

From Reading Difficulty to Progressive Instructional Support What Kenyan Evidence on Shaping Contributes to Dyslexia-Responsive Teaching in Mainstream Primary Schools

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ABSTRACT

Foundational reading remains a major education challenge, particularly in sub-Saharan Africa. Approximately 70% of 10-year-olds in low- and middle-income countries are estimated to be unable to read and understand a simple age-appropriate text, while the corresponding estimate for sub-Saharan Africa is about 89%. Kenya combines high primary completion with weak foundational learning: the 2025 Foundational Learning Action Tracker reports 91% primary completion alongside 79% learning poverty. Within this wider crisis, learners with dyslexic characteristics experience persistent difficulties in decoding, word recognition, spelling and reading fluency, yet evidence on feasible support in mainstream African classrooms remains limited. This practice-oriented perspective integrates previously reported Chagamwe evidence with selected systematic reviews and meta-analyses of dyslexia and reading intervention. The new contribution is not a new estimate of a shaping effect; it is a mechanism-focused synthesis that distinguishes what is taught in reading instruction from how shaping can organise that instruction through successive approximations, feedback and reinforcement. In the parent study, adding the shaping measure after respondent group increased explained variance in post-test reading performance by 17.4 percentage points, producing a final R-squared of 0.283. Learner reports and intervention documentation also indicated stepwise task introduction, progressive difficulty, letter-sound matching, blending, repetition and reinforcement. Because shaping formed part of a broader package that also included prompting, coaching and modelling, these findings are interpreted cautiously as shaping-specific explanatory evidence within a multi-component intervention, not as a stand-alone causal effect. The synthesis proposes a simple content-mechanism-outcome framework and translates the evidence into classroom actions and monitoring indicators for dyslexia-responsive mainstream teaching.

Keywords: dyslexia; foundational learning; reading difficulty; shaping; reinforcement; successive approximation; inclusive education; Kenya; sub-Saharan Africa

INTRODUCTION

Learning to read is a foundational requirement for participation in formal education because reading supports access to written information across subjects, assessment tasks and later independent learning. Yet schooling does not necessarily translate into reading competence. The World Bank, UNESCO, UNICEF and partner agencies estimate that learning poverty, defined as being unable to read and understand a simple age-appropriate text by around age 10, affected 57% of children in low- and middle-income countries before the COVID-19 pandemic and rose to approximately 70% following pandemic-related disruption (World Bank et al., 2022).

The challenge is particularly acute in sub-Saharan Africa. Before the pandemic, learning poverty was already estimated at 86% in the region, rising to approximately 89% in post-pandemic simulations (World Bank et al., 2022). Recent UNESCO Spotlight evidence likewise indicates that only about 10.8% of children achieve minimum proficiency in reading and mathematics by the end of primary school (UNESCO Global Education Monitoring Report, 2025). These figures point to a systemic problem that goes beyond enrolment:

children can progress through grades without mastering the literacy skills required to engage effectively with the curriculum.

Kenya illustrates this schooling-learning gap. The 2025 Foundational Learning Action Tracker reports primary education completion of 91% overall, including 89% for boys and 93% for girls, while learning poverty is estimated at 79% overall, affecting 81% of boys and 77% of girls (UNICEF & Hempel Foundation, 2025). Grade progression therefore does not reveal the full scale of underlying learning difficulty.

Within this wider learning crisis is a smaller but important group of children with persistent word-level reading difficulties associated with dyslexia. Dyslexia should not be equated with learning poverty. A systematic review and meta-analysis estimated the worldwide prevalence of developmental dyslexia among primary-school children at 7.10% (95% CI: 6.27-7.97%) (Yang et al., 2022), but prevalence varies with operational definitions and study characteristics. Kenya does not have a robust nationally representative prevalence estimate. A Nairobi school study involving children aged 7-9 years reported 7.49%, but its limited setting does not justify national generalisation (Cheruiyot et al., 2015).

The practical question is therefore how mainstream schools can support learners whose decoding, word recognition, spelling, phonological processing and reading fluency remain persistently weak. One possible instructional mechanism is shaping, in which a target response is developed through reinforcement of successive approximations. Applied to reading, shaping can involve identifying what the learner can currently do, breaking a complex task into smaller units, reinforcing increasingly accurate attempts and progressively raising the criterion for success. Shaping is not a substitute for evidence-based reading content; it is a way of organising progress towards that content.

The empirical findings used here originated in a Changamwe Sub-county study and have already been reported in earlier publications (Ooko et al., 2019; Ooko & Aloka, 2021). The present article therefore makes a different contribution. Rather than presenting the Changamwe findings as new, it asks what can be learned when those findings are interpreted alongside contemporary reading-intervention evidence. Three insights are developed: first, a distinction between instructional content and instructional delivery mechanism; second, a cautious account of what the shaping-specific statistics can and cannot establish within a multi-component intervention; and third, a practice translation showing how the combined evidence can inform teacher actions, progress monitoring and expected learner responses in mainstream classrooms.

Problem Statement and Statistical Context

The problem is best understood by moving from the wider foundational-learning crisis to the more specific challenge of dyslexic reading difficulty. Table 1 presents the statistical context. The indicators are not interchangeable: learning poverty describes foundational reading performance, whereas dyslexia prevalence refers to a specific developmental reading difficulty.

Table 1. Statistical context for foundational reading and dyslexia

Level	Indicator	Estimate	Interpretation
Global low- and middle-income countries	Learning poverty before COVID-19	57%	Share of children unable to read and understand a simple age-appropriate text by around age 10 before the pandemic.
Global low- and middle-income countries	Learning poverty after pandemic disruption	Approximately 70%	Around seven in ten children were estimated to be in learning poverty.
Sub-Saharan Africa	Learning poverty before COVID-19	86%	The region already had the highest learning-poverty burden before pandemic-related disruption.

Sub-Saharan Africa	Post-pandemic learning poverty estimate	Approximately 89%	The foundational reading crisis remained extremely severe.
Africa	Children achieving minimum proficiency in reading and mathematics by end of primary	10.8%	Recent UNESCO Spotlight estimate indicating low foundational proficiency at the end of primary education.
Kenya	Learning poverty	79% overall; 81% boys; 77% girls	Weak foundational learning despite high school participation and completion.
Kenya	Primary education completion	91% overall; 89% boys; 93% girls	Illustrates the gap between progressing through school and mastering foundational reading.
Global	Developmental dyslexia prevalence among primary-school children	7.10% (95% CI: 6.27-7.97%)	Dyslexia is a specific developmental reading difficulty and should not be equated with learning poverty.

Source note: Statistical context is drawn from the published sources cited above and is not derived from the Changamwe thesis.

Sources: World Bank et al. (2022); UNESCO Global Education Monitoring Report (2025); UNICEF & Hempel Foundation (2025); Yang et al. (2022). The Kenya scorecard draws on the World Bank Learning Poverty Database and UNESCO Institute for Statistics data available to the 2025 tracker.

The Kenyan figures sharpen the problem because they show that completion and learning are not equivalent. A primary completion rate of 91% alongside learning poverty of 79% means that high progression through school can coexist with substantial deficits in foundational reading. For learners with persistent decoding and word-recognition difficulties, including those with dyslexic characteristics, grade progression may conceal unmet instructional need. The policy challenge is not only to keep learners in school, but to ensure that mainstream classrooms can identify persistent reading difficulty and provide sufficiently explicit, graduated and responsive support.

Evidence Base and Synthesis Method

Parent Study and Evidence Streams

The empirical anchor is the Changamwe study described in the source thesis on selected behaviour modification practices and reading ability among learners with dyslexic characteristics in public primary schools. The thesis reports a local administrative population of 708 learners across 20 public primary schools. Seven schools were selected for the study; 229 learners qualified for inclusion after screening, and 204 learners contributed analysable questionnaire data. The study used a quantitative Solomon four-group design. The intervention delivered to the experimental groups combined prompting, shaping, coaching and modelling. Accordingly, the Solomon group contrasts estimate the effect of the combined package rather than a shaping-only treatment.

Four parent-study evidence streams were retained for this perspective: the overall experimental evidence for the combined intervention, the shaping-specific hierarchical regression, learner and teacher questionnaire percentages describing shaping-related classroom practices, and intervention-process documentation specifying how the reading activities were delivered. The thesis does not provide an auditable thematic-analysis procedure, coded qualitative dataset or verified set of participant quotations. No qualitative thematic findings are therefore claimed.

Selection and Appraisal of International Evidence

This article is a targeted evidence synthesis rather than a systematic review. International evidence was selected purposively to answer a narrow interpretive question: whether the instructional content embedded in the Changamwe shaping procedure is consistent with contemporary evidence on reading intervention for learners with, or at risk for, dyslexia. Priority was given to systematic reviews and meta-analyses published in peer-reviewed journals, because these provide a stronger basis for interpreting component-level reading instruction than individual studies. Sources were eligible when they addressed school-age learners with dyslexia, reading disability or risk of reading disability; evaluated explicit foundational reading components such as phonological awareness, grapheme-phoneme correspondence, decoding, word reading, spelling or connected-text reading; and reported an identifiable synthesis method and quantitative or comparative findings. Sources were not used to estimate a pooled effect for shaping, because shaping was not the common intervention construct across these reviews.

The synthesis used three interpretive principles. First, evidence hierarchy: systematic reviews and meta-analyses were used to establish the broader reading-instruction evidence base, while the Changamwe study was treated as context-specific evidence. Second, component matching: only instructional components directly represented in the Changamwe procedure, such as letter-sound work, blending, repeated practice and progressive task difficulty, were compared with the international literature. Third, claim proportionality: the evidence was used to assess plausibility and practice relevance, not to convert an association from a multi-component intervention into a shaping-only causal claim. Hall et al. (2023), Rehfeld et al. (2022) and Stevens et al. (2021) were retained because together they provide broad synthesis evidence, component-specific phonemic-awareness evidence and a useful caution against assuming that a named structured approach is effective without sufficiently strong trial evidence.

Reconciliation of Parent-Study Reporting

Several reporting differences in the thesis were resolved, where possible, before interpreting the findings. Table 2 records the source values and the rule used in this synthesis. Where the thesis did not permit a definitive reconstruction, the uncertainty is retained rather than silently corrected.

Table 2. Reconciliation of parent-study participant, group and intervention reporting

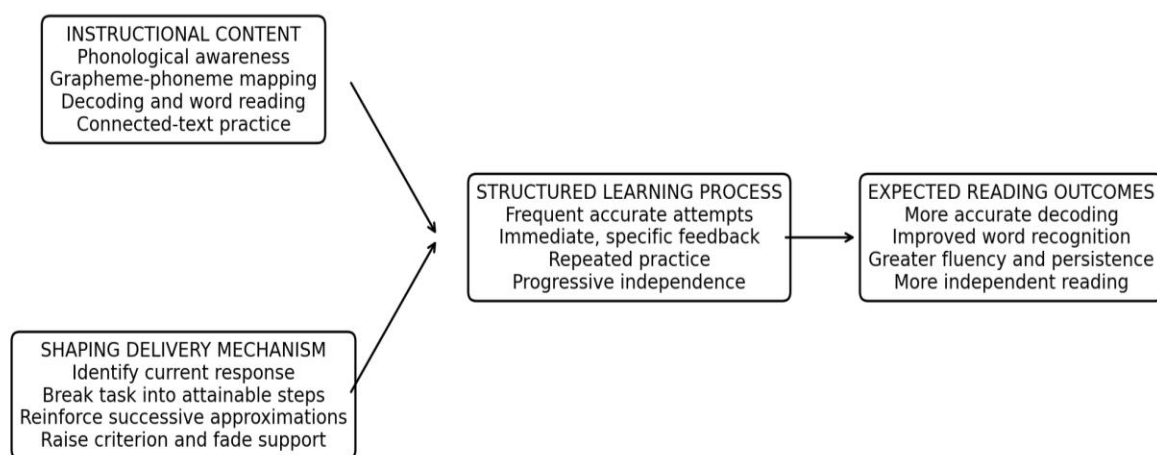
Reporting issue	Thesis evidence	Interpretation used in this synthesis	Residual uncertainty
229 eligible learners versus 204 analysed learners	The sampling section reports 229 learners qualified for the study. The questionnaire-return table reports 204 learner questionnaires returned from 229 administered.	229 is treated as the screened/eligible study sample and 204 as the analysed learner dataset for questionnaire-based results. The difference is 25 learners who did not contribute returned learner questionnaires.	The thesis does not provide an individual-level attrition flow or reasons for the 25 non-returns.
Solomon group counts	The group-status table reports A=49, B=54, C=49 and D=52, total=204. A later narrative sentence gives D=48. The results return-rate table again reports D=52 returned.	D=52 is used because it is consistent with the group table, the analysed total of 204 and the results return-rate table.	The contradictory narrative value of 48 cannot be reconciled from the thesis.
Number and allocation of schools	The sampling section states that seven schools were selected: B, L, E, N, D, R and S. The group-allocation table reproduces B/D, L, N/E	The study setting is reported as seven selected schools, as consistently stated in the sampling section. No claim is made about the exact school-to-	The precise allocation of all seven school codes to the four Solomon groups cannot be

	and N/R, repeating N and omitting S.	group allocation.	reconstructed with confidence.
Intervention dosage versus monitoring frequency	The intervention sections repeatedly specify 30 minutes each day for 12 weeks. Separate statements report researcher follow-up visits three times per week.	Instructional dosage is reported as 30 minutes daily for 12 weeks; three visits per week are treated as researcher monitoring, not learner instructional dosage.	The thesis does not provide attendance-adjusted minutes or session-completion data for individual learners.
Teacher numbers	The study targeted 54 English teachers and received 48 teacher questionnaires; the intervention description reports 16 teachers in one experimental group and 12 in the other.	54 and 48 refer to the full teacher sample and respondents; 28 teachers are described as intervention implementers in the two experimental groups.	The thesis does not provide a teacher-level flow linking every respondent to a specific group.

Source note: Parent thesis sampling, Solomon-group, questionnaire-return and intervention-procedure sections. Where the thesis contains conflicting values, the uncertainty is stated rather than concealed.

Conceptual Framework for Interpretation

The central conceptual distinction is between instructional content and instructional delivery mechanism. Reading instruction specifies the knowledge and skills to be learned; shaping specifies how movement towards those targets can be organised. Figure 1 shows the proposed relationship. The framework does not imply that shaping itself supplies phonological or decoding content. Instead, it positions shaping as a mechanism for sequencing evidence-based content into attainable responses, providing contingent feedback and progressively reducing support as performance becomes more independent. The reading-content side of the framework is consistent with contemporary intervention syntheses (Hall et al., 2023; Rehfeld et al., 2022).



Contextual conditions: teacher knowledge, class size, practice time, learner entry behaviour and access to targeted support

Figure 1. Conceptual framework linking explicit reading content, shaping as a delivery mechanism and expected learner outcomes.

Source note: Authors' interpretive synthesis of the parent-study shaping procedure and contemporary reading-intervention evidence; not the original thesis conceptual framework.

What the Chagamwe Evidence Shows

Shaping as Implemented

The intervention documentation describes shaping as progressive introduction of words and sentences. Teachers broke words into smaller units, supported letter-sound relationships and then blended smaller units into complete words. Where learners had difficulty locating a word, a ruler was used as a simple graphic organiser to direct attention to the target item.

The thesis repeatedly reports 30 minutes of letter-sound instruction each day over a 12-week period. Successful reading attempts were reinforced through praise and stars, and performance was recorded on score sheets. Researcher follow-up visits were reported three times per week; these are treated as monitoring visits rather than the instructional dosage itself. The described procedure therefore combined task analysis, repeated practice, progressively changing performance criteria and reinforcement.

In behavioural terms, this is consistent with successive approximation: the teacher does not wait for perfect performance before recognising progress. The learner is supported to produce an attainable response closer to the desired reading behaviour, and the performance criterion is raised as competence develops.

Classroom-Practice Evidence

Among the 204 analysed learners, 66.7% reported that teachers mostly or always introduced new English concepts step by step until learners understood them. A further 67.0% reported that teachers mostly or always matched tasks to the learner's level and increased difficulty progressively. Three-quarters (75.0%) reported that teachers mostly or always emphasised correct pronunciation and reinforced reading with praise, while 78.4% reported that teachers mostly or always demonstrated letter-sound matching during reading and pronunciation. These percentages indicate frequent reported exposure to specific instructional practices; they do not constitute direct observation of implementation fidelity.

Teacher responses point in the same direction for items reported clearly in the thesis narrative accompanying Table 4.13: 85.4% indicated that they gave tasks within learners' level and increased difficulty as learning progressed, while 66.7% indicated that they mostly matched letters to sounds when teaching reading pronunciation. The thesis also reports 77.1% for step-by-step introduction of new concepts and 77.1% for emphasis on correct pronunciation. These self-reports are supportive process evidence, not independent causal evidence.

Shaping-Specific Statistical Evidence

The thesis tested the shaping measure using hierarchical linear regression. Respondent group was entered first as a control variable, followed by shaping behaviour modification practice. Group membership alone explained 10.9% of the variance in post-test reading scores ($R^2 = 0.109$). After shaping was added, the model explained 28.3% of the variance ($R^2 = 0.283$; adjusted $R^2 = 0.275$). The addition of shaping therefore increased explained variance by 17.4 percentage points (change in $R^2 = 0.174$), and this increment was statistically significant, $F(1, 201) = 48.742$, $p < .001$. The overall model was statistically significant, $F(2, 201) = 39.580$, $p < .001$.

The 17.4 percentage-point change is not a 17.4% improvement in reading. It is the additional proportion of variance in post-test scores explained by the shaping measure after respondent group was controlled. Because the experimental groups received prompting, shaping, coaching and modelling together, the regression cannot establish that shaping alone caused the experimental improvement. The most defensible interpretation is that the measured level of shaping was significantly associated with post-test reading performance and added explanatory value within the broader intervention context. Table 3 summarises these converging evidence streams and, importantly, the interpretive limits attached to each one.

Table 3. Converging evidence on progressive shaping-oriented reading support

Evidence stream	Key finding	What it supports	What it does not support
Broader Solomon four-group experiment	Experimental groups exposed to the combined behaviour-modification package showed stronger post-test reading performance than controls.	The multi-component intervention package was associated with improved reading performance.	A shaping-only causal effect.
Shaping-specific hierarchical regression	Adding shaping increased explained variance by 17.4 percentage points; final R-squared = 0.283; F change(1, 201) = 48.742, $p < .001$.	Shaping added significant explanatory value for post-test reading performance after group was controlled.	That reading improved by 17.4%, or that shaping alone produced the full experimental effect.
Learner practice reports	66.7% stepwise introduction; 67.0% progressive difficulty; 75.0% pronunciation plus praise; 78.4% letter-sound demonstration.	Shaping-related practices were commonly reported in classroom instruction.	Direct observation of implementation fidelity.
Teacher practice reports	85.4% reported giving tasks within learners' level and increasing difficulty as learning progressed; 66.7% reported mostly matching letters to sounds when teaching reading pronunciation.	Teacher reports converge with learner reports on key shaping practices.	Independent causal evidence.
Intervention-process documentation	Chunking, letter-sound work, blending, repetition, progressive criteria and reinforcement were documented across a 12-week programme.	A plausible mechanism linking shaping to structured reading practice.	Qualitative thematic findings or participant-experience themes.

Source note: Parent thesis Chapter Four shaping results, including learner responses in Table 4.14, the narrative interpretation accompanying teacher Table 4.13, hierarchical regression (Table 4.15) and ANOVA (Table 4.16), together with the Chapter Three intervention procedure.

Interpreting Shaping Within Current Reading-Intervention Evidence

The Changamwe evidence is most useful when shaping is interpreted as a way of organising instruction rather than as a stand-alone treatment for dyslexia. The intervention combined successive approximation with reading content: learners practised letter-sound relationships, smaller units were blended into words, task difficulty was increased progressively and successful responses were reinforced. This creates a plausible instructional pathway because dyslexia commonly involves persistent difficulty in accurate word reading, decoding and phonological processing.

Hall et al. (2023) synthesised 53 experimental and quasi-experimental studies conducted over four decades among elementary learners with or at risk for dyslexia. Their review found significant positive effects on norm-referenced reading outcomes and highlighted explicit, systematic work on foundational skills including phonological awareness, grapheme-phoneme correspondences, word reading, spelling and connected-text reading. These are content components that overlap with parts of the Changamwe procedure.

The overlap does not mean that shaping and explicit reading instruction are interchangeable. Reinforcing successive approximations towards a poorly specified reading target would not constitute evidence-based intervention. The learner must be approximating an instructionally meaningful response, such as identifying a phoneme, mapping a grapheme to its sound, blending units or reading a word. In this sense, shaping can provide a behavioural architecture through which explicit literacy content is sequenced and reinforced.

Rehfeld et al. (2022) provide component-specific support for phonemic-awareness instruction. Their meta-analysis of 138 manuscripts involving children suspected of having a reading disability reported positive effects across several phonemic-awareness outcomes. The letter-sound and blending work documented in Changamwe is therefore consistent with a broader evidence base on foundational reading components, although the Changamwe study cannot determine which component of its package accounted for observed gains.

Stevens et al. (2021) offer an important counterpoint. Their synthesis of Orton-Gillingham interventions found positive but statistically non-significant pooled effects for foundational reading outcomes and called for stronger studies. The lesson is that sequence, structure or a named method should not be treated as sufficient evidence of effectiveness. Instructional components, implementation quality and study design remain critical.

The Changamwe learners were in upper-primary classes. Early intervention remains important, but persistent reading difficulty can remain educationally consequential beyond the earliest grades. The parent study therefore draws attention to learners who have progressed through school while foundational reading deficits persist. Its strongest contribution is not proof of a stand-alone shaping treatment, but an illustration of how progressive task design and contingent feedback can be combined with explicit reading content in mainstream settings.

For mainstream Kenyan schools, shaping may be attractive because it does not depend on specialised technology. Teachers can identify the current reading response, break a task into smaller components, provide immediate feedback, reinforce progress and gradually increase expectations. Feasibility, however, depends on teacher knowledge, class size, time for targeted practice and the ability to monitor individual progress. These contextual conditions are therefore part of the proposed framework rather than peripheral implementation details.

Practice Translation for Dyslexia-Responsive Mainstream Teaching

The synthesis can be translated into observable classroom practices without treating shaping as a stand-alone programme. Table 4 links each practice to a teacher action, a simple monitoring indicator and the learner response that would justify moving to the next approximation.

Table 4. Classroom practice, teacher actions, monitoring indicators and expected learner responses

Classroom practice	Teacher action	Monitoring indicator	Expected learner response
Identify the current reading point	Use a brief reading task to locate whether difficulty occurs at sound awareness, letter-sound mapping, blending, word reading or connected text.	Specific skill recorded rather than a general label of poor reading.	Learner demonstrates a clear starting performance that can be taught from.
Break the target into successive approximations	Divide the target response into instructionally meaningful steps; teach only the next attainable step while keeping the final reading target visible.	Number and sequence of steps recorded on a simple progress sheet.	Learner completes the current step with increasing accuracy and less prompting.
Teach explicit reading content	Model and practise phonological awareness, grapheme-phoneme correspondence, decoding and word	Accuracy on the specific taught component across repeated attempts.	More accurate sound-letter mapping, blending and word recognition.

	reading as required by the learner.		
Provide contingent and feedback reinforcement	Give immediate, specific feedback linked to the reading response; use praise or tokens only when they mark progress towards the target.	Feedback follows an observable reading response and is linked to the criterion.	Learner repeats increasingly accurate reading responses and remains engaged.
Raise the criterion progressively	Increase difficulty when performance on the current approximation is sufficiently secure; do not advance solely because time has elapsed.	Criterion changes are tied to demonstrated performance.	Learner manages more complex words, longer units or less-supported reading.
Fade prompts and external rewards	Reduce cues and tangible reinforcement as independent performance develops while maintaining informative feedback.	Declining level of adult support required for comparable tasks.	Learner reads with greater independence and less reliance on external reinforcement.
Protect dignity during correction	Correct errors privately and specifically; avoid ridicule, public comparison or punitive responses.	Learner continues attempting tasks after correction.	Greater persistence, willingness to read and reduced avoidance.
Review progress regularly	Use brief repeated checks to decide whether to continue, simplify, advance or refer for additional assessment/support.	Trend in accuracy, fluency or independent completion over time.	Sustained improvement or a clear signal that a different level of support is needed.

Note: This is a practice-translation synthesis derived from the parent-study procedure and the intervention literature discussed in Section 5; it is not a new quantitative analysis.

Implications for Policy and the Wider Foundational-Learning Agenda

The Kenyan statistical context suggests that foundational learning requires attention even where enrolment and completion indicators appear comparatively strong. A 91% primary completion rate alongside 79% learning poverty indicates that education monitoring needs to look beyond access and progression towards whether children acquire the reading skills needed for later learning.

For learners with dyslexic characteristics, inclusion is incomplete if learners are physically present in mainstream schools but instructional routines do not adapt to persistent reading difficulty. Teacher support, screening and referral pathways, access to structured remedial instruction and appropriate assessment accommodations should be considered as part of foundational-learning improvement.

The 2025 Kenya Foundational Learning Action Tracker identifies evidence-based programmes to improve foundational literacy and numeracy at scale as an area requiring accelerated progress. The Changamwe evidence should not be used to advocate a national shaping programme on its own. Its policy value is narrower and more defensible: it illustrates an instructional principle that can be integrated with evidence-based reading content and tested more rigorously across diverse Kenyan settings.

LIMITATIONS OF THE EVIDENCE

- The source study was conducted in one sub-county, limiting geographical generalisability.
- The broader intervention combined prompting, shaping, coaching and modelling; the Solomon four-group experiment therefore does not isolate shaping as a stand-alone causal treatment.
- The shaping-specific regression demonstrates incremental statistical association after respondent group was controlled, but it does not identify the causal contribution of shaping separately from the other intervention components.
- The pathway from 229 eligible learners to 204 analysed learners can be reconciled at the level of questionnaire returns, but the thesis does not provide individual reasons for the 25 non-returns.
- The thesis contains an internal contradiction for Group D (52 in the group table and results table versus 48 in one narrative sentence) and an unresolved school-allocation inconsistency in which one school code is repeated and another omitted. These uncertainties are explicitly documented rather than silently corrected.
- The learner and teacher practice data are self-reported and do not substitute for direct implementation-fidelity observations.
- The identification process relied on teacher screening followed by the Bangor Dyslexia Test as described in the thesis. Findings are therefore framed around learners with dyslexic characteristics rather than assuming a comprehensive clinical diagnosis for every participant.
- The international literature was purposively selected for a targeted interpretive synthesis rather than through a full systematic-review protocol. The synthesis therefore supports conceptual interpretation and practice translation, not a new pooled estimate of effectiveness.
- No auditable qualitative thematic dataset was available. Intervention-process documentation is used as process evidence, not as qualitative thematic findings.
- The shaping-specific and broader behaviour modification findings have already been published; the contribution of this article is mechanism-focused reinterpretation and practice integration rather than a new empirical effect.

Research priorities

- Component trials that experimentally isolate shaping from prompting, coaching and modelling while keeping reading content constant.
- Studies that measure implementation fidelity directly, including how teachers select successive approximations, provide feedback and fade reinforcement.
- Research combining shaping-oriented delivery with well-specified evidence-based phonological, decoding, word-reading and spelling instruction.
- Longitudinal studies examining whether reading gains persist after reinforcement is reduced and whether learners become more independent readers.
- Replication across Kenyan counties, rural and urban settings, multilingual classrooms and different stages of primary education.
- National or multi-site studies capable of providing more robust evidence on the prevalence and educational distribution of dyslexic reading difficulty in Kenya.
- Research on system conditions that enable differentiated reading support in mainstream classrooms, including teacher workload, class size, specialist referral and access to remedial time.

CONCLUSION

Kenya's foundational-learning challenge is not only a question of access to school. Current evidence shows a marked gap between primary completion and expected reading performance, while learners with dyslexic characteristics face an additional risk of persistent decoding, word-recognition and fluency difficulties. The Changamwe evidence shows that shaping-related practices were present within a broader behaviour-modification intervention and that the shaping measure added significant explanatory value for post-test reading performance after respondent group was controlled. These findings do not establish that shaping

alone caused the experimental improvement. Their stronger contribution emerges when they are integrated with current reading-intervention evidence: explicit literacy content identifies what learners need to learn, while shaping offers one mechanism for organising progress through attainable successive approximations, immediate feedback and progressively reduced support. In mainstream classrooms, the practical value lies in combining these two levels while monitoring learner response, protecting dignity and adjusting support according to demonstrated performance. Future research should test this mechanism directly with clearer component isolation and implementation-fidelity measures.

Transparency and Prior-Publication Statement

This article is a practice-oriented perspective and targeted evidence synthesis based partly on findings from a previously conducted study in Changamwe Sub-county, Kenya. It does not report new primary data or a new statistical analysis. The shaping-specific objective was previously reported by Ooko, Aloka and Koweru (2019), and findings from the broader behaviour modification study were reported by Ooko and Aloka (2021). The present manuscript reinterprets those findings in relation to contemporary reading-intervention evidence, with explicit separation between prior empirical results and the new conceptual and practice-oriented synthesis.

Declarations

Prior publication and transparency: This article is a practice-oriented perspective and targeted evidence synthesis. It does not report new primary data or a new statistical analysis. The shaping-specific objective and broader behaviour-modification findings have been previously reported; the present contribution is an explicit mechanism-focused interpretation and classroom-practice translation.

Data availability: No new dataset was generated for this article. The synthesis draws on the source thesis and published sources cited in the manuscript.

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