation as an inevitable and often necessary feature of practice (Century & Cassata, 2016; Wiltsey Stirman et al., 2019).

Adaptation refers to modifications made to interventions or practices as they are implemented in specific contexts. The Framework for Reporting Adaptations and Modifications to Evidence-Based Interventions (FRAME) conceptualizes adaptation as a multidimensional process involving changes to content, delivery, implementation procedures, or contextual fit (Wiltsey Stirman et al., 2019). Importantly, FRAME emphasizes that adaptations vary in quality and consequence. Some modifications preserve or strengthen core intervention functions, whereas others weaken or undermine them.

A related construct, sustainability, focuses on the continuation of programmes, interventions, or practices over time (Shelton et al., 2018). Sustainability research has generated valuable insights regarding organizational support, institutional capacity, and long-term implementation. However, sustainability is typically examined at the programme or system level rather than at the level of teachers' instructional decision-making.

While fidelity, adaptation, and sustainability each contribute important insights, none fully captures the challenge at the centre of the present study. Fidelity emphasizes adherence to form, adaptation focuses on modification, and sustainability focuses on continuation. Missing is a construct that explains how teachers preserve the pedagogical purposes of evidence-based practices while adapting them to changing professional circumstances. This gap becomes particularly significant during the transition from preparation to professional practice, when teachers must frequently modify instruction while attempting to maintain instructional quality.

Teacher Agency and Adaptive Expertise

Understanding how teachers respond to contextual demands requires attention to teacher agency. Research on teacher learning increasingly rejects deterministic explanations that portray teachers as passive recipients of policy, curriculum, or contextual influences. Instead, teachers are understood as active professionals who interpret, negotiate, and respond to their environments through professional judgment and decision-making (Priestley et al., 2015).

An ecological perspective conceptualizes agency as an achievement emerging through the interaction of

individual capacities and contextual conditions rather than as a fixed personal characteristic (Priestley et al., 2015). Teachers exercise agency when they evaluate situations, interpret challenges, and make instructional decisions that shape classroom practice. Consequently, similar contextual conditions may produce different instructional outcomes depending on how teachers understand and respond to them.

This perspective aligns closely with scholarship on adaptive expertise. Unlike routine expertise, which emphasizes efficient application of established procedures, adaptive expertise involves the capacity to modify and extend practice in response to novel circumstances while preserving underlying goals and principles (Hatano & Inagaki, 1986). Adaptive experts are able to distinguish between the surface features of practice and its deeper pedagogical purposes, enabling them to innovate without sacrificing effectiveness.

Within teacher education, adaptive expertise has been proposed as an important outcome of professional preparation because teaching invariably requires ongoing adjustment to diverse learners, changing curricula, and evolving classroom conditions (Hammerness et al., 2005). Yet relatively little research has examined how adaptive expertise influences the sustainment of evidence-based practices during early-career teaching.

The present study draws on agency and adaptive expertise perspectives to explain variation in how novice teachers respond to contextual pressures. It argues that the durability of instructional practice depends not only on preparation experiences or contextual conditions but also on teachers' capacity to engage in purposeful adaptation while preserving instructional intent.

Conceptualizing Instructional Durability

This study introduces instructional durability as a conceptual lens for understanding the long-term effects of teacher preparation. Instructional durability is defined as the capacity of novice teachers to sustain the pedagogical functions and instructional intent of evidence-based practices across changing professional contexts while maintaining opportunities for learner engagement, diagnostic assessment, and contingent feedback.

The concept extends existing scholarship in several important ways. First, instructional durability differs from fidelity. Whereas fidelity emphasizes adherence to prescribed instructional forms, durability emphasizes preservation of pedagogical function. A teacher may therefore modify instructional procedures substantially while maintaining high instructional durability if the underlying instructional purposes remain intact.

Second, instructional durability differs from transfer. Traditional transfer perspectives focus on whether learning acquired in one setting is applied in another. Durability shifts attention from initial application to sustained enactment over time. The question is not simply whether teachers use practices learned during preparation but whether they continue to preserve their instructional functions as professional conditions change.

Third, instructional durability differs from sustainability. Sustainability typically examines whether programmes or interventions continue over time. Instructional durability focuses specifically on teachers' instructional practices and the mechanisms through which those practices are maintained, adapted, strengthened, or diluted.

Building on implementation science, the present study proposes that durability is influenced by adaptation quality. Productive adaptations preserve or strengthen instructional intent while improving contextual fit. Neutral adaptations alter instructional delivery without substantially affecting pedagogical functions. Diluting adaptations weaken instructional intent and reduce opportunities for learner engagement, assessment, or feedback. From this perspective, instructional durability depends not on whether adaptation occurs but on the quality of adaptation.

Table 1. Study Constructs and Focus

Construct	Central Question	Focus	Unit of Analysis
Fidelity	Was the practice implemented as designed?	Adherence	Practice
Adaptation	What changes were made and why?	Modification	Practice
Sustainability	Did the intervention continue over time?	Continuation	Programme/System
Instructional Durability	Were pedagogical functions preserved over time despite adaptation?	Preservation of instructional intent	Teacher practice

Instructional durability therefore complements rather than replaces existing implementation constructs. Fidelity focuses on adherence, adaptation focuses on modification, sustainability focuses on continuation, whereas durability focuses on preservation of pedagogical function.

Conceptual Framework

The conceptual framework guiding the study integrates insights from practice-based teacher education, implementation science, and teacher agency scholarship. It proposes that preparation architectures shape novice teachers' enactment capacity through opportunities for representation, approximation, feedback, and assessment of practice. Enactment capacity is subsequently tested by contextual pressures encountered during first-year teaching, including resource limitations, workload demands, learner diversity, and institutional expectations.

Teacher agency mediates teachers' responses to these contextual conditions. Through processes of adaptation, evidence-based literacy routines may be sustained, strengthened, accommodated, or diluted. The quality of these adaptations influences instructional durability, which in turn shapes learners' opportunities to engage in structured practice, receive diagnostic assessment, benefit from contingent feedback, and participate meaningfully in literacy learning.

Accordingly, the framework proposes the following pathway:

Preparation Architecture → Enactment Capacity → Contextual Pressures ↔ Teacher Agency → Adaptation Quality → Instructional Durability → Opportunities to Learn

Figure 1 presents the conceptual framework guiding the study. The framework positions instructional durability as the central mechanism linking teacher preparation to learners' opportunities to learn and provides the analytical lens through which the study examines the transition from practicum to professional teaching.

Figure 1. Conceptual framework of instructional durability showing the relationships among preparation architecture, enactment capacity, contextual pressures, teacher agency, adaptation quality, instructional durability, and opportunities to learn.

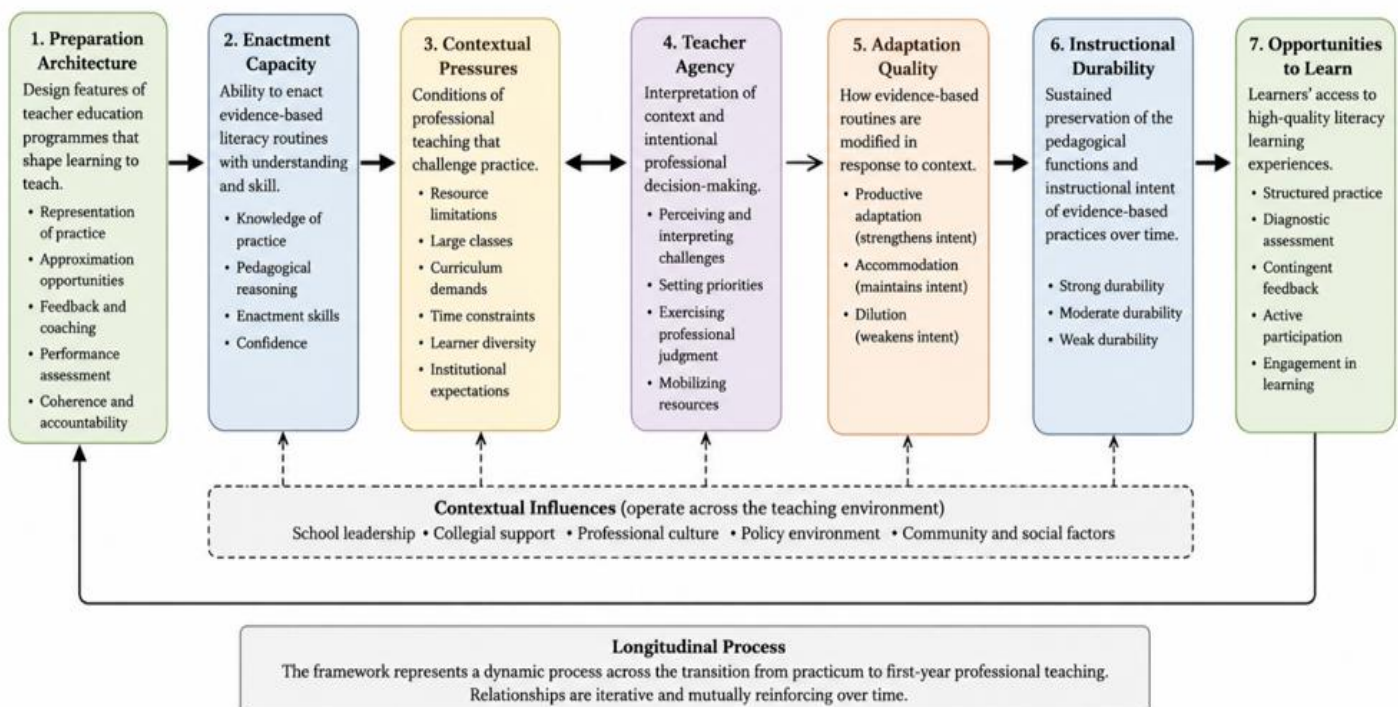


Figure 1. Conceptual framework of instructional durability showing the relationships among preparation architecture, enactment capacity, contextual pressures, teacher agency, adaptation quality, instructional durability, and opportunities to learn.

METHODOLOGY

This study employed a longitudinal explanatory sequential mixed-methods design to investigate how evidence-based foundational literacy practices were enacted, adapted, and sustained as novice teachers transitioned from practicum to first-year professional teaching. The design was selected because the phenomenon under investigation extended beyond observable instructional performance to include the processes through which teaching practices evolved across changing professional contexts. By combining quantitative and qualitative data collected over time, the study sought to examine both patterns of instructional enactment and the mechanisms through which those patterns were maintained, modified, or weakened.

The study was guided by the conceptual proposition that instructional durability emerges through the interaction of preparation architecture, enactment capacity, contextual pressures, teacher agency, and adaptation quality. A longitudinal design was therefore necessary to capture changes in instructional practice across the transition from preparation to professional teaching rather than relying on a single point-in-time assessment.

Research Context and Participants

Participants were drawn from teacher education programmes preparing teachers for primary-level literacy instruction in Kenya. A purposive sampling strategy was used to identify programmes that differed in the extent to which they incorporated practice-based pedagogies, including opportunities for representation of practice, instructional rehearsal, structured feedback, and performance assessment. The aim was not statistical representativeness but analytical variation that would allow examination of how different preparation architectures shaped subsequent instructional practice.

The study followed novice teachers across two phases of professional development. The first phase focused on literacy instruction during practicum, while the second examined instructional practice during participants' first year of professional teaching. Participants were selected on the basis of successful completion of practicum requirements, willingness to participate in longitudinal data collection, and placement in schools where literacy instruction formed a substantial component of their teaching responsibilities.

Data Sources

Multiple sources of evidence were used to strengthen the credibility of findings and enable triangulation across contexts and time periods. Data included classroom observations, video-recorded literacy lessons, semi-structured interviews, programme documents, literacy methods course materials, assessment rubrics, and mentoring records.

Classroom observations and video recordings provided direct evidence of instructional enactment and enabled examination of the quality and consistency of literacy routines over time. Interviews explored teachers' interpretations of contextual challenges, instructional decision-making, and adaptation processes. Programme documents, course outlines, and assessment rubrics were used to characterize preparation architectures and identify the opportunities available for learning evidence-based literacy practices. Mentoring records provided additional insight into professional support during the transition to first-year teaching.

Particular attention was given to evidence-based foundational literacy routines commonly emphasized within teacher preparation programmes and literacy research, including explicit phonics instruction, guided reading, vocabulary development, formative assessment, structured feedback, and comprehension-focused discussion. These routines served as the primary units of analysis throughout the study.

Measures and Analytical Frameworks

Instructional enactment was examined using an observation framework designed to assess the pedagogical functions of literacy instruction. The framework focused on five domains associated with learners' opportunities to learn: structured practice, diagnostic assessment, feedback quality, learner participation, and instructional responsiveness. These domains were selected because they represent core features of effective literacy instruction

consistently identified within literacy and teacher education research (Hammerness et al., 2005; Ingersoll & Strong, 2011; Jensen et al., 2018; UNICEF, 2024b).

To examine instructional change over time, the study adopted the concept of instructional durability, defined as the extent to which teachers sustained the pedagogical functions and instructional intent of evidence-based literacy routines across changing professional contexts. Durability was assessed through evidence of consistency in instructional practice, preservation of instructional intent, and maintenance of opportunities for learner engagement, assessment, and feedback.

Adaptations were analysed using the Framework for Reporting Adaptations and Modifications to Evidence-Based Interventions (FRAME) (Wiltsey Stirman et al., 2019). The framework guided examination of what changed, why changes occurred, who initiated the changes, and the consequences of those modifications for instructional practice. Adaptations were subsequently categorized as productive, neutral, or diluting according to their effects on instructional intent and opportunities to learn.

Data Analysis

Analysis proceeded in three stages. The first stage involved quantitative analysis of observation data to identify patterns of enactment and instructional durability across participants and contexts. Observation scores were examined descriptively and comparatively to identify variation in the quality and consistency of literacy instruction during practicum and first-year teaching.

The second stage involved qualitative analysis of interviews, video-recorded lessons, mentoring records, and programme documents. Data were analysed using an iterative thematic approach that combined deductive coding derived from the conceptual framework with inductive coding emerging from the data. Particular attention was given to adaptation processes, contextual pressures, teacher agency, and sustainment of instructional routines.

The final stage involved integration of quantitative and qualitative findings. Joint displays and cross-case comparisons were used to examine relationships among preparation architecture, adaptation quality, instructional durability, and opportunities to learn. This integrative approach enabled the study to move beyond description of instructional change toward explanation of the mechanisms through which evidence-based literacy practices were sustained, strengthened, or diluted during the transition to professional teaching.

Trustworthiness and Ethical Considerations

Several strategies were employed to enhance the trustworthiness of the study. Data triangulation across observations, interviews, video records, and documentary evidence strengthened the credibility of findings. Longitudinal data collection enabled examination of instructional practice across time rather than relying on retrospective accounts. Cross-case comparison facilitated identification of recurring patterns and alternative explanations.

Ethical approval was obtained from the relevant institutional review processes. Participation was voluntary, informed consent was obtained from all participants, and pseudonyms were used to protect confidentiality. All data were securely stored and used solely for research purposes.

Taken together, the methodological design enabled examination of instructional durability as a dynamic process unfolding across the transition from teacher preparation to professional practice. By combining longitudinal observation of classroom instruction with analysis of adaptation processes and contextual influences, the study provides a robust basis for understanding how evidence-based literacy practices are sustained, modified, or diluted during early-career teaching.

Ethical Approval

This study received ethical approval from the Aga Khan University Ethical Review Committee. All participants provided informed consent prior to participation. Participation was voluntary, confidentiality was maintained through the use of pseudonyms, and all data were securely stored and used solely for research purposes.

Then add separate statements:

Conflict of Interest

The author declares no conflict of interest.

Data Availability

The data that support the findings of this study are not publicly available due to ethical and confidentiality considerations but may be made available from the author upon reasonable request and with appropriate institutional approval.

FINDINGS

Analysis revealed that the sustainability of evidence-based literacy practices was shaped by a dynamic interaction among preparation architecture, contextual pressures, teacher agency, and adaptation quality. While most participants demonstrated competence in enacting literacy routines during practicum, substantial variation emerged during first-year teaching. The findings suggest that the long-term influence of teacher preparation depended less on initial enactment than on teachers' capacity to adapt instructional practices while preserving their pedagogical purposes.

Three interconnected findings are presented. The first examines relationships between preparation architecture and enactment capacity during practicum. The second explores how contextual pressures and teacher agency shaped instructional adaptation during first-year teaching. The third identifies adaptation quality as a critical determinant of instructional durability and learners' opportunities to learn.

Preparation Architecture and Enactment Capacity

Substantial variation was observed in the ways teacher preparation programmes represented, rehearsed, assessed, and supported evidence-based literacy instruction. Programmes characterized by stronger preparation architectures provided repeated opportunities for observation of practice, instructional rehearsal, structured feedback, and performance-based assessment. In contrast, weaker programmes relied more heavily on theoretical coursework with fewer opportunities for guided enactment.

These differences were reflected in participants' practicum performance. Teachers emerging from robust preparation architectures demonstrated stronger enactment capacity across the observation domains of structured practice, diagnostic assessment, feedback, learner participation, and instructional responsiveness. Their lessons were generally characterized by clearer instructional sequencing, greater use of formative assessment, and more frequent opportunities for learner engagement.

Programme documents and literacy methods coursework further indicated that robust programmes treated literacy instruction as a practice to be learned through repeated enactment rather than as knowledge to be acquired. Student teachers were expected to observe demonstrations of literacy teaching, rehearse instructional routines, analyse video-recorded lessons, and receive iterative feedback from teacher educators and mentors. These opportunities appeared to strengthen participants' understanding of both the procedures and purposes of evidence-based literacy practices.

One participant described the value of repeated rehearsal:

During college we practised the same literacy lessons several times and received feedback each time. By the time I went for practicum, I understood not only what to do but why I was doing it.

Observation data suggested that enactment capacity extended beyond procedural competence. Participants from stronger preparation programmes demonstrated greater ability to explain instructional decisions, diagnose learner difficulties, and adjust instruction in response to emerging evidence of understanding. These findings suggest

that preparation architecture influenced not only the quality of practicum performance but also the development of instructional reasoning that would later become important during professional teaching.

However, the findings also revealed limitations of evaluating teacher preparation solely through practicum performance. Although many participants demonstrated strong enactment during supervised teaching, subsequent observations indicated that practicum success did not necessarily guarantee sustainment of practice during first-year teaching. This finding pointed to the importance of examining what occurred after teachers encountered the realities of independent professional practice.

Contextual Pressures, Teacher Agency, and Adaptation

The transition from practicum to first-year teaching introduced a range of contextual pressures that challenged the enactment of evidence-based literacy practices. Participants reported difficulties associated with large class sizes, limited instructional resources, curriculum coverage expectations, time constraints, learner diversity, and reduced access to mentoring support. Observation data confirmed that these pressures frequently influenced the ways literacy routines were implemented in classrooms.

Despite encountering similar challenges, teachers responded in markedly different ways. Some maintained key instructional routines and sought alternative strategies for addressing contextual constraints. Others reduced, simplified, or abandoned aspects of literacy instruction that had been consistently observed during practicum. These differences highlighted the importance of teacher agency in mediating the relationship between context and practice.

Analysis of interviews and classroom observations revealed that teachers demonstrating stronger agency tended to interpret contextual pressures as instructional problems requiring professional solutions. Rather than abandoning literacy routines, they modified delivery structures, reorganized classroom activities, improvised instructional materials, or introduced alternative participation strategies. Such teachers frequently described adaptation as a necessary component of effective teaching.

For example, one participant teaching a class of more than 70 learners explained:

I could not teach exactly as I did during practicum because the class was much larger. I changed the grouping arrangements, but I still wanted learners to practise reading and receive feedback.

In contrast, teachers demonstrating more constrained agency were more likely to interpret contextual pressures as barriers to implementation. Their responses frequently involved reducing opportunities for guided practice, limiting formative assessment activities, or relying increasingly on teacher-directed instruction.

Importantly, the findings suggest that contextual conditions alone did not determine instructional outcomes. Teachers working in comparable environments often demonstrated substantially different adaptation patterns. This observation indicates that sustainment of practice depended not simply on the presence of challenges but on how teachers interpreted and responded to those challenges.

The analysis further revealed that preparation architecture influenced adaptation processes indirectly. Participants emerging from stronger preparation programmes appeared better able to distinguish between instructional procedures and instructional purposes. This understanding enabled them to modify instructional forms while preserving pedagogical intent. By contrast, participants with weaker preparation experiences often viewed literacy routines as fixed procedures, making adaptation more difficult when professional circumstances changed.

These findings suggest that teacher agency functioned as a critical mechanism through which preparation experiences were translated into professional practice. Agency shaped not only whether teachers adapted literacy routines but also the quality of those adaptations and their implications for instructional durability.

Adaptation Quality, Instructional Durability, and Opportunities to Learn

The most significant finding emerging from the study concerns the relationship between adaptation quality and

instructional durability. Analysis using FRAME revealed that adaptation was nearly universal among participants. However, adaptations varied considerably in their consequences for instructional practice.

Three broad adaptation patterns were identified: productive adaptation, neutral adaptation, and diluting adaptation.

Productive adaptations involved modifications that preserved or strengthened the pedagogical functions of literacy routines while improving contextual fit. Teachers engaging in productive adaptations frequently reorganized instructional delivery, introduced alternative participation structures, or developed locally available teaching resources while maintaining opportunities for learner engagement, diagnostic assessment, and feedback.

One teacher replaced guided reading groups with whole-class choral reading because managing multiple groups in a class of 78 learners was perceived as impractical. Although all learners participated, opportunities for diagnostic assessment and individualized feedback were substantially reduced.

In several classrooms, feedback was reduced to brief whole-class correction rather than individualized guidance. While lessons remained efficient, opportunities for contingent feedback diminished considerably.

For example, several participants replaced individual oral reading activities with paired reading arrangements to accommodate large class sizes. Although the format of instruction changed, learners continued to receive opportunities for practice, monitoring, and feedback. Similarly, teachers working in resource-constrained environments often developed locally produced literacy materials that enabled continued implementation of vocabulary and reading activities.

Neutral adaptations altered aspects of instructional delivery without substantially affecting instructional intent. These modifications commonly involved changes in lesson sequencing, pacing, or classroom organization. While such adaptations influenced the form of instruction, they generally had limited implications for learners' opportunities to learn.

Diluting adaptations, however, weakened the pedagogical functions of literacy routines. Observation data documented reductions in guided practice, diagnostic assessment, learner participation, and feedback opportunities. These adaptations frequently emerged in response to curriculum coverage pressures, workload demands, or classroom management concerns.

One participant reflected:

Over time I focused more on covering the content because there were many demands. Some of the literacy activities gradually became difficult to maintain.

The consequences of these adaptation patterns became particularly evident when examining instructional durability. Teachers engaging predominantly in productive adaptations were more likely to sustain evidence-based literacy practices across changing professional contexts. Their instruction continued to provide opportunities for structured practice, diagnostic assessment, contingent feedback, and active learner participation. By contrast, teachers whose adaptations were primarily diluting experienced progressive erosion of these instructional functions.

Table 2. Adaptation Pathways and Durability Outcomes

Adaptation Pathway	Characteristics	Durability Outcome
Productive Adaptation	Preserves instructional intent while improving contextual fit	High Durability
Neutral Adaptation	Modifies delivery with limited effect on instructional intent	Moderate Durability
Diluting Adaptation	Weakens pedagogical functions of literacy routines	Low Durability

The findings further revealed systematic differences in learners' opportunities to learn across durability profiles. High-durability classrooms consistently provided richer opportunities for literacy practice, formative assessment, feedback, and participation. Moderate-durability classrooms demonstrated greater variability, while low-

durability classrooms exhibited reductions across all observation domains.

These patterns suggest that instructional durability matters because it shapes the quality of learners' instructional experiences. The findings therefore position durability as a mechanism linking teacher preparation to opportunities to learn. Preparation architecture influenced enactment capacity; enactment capacity interacted with contextual pressures and teacher agency.

Taken together, the findings indicate that the long-term effects of teacher preparation depend not simply on whether novice teachers can enact evidence-based practices during practicum but on whether they can sustain their pedagogical functions as professional conditions evolve. Adaptation emerged as an inevitable feature of practice, yet its consequences depended on the extent to which instructional intent was preserved. Instructional durability therefore provides a useful lens for understanding how teacher preparation continues to influence classroom practice beyond the period of formal preparation.

DISCUSSION

This study examined how evidence-based foundational literacy practices were sustained, adapted, or diluted as novice teachers transitioned from practicum to first-year professional teaching. The findings suggest that the long-term influence of teacher preparation depends not simply on whether teachers can enact evidence-based practices during preparation but on whether they can sustain their pedagogical functions as professional conditions change. More specifically, the study identified preparation architecture, teacher agency, and adaptation quality as key influences on instructional durability and demonstrated that durability has important implications for learners' opportunities to learn.

Taken together, the findings contribute to teacher education, literacy education, and implementation science by introducing instructional durability as a framework for understanding the relationship between teacher preparation and sustained instructional practice.

Instructional Durability as a Lens for Understanding Teacher Learning

The central contribution of this study is the conceptualization and empirical examination of instructional durability. Existing teacher education research has traditionally focused on teacher knowledge, beliefs, competencies, readiness, and classroom enactment (Darling-Hammond, 2006; Feiman-Nemser, 2001) while recent reviews continue to highlight the need for stronger evidence regarding the long-term effectiveness of teacher education programmes (König & Blömeke, 2024). Practice-based teacher education has further advanced understanding of how novice teachers learn to enact instructional practices through observation, rehearsal, feedback, and reflection (Ball & Forzani, 2009; Grossman et al., 2009). While these perspectives provide valuable insights into teacher learning, they offer limited explanation of what happens to instructional practices once teachers enter professional contexts characterized by competing demands and reduced support.

The findings suggest that the transition from preparation to professional teaching represents a critical test of teacher learning. Although many participants demonstrated strong enactment capacity during practicum, their subsequent instructional trajectories varied considerably. Some sustained evidence-based literacy routines despite contextual challenges, whereas others experienced gradual erosion of key instructional functions. These differences indicate that enactment alone provides an incomplete measure of preparation effectiveness.

Instructional durability addresses this limitation by shifting attention from the initial implementation of practice to its sustainment over time. Unlike fidelity, which focuses primarily on adherence to prescribed forms, durability emphasizes preservation of pedagogical function and instructional intent. The findings demonstrate that teachers frequently modified literacy routines as they encountered contextual constraints, yet these modifications produced markedly different outcomes. In some cases, adaptation strengthened contextual fit while preserving opportunities for learner engagement, assessment, and feedback. In others, adaptation contributed to progressive weakening of instructional quality.

The concept of instructional durability therefore extends existing understandings of teacher learning by emphasizing sustainment rather than simply acquisition or enactment. It suggests that the effectiveness of teacher

preparation should be judged not only by what teachers can do during practicum but also by what they are able to preserve as they navigate the realities of professional practice.

Although conducted in Kenya, the challenges identified in this study are not unique to the Kenyan context. Research from multiple educational systems documents similar tensions between evidence-based practice, contextual constraints, and early-career teacher adaptation (Feiman-Nemser, 2001; Ingersoll & Strong, 2011; König et al., 2024). The concept of instructional durability may therefore offer a useful lens for understanding how teacher preparation influences practice across diverse contexts, particularly where novice teachers encounter resource constraints, workload pressures, and varying levels of professional support.

Preparation Architecture and the Development of Durable Practice

A second contribution of the study concerns the role of preparation architecture in shaping durable instructional practice. Consistent with practice-based teacher education scholarship, the findings indicate that opportunities for representation, approximation, feedback, and performance assessment contributed to stronger enactment capacity during practicum (Grossman et al., 2009; Lampert et al., 2013; McDonald et al., 2013). Participants emerging from programmes characterized by richer opportunities to observe, rehearse, and refine literacy instruction demonstrated greater confidence and competence in enacting evidence-based practices. This finding aligns with emerging evidence suggesting that practice-based pedagogies strengthen novice teachers' ability to respond to learners' thinking and enact instruction adaptively (Hill et al., 2023).

However, the findings extend existing scholarship by suggesting that preparation architecture influences more than immediate instructional performance. Teachers who experienced robust preparation architectures appeared better able to distinguish between instructional procedures and instructional purposes, enabling them to adapt literacy routines without compromising their pedagogical functions. In contrast, participants whose preparation emphasized procedural enactment without equivalent attention to instructional reasoning often struggled to modify practices when professional circumstances changed.

This finding is important because it suggests that preparation architecture contributes indirectly to instructional durability by shaping teachers' capacity for adaptation. This finding also resonates with contemporary arguments that teacher education should be evaluated through broader conceptions of professional responsibility rather than narrow measures of programme accountability (Cochran-Smith, 2021). The long-term influence of teacher education therefore depends not only on the quality of instructional rehearsal during preparation but also on the extent to which programmes cultivate professional judgment regarding what aspects of practice can change and what aspects must remain intact.

The findings consequently support growing calls for teacher education programmes to focus on adaptive expertise rather than routine implementation (Hammerness et al., 2005). Preparing teachers for complexity requires more than helping them master instructional routines; it requires helping them understand the pedagogical principles that make those routines effective.

Adaptation Quality as the Missing Link Between Preparation and Practice

Perhaps the most significant finding emerging from the study concerns the role of adaptation quality in connecting teacher preparation to sustained instructional practice. Adaptation has long been recognized as an inevitable feature of implementation within educational settings (Century & Cassata, 2016; Wiltsey Stirman et al., 2019). Yet teacher education research has devoted comparatively little attention to how the quality of adaptation shapes instructional outcomes.

The findings revealed that adaptation was nearly universal among participants. However, adaptations varied substantially in their consequences for literacy instruction. Productive adaptations preserved or strengthened instructional intent while improving contextual fit. Neutral adaptations altered delivery without substantially affecting instructional quality. Diluting adaptations weakened opportunities for learner engagement, diagnostic assessment, and feedback.

This distinction helps explain why teachers operating under similar contextual conditions often demonstrated

different levels of instructional durability. Contextual pressures alone were insufficient to account for variation in practice. Rather, durability depended on how teachers responded to those pressures and the extent to which their adaptations preserved core instructional functions.

These findings challenge simplistic distinctions between fidelity and adaptation. Within traditional implementation frameworks, adaptation is often viewed as a threat to programme integrity. The present study suggests a more nuanced interpretation. Adaptation appears not only inevitable but necessary for sustainment. The critical issue is not whether adaptation occurs but whether adaptations preserve instructional intent.

Consequently, adaptation quality may represent a missing link between preparation experiences and classroom practice. This insight contributes to both teacher education and implementation science by highlighting the importance of preparing teachers to engage in principled adaptation rather than mere procedural compliance.

Teacher Agency and the Negotiation of Contextual Pressures

The findings further highlight the importance of teacher agency in shaping instructional durability. Consistent with ecological conceptions of agency (Priestley et al., 2015), participants' responses to contextual pressures varied according to how they interpreted challenges and exercised professional judgment.

Teachers demonstrating stronger agency frequently viewed contextual constraints as instructional problems requiring creative solutions. They reorganized instructional activities, developed alternative participation structures, and improvised resources while preserving opportunities for literacy learning. In contrast, teachers demonstrating more constrained agency were more likely to simplify or abandon instructional routines when confronted with competing demands.

This finding extends previous research on teacher induction and professional development by suggesting that agency functions as a mediating mechanism between context and instructional practice. The influence of contextual pressures was not direct or deterministic. Rather, contextual conditions shaped practice through teachers' interpretations, decisions, and responses.

Importantly, the findings also suggest that agency is not independent of preparation. Teachers emerging from stronger preparation architectures appeared more confident in making instructional decisions and more capable of distinguishing between adaptable procedures and essential pedagogical functions. This observation reinforces the argument that teacher education contributes to instructional durability partly through its influence on professional judgment and adaptive expertise.

The study therefore supports perspectives that conceptualize teaching as an inherently adaptive profession requiring continuous negotiation between instructional goals and contextual realities. Durability emerged not through rigid implementation but through teachers' active engagement with the complexities of practice.

Opportunities to Learn as the Ultimate Test of Instructional Durability

The findings suggest that the educational significance of instructional durability ultimately lies in its consequences for learners' opportunities to learn. Across the study, classrooms characterized by high instructional durability consistently provided richer opportunities for structured literacy practice, diagnostic assessment, contingent feedback, and active participation. Conversely, classrooms characterized by low durability exhibited reductions across these instructional domains.

These findings suggest a plausible pathway through which instructional durability may contribute to literacy outcomes. High-durability classrooms maintained instructional conditions repeatedly associated with reading development, including structured literacy practice, timely feedback, diagnostic assessment, and learner engagement. Conversely, diluting adaptations reduced exposure to these conditions, potentially limiting literacy growth. Although learner achievement was beyond the scope of the present study, the findings indicate that instructional durability may represent an important intermediary mechanism linking teacher preparation to literacy outcomes.

This finding is particularly important because foundational literacy research consistently identifies these opportunities as critical conditions for literacy development (Moats, 2020; Snow & Matthews, 2016). Consequently, the effects of durability extend beyond teacher behaviour and influence the quality of learners' educational experiences.

The study therefore positions opportunities to learn as a meaningful criterion for evaluating instructional durability. Durable practice is not simply practice that continues over time; it is practice that continues to provide learners with meaningful opportunities for engagement, assessment, and feedback despite changing professional conditions.

This perspective also clarifies why instructional durability matters within teacher education. The ultimate purpose of preparation is not merely to produce teachers capable of performing particular instructional routines during supervised practice. Rather, it is to develop professionals capable of sustaining high-quality learning opportunities over the course of their careers.

Taken together, the findings support a refined model in which preparation architecture shapes enactment capacity, enactment capacity interacts with contextual pressures and teacher agency, adaptation quality influences instructional durability, and instructional durability ultimately affects learners' opportunities to learn. This model extends existing scholarship by providing a more comprehensive explanation of how teacher preparation continues to influence classroom practice after formal preparation has ended.

IMPLICATIONS AND CONCLUSION

Implications

The findings have important implications for teacher education, literacy instruction, and educational policy. Most significantly, they suggest that the effectiveness of teacher preparation should be evaluated not only in terms of what novice teachers can enact during practicum but also in terms of what they are able to sustain once they enter professional practice. This shift in emphasis has implications for how teacher education programmes are designed, assessed, and supported.

For teacher education, the findings highlight the importance of preparation architectures that provide opportunities for representation of practice, instructional rehearsal, structured feedback, and performance-based assessment. Consistent with practice-based approaches to teacher education, these experiences appear to strengthen not only enactment capacity but also the professional judgment required to adapt instructional practices while preserving their pedagogical purposes. Teacher education programmes should therefore move beyond preparing teachers to reproduce instructional routines and focus more explicitly on developing adaptive expertise and principled decision-making.

The study also suggests that adaptation should be recognized as a core professional competence rather than a deviation from effective practice. Across the findings, the most successful teachers were not those who implemented literacy routines exactly as they had been taught, but those who were able to modify instructional forms while preserving instructional intent. Preparing teachers for adaptation may therefore be as important as preparing them for implementation. This implies greater attention to authentic instructional dilemmas, analysis of practice, and opportunities to reason about instructional decision-making within teacher preparation programmes.

The findings further underscore the importance of induction and early-career support. While preparation architecture influenced enactment capacity, instructional durability was continually tested by the realities of professional teaching. Schools and education systems should therefore view induction as an extension of teacher preparation rather than as a separate phase of professional development. Mentoring, coaching, collaborative planning, and professional learning communities may provide important supports for helping novice teachers engage in productive adaptation rather than diluting adaptation.

For literacy education specifically, the findings suggest that maintaining opportunities for structured practice, diagnostic assessment, feedback, and learner participation may be a more meaningful indicator of instructional

quality than adherence to specific instructional procedures. Consequently, literacy reforms should focus not only on dissemination of evidence-based practices but also on supporting teachers' capacity to sustain the pedagogical functions of those practices across diverse instructional contexts.

Implications for Teacher Education

The findings suggest that teacher education should move beyond preparing teachers to enact evidence-based literacy routines and instead cultivate adaptive expertise. Programmes should help novice teachers understand the pedagogical principles underlying instructional practices so that they can adapt them to changing classroom conditions while preserving instructional intent.

Implications for Induction and Early-Career Support

Instructional durability appears to be tested most strongly during the transition from preparation to professional teaching. Induction programmes should therefore support novice teachers in engaging in productive adaptation through mentoring, coaching, and collaborative professional learning that helps sustain high-quality literacy instruction.

Implications for Literacy Reform and Policy

The findings indicate that literacy reforms should evaluate not only implementation fidelity but also the extent to which teachers preserve the pedagogical functions of evidence-based practices. Policies that support principled adaptation may be more effective in sustaining instructional quality across diverse educational contexts.

Limitations and Future Research

Several limitations should be acknowledged. First, the study focused on foundational literacy instruction and therefore does not establish whether similar patterns of instructional durability occur in other curriculum areas. Second, although the longitudinal design enabled examination of the transition from practicum to first-year teaching, the study did not follow teachers beyond the early stages of their professional careers. Longer-term research may reveal additional trajectories of sustainment, adaptation, and instructional change.

Future research should further validate and refine the construct of instructional durability across different educational contexts, subject areas, and teacher populations. Additional studies might also investigate relationships between instructional durability and learner achievement outcomes, thereby strengthening understanding of the educational consequences of durable instructional practice. Finally, research examining how induction programmes, mentoring structures, and school leadership support instructional durability could provide important insights for teacher development and educational reform.

Conclusion

This study examined how evidence-based foundational literacy practices were enacted, adapted, and sustained as novice teachers transitioned from practicum to professional teaching. Drawing on a longitudinal mixed-methods design, the study investigated the relationships among preparation architecture, enactment capacity, contextual pressures, teacher agency, adaptation quality, instructional durability, and learners' opportunities to learn.

The findings suggest that the long-term effects of teacher preparation cannot be understood solely through measures of practicum performance or instructional readiness. While enactment capacity remains important, the sustainability of instructional practice depends on teachers' ability to respond to changing professional conditions without losing sight of the pedagogical purposes that make evidence-based practices effective. Adaptation emerged as an inevitable feature of teaching, but its consequences depended on the extent to which instructional intent was preserved.

The article advances instructional durability as a conceptual lens for understanding this process. Unlike approaches that emphasize fidelity to instructional form, instructional durability focuses on the preservation of pedagogical function across changing contexts. The findings demonstrate that durability is shaped by the

interaction of preparation architecture, teacher agency, and adaptation quality, and that its significance lies ultimately in its influence on learners' opportunities to learn.

The findings suggest that literacy reform efforts will succeed not merely by helping teachers enact evidence-based practices during preparation, but by enabling them to sustain those practices through principled adaptation once they enter professional classrooms. Teacher education programmes, induction systems, and literacy reform initiatives should therefore focus not only on implementation fidelity but also on cultivating the adaptive expertise required to preserve instructional intent under changing conditions. Instructional durability offers a framework for understanding this challenge and for evaluating the long-term effectiveness of teacher preparation.

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