



TEACHER PREPAREDNESS AND THE IMPLEMENTATION OF COMPETENCY-BASED EDUCATION IN PUBLIC JUNIOR SCHOOLS IN KENYA: A SYSTEMATIC LITERATURE REVIEW

Philip Kimutai Arap Kiruiⁱ

PhD,

Egerton University,

Kenya

Abstract:

Kenya introduced its competency-based junior school tier, Grades 7 to 9, from January 2023, moving millions of learners and their teachers into a new phase at speed and often within institutions not designed for it, yet how prepared junior-school teachers are to enact the reform remains poorly consolidated. This review synthesises recent evidence on teacher preparedness for competency-based education implementation in public junior schools in Kenya, drawing on comparable Kenyan and Sub-Saharan African basic-education evidence, and identifies the priority gaps for policy and future research. Following a PRISMA-informed protocol, a systematic search of education databases and publisher platforms was conducted in August 2026 for studies published between 2019 and 2026 that examined teacher preparedness or readiness in relation to competency-based education or the competency-based curriculum. Forty-seven unique records were screened, thirty-one were assessed in full text, and twenty-four studies (nineteen empirical and five reviews), each independently verified to exist, were included and synthesised thematically across seven preparedness dimensions: pre-service education, in-service training, pedagogical content knowledge, assessment literacy, resource and information and communication technology readiness, attitudes and self-efficacy, and support systems. The evidence converges on a consistent finding that teachers are inadequately prepared, most acutely in public, rural and marginalised settings. In-service retooling dominates the literature but is repeatedly described as brief, cascade-delivered and rarely followed by mentoring, while pedagogical content knowledge, assessment literacy and technology readiness are widely deficient and teacher self-efficacy and support systems emerge as significant enablers. The evidence base, though growing, is fragmented across counties and dimensions, dominated by small self-report surveys, and thin at the junior tier relative to its scale, and no prior synthesis had consolidated it. Sustained and mentored professional development, subject-specialist retooling for

ⁱ Correspondence: email kiruibilly@gmail.com

junior-school pathways, resourcing of public schools, and a consolidated national evidence base are the priorities the review identifies.

Keywords: competency-based education, teacher preparedness, junior school, Kenya, systematic literature review

1. Introduction

Competency-based education has become the organising idea of curriculum reform across much of Sub-Saharan Africa, promising a shift from the reproduction of knowledge toward the demonstration of skills, values and dispositions that learners can apply in authentic contexts. Kenya adopted this direction through its Competency-Based Curriculum, piloted from 2017 and rolled out nationally from 2019 under the Basic Education Curriculum Framework (Kenya Institute of Curriculum Development [KICD], 2017; Muchira et al., 2023). The reform replaces the long-standing 8-4-4 structure with a 2-6-3-3-3 model, reorganising basic education into pre-primary, primary, junior school and senior school. In January 2023 the reform reached its junior school tier, Grades 7 to 9, moving the pioneer cohort into a distinct new phase that was, in most cases, domiciled within existing secondary schools rather than in purpose-built institutions. The junior school phase concentrated the reform's implementation pressures onto teachers who had to adopt competency-based pedagogy and continuous assessment at speed, frequently while teaching subjects outside their specialism, and it is the tier on which this review focuses.

Curriculum reforms of this magnitude succeed or fail at the classroom door, and the teacher is the proximate agent of that success. Regional experience is consistent that a curriculum is only as strong as the preparedness of the teachers expected to enact it. Where teachers are inadequately prepared, reforms are diluted into the familiar routines they were meant to displace, and competency-based aspirations collapse back into content coverage and examination drill. Understanding the state of teacher preparedness is thus not a peripheral concern but a central determinant of whether Kenya's reform ambitions are realised, particularly at the junior school level, where the transition has been fastest and the strain on teachers most acute.

1.1 The Construct of Teacher Preparedness

Teacher preparedness is a multidimensional construct rather than a single attribute. In the competency-based education literature, it is commonly disaggregated into initial or pre-service preparation; in-service training and continuing professional development, including the retooling of serving teachers; pedagogical content knowledge and command of learner-centred, competency-based pedagogy; assessment literacy, especially the capacity for formative and competency-based assessment; readiness in resources and information and communication technology; teacher attitudes and self-efficacy; and the support systems, such as mentorship, coaching and curriculum support

officers, that sustain practice after training ends. This review adopts these seven dimensions as its organising frame because they recur across the empirical base and because, taken together, they capture both the individual and the systemic facets of readiness.

1.2 Context: Junior Schools in Kenya

Public junior schools in Kenya were, for the most part, established within existing secondary schools, a domiciling decision that shaped staffing, facilities and the day-to-day conditions of implementation. Teachers were redeployed or newly recruited into the tier under acute national shortages, and were expected to deliver a competency-based, learner-centred curriculum and its continuous assessment across a broad set of learning areas, frequently outside their trained specialism. Conditions vary widely between counties and between rural and urban schools, in teacher distribution, infrastructure and the reach of retooling, so the national picture is uneven. A body of primary studies has begun to document this picture, but it is scattered across counties, levels and single dimensions of preparedness, and no synthesis has yet drawn it together, a gap this review addresses.

1.3 Statement of the Problem

Junior school was introduced across Kenya from January 2023 at extraordinary speed, moving an entire national cohort into Grade 7 and, within three years, all of Grades 7 to 9 into a competency-based tier for which the system was not fully ready. Teachers were expected, often at short notice and often outside their subject specialism, to abandon the content-and-examination habits of the 8-4-4 era and to enact learner-centred pedagogy, continuous competency-based assessment and integrated learning areas, while junior school was domiciled in secondary schools already stretched for staff and space. In a reform of this magnitude, the preparedness of these teachers is the single most decisive determinant of whether the change delivers its promise or collapses back into old practice under a new name.

Since 2023, a body of primary research on teacher preparedness for competency-based education has accumulated in Kenya, yet it is fragmented and difficult to act upon. Individual studies are confined to single sub-counties, examine one or two dimensions of preparedness in isolation, rely largely on small self-report surveys, and are scattered across a range of emerging journals, and no study has yet consolidated them. Policymakers and teacher educators therefore lack a synthesised, evidence-based account of how prepared junior-school teachers actually are, which dimensions of preparedness are weakest, and where the deficits concentrate. This review responds directly to that need. It systematically consolidates the available evidence in order to establish which dimensions of teacher preparedness are strongest and weakest, which regions and school levels are under-evidenced, and what the priority gaps are for national policy and for future primary research on junior-school teacher preparedness in Kenya.

1.4 Theoretical Framework

The review is framed by the Concerns-Based Adoption Model (CBAM; Hall & Hord, 2020), which construes reform adoption as a developmental process in which teachers move through stages of concern and levels of use, so that preparedness is a trajectory to be supported rather than a switch to be flipped. CBAM is complemented by Rogers' (2003) Diffusion of Innovations, which foregrounds how the attributes of an innovation and the support around it shape uptake, and, for the technology dimension, by the Technological Pedagogical Content Knowledge framework (Mishra & Koehler, 2006). These lenses jointly explain why brief, one-off training rarely produces durable change and why mentorship, self-efficacy and sustained support recur in the evidence as decisive. Notably, at least one included study (Okeyo & Mokua, 2023) applies CBAM directly within the Kenyan context.

1.5 Objective and Review Questions

This review pursues one overarching objective: to synthesise the evidence on teacher preparedness for competency-based education implementation and to identify the priority gaps relevant to public junior schools in Kenya. It is guided by four questions. First, which dimensions of teacher preparedness are evidenced in the literature on competency-based education implementation? Second, how does teacher preparedness influence implementation in junior and basic-education schools in Kenya and comparable Sub-Saharan African contexts? Third, what barriers and enablers of teacher preparedness are reported? Fourth, what gaps exist in the evidence relative to the junior school tier in Kenya?

2. Methods

2.1 Design and Protocol

The review followed a PRISMA-informed protocol, adopting the transparency and reporting logic of the PRISMA 2020 statement, including a defined search, explicit eligibility criteria, a documented selection process and a flow account of records, while applying a proportionate credibility appraisal rather than a formal quantitative risk-of-bias instrument, in keeping with the qualitative and mixed nature of the evidence. The review was not registered in a protocol registry. No meta-analysis was undertaken because the studies are heterogeneous in design, context and measures; a thematic narrative synthesis was used instead.

2.2 Eligibility Criteria

Studies were included if they were empirical studies (qualitative, quantitative or mixed) or systematic or scoping reviews; addressed teacher preparedness or readiness in relation to competency-based education; were set in junior school (Grades 7 to 9) or in transferable basic-education contexts (pre-primary, primary, secondary or senior), with junior-tier and Kenyan evidence prioritised and other tiers and Sub-Saharan African systems

admitted as transferable or comparative evidence; were published between 2019 and 2026; and were available in full text in English. Studies were excluded if they addressed curriculum reform with no teacher-preparedness dimension, concerned non-competency-based curricula, were confined to higher-education or standalone technical settings with no school-level transfer, were opinion or advocacy pieces without data, or could not be retrieved in full text. Foundational theoretical and policy sources predating 2019 were admissible only as framing, not as included evidence.

2.3 Information Sources and Search Strategy

A systematic search was conducted in August 2026 across education research databases and publisher platforms, including ERIC, Google Scholar, African Journals Online and the platforms of the East African Journal of Education Studies, the International Journal of Research and Innovation in Social Science, and comparable outlets. The search combined three concept blocks with the Boolean operator AND: a teacher-preparedness block, a competency-based-education block and a context block. The full search strings appear in Appendix A. Reference lists of included reviews were scanned for further studies; this yielded no additional records beyond those already identified.

2.4 Study Selection

The search strings returned 47 unique records after duplicates were removed. Title and abstract screening excluded 16 records as off-topic, concerned with non-competency-based curricula, published before 2019, or otherwise irrelevant, leaving 31 records for full-text assessment. Of these, seven could not be retrieved in full text within the review window and were excluded on that ground, yielding a final corpus of 24 included studies. Screening, full-text assessment and data extraction were conducted by the reviewer, and every extracted record was cross-checked against the source publication; a formal independent double-screening procedure with a reported inter-rater statistic was not undertaken, a limitation revisited in Section 4.4. In addition, the existence and bibliographic accuracy of every included study were independently re-verified against the publisher record or institutional repository, and a verification log providing a resolvable link for each study is given in Appendix C. The selection process is summarised in the PRISMA-informed flow diagram in Figure 1.

2.5 Data Extraction and Synthesis

For each included study, a standard set of items was extracted: authors and year, country and school level, design and sample, key findings on teacher preparedness, and the preparedness dimensions addressed. The characteristics of included studies are presented in Table 1. Synthesis proceeded thematically across the seven preparedness dimensions; within each theme, studies are reviewed individually, with the critical appraisal of each study attached to that study rather than deferred to a separate section, so that the strength and limits of each piece of evidence are visible at the point of use.

2.6 Credibility Appraisal

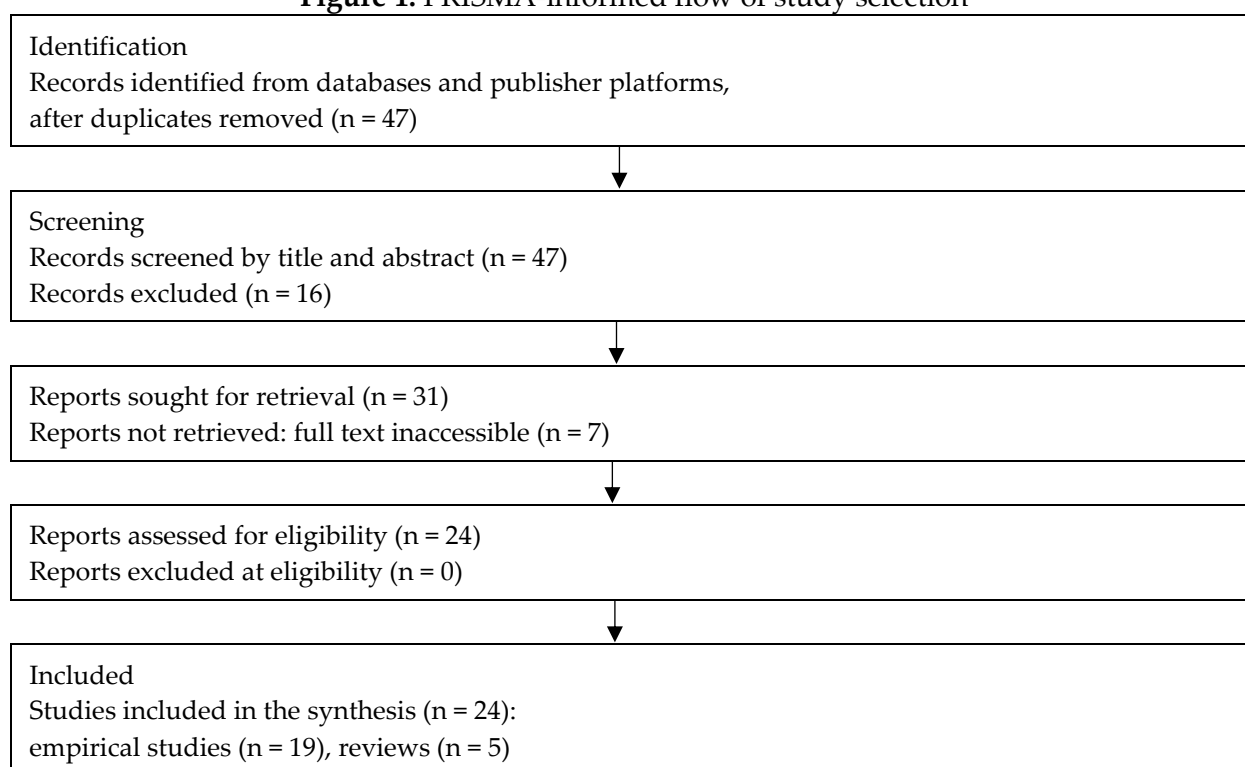
Each study was appraised, informed by the domains of the Mixed Methods Appraisal Tool, for the appropriateness of its design, the adequacy of its sampling, and the fit between its data and its claims. Large mixed-methods surveys with reported reliability were treated as stronger evidence; small single-sub-county self-report surveys, desktop reviews and exploratory policy analyses were treated as weaker or indicative and are flagged as such in the synthesis. Several included studies appear in emerging regional journals whose peer-review depth varies; findings from these outlets are reported but weighted accordingly.

3. Results

3.1 Study Selection

The flow of records through identification, screening and inclusion is summarised in Figure 1. Of 47 unique records screened, 24 studies met all criteria and were included in the synthesis.

Figure 1: PRISMA-informed flow of study selection



3.2 Characteristics of Included Studies

The 24 included studies comprise 19 empirical studies and five reviews. Seventeen are set in Kenya, spanning pre-primary, primary, junior and secondary levels, across counties including Nyamira, Kirinyaga, Bomet, Nyandarua, Meru, Marsabit, Homa Bay, Nairobi and the North Rift and Western counties; the remaining seven comprise comparative and review evidence: empirical studies from Tanzania, Rwanda and

Zimbabwe, a Kenya-and-Uganda technology desk review, a scoping review comparing Kenya with the United States and South Korea, and two further reviews of competency-based reform in Africa, one multi-country and one focused on Rwanda. Only four of the included studies (Ndambuki et al., 2024; Kawinzi, 2025; Keter & Wabuke, 2025; Nyamboki et al., 2026) examine the junior tier directly; the remainder are drawn on as transferable basic-education evidence, and the thinness of this directly junior-tier base is itself a principal finding of the review. Table 1 summarises the corpus.

Table 1: Characteristics of included studies (N = 24)

Study	Context and level	Design and sample	Key preparedness finding
Okeyo & Mokua (2023)	Kenya, Nyamira South; secondary	Convergent mixed methods (CBAM); n = 483	Schools ill-prepared; most teachers untrained before rollout
Mohamed et al. (2022)	Kenya, Kirinyaga; secondary	Descriptive survey; n = 40	88.5% had no in-service training; 76.9% felt unprepared
Keter & Wabuke (2025)	Kenya, Bomet; junior secondary	Descriptive survey ($\alpha = 0.82$)	Foundational knowledge but gaps in pedagogy, resources, PD
Ndambuki et al. (2024)	Kenya; JSS agriculture	Desktop review	~97% low content mastery; 61% do not use ICT
Karua et al. (2025)	Kenya, Kinangop; primary	Descriptive survey; n = 161	Low CBC awareness (M = 2.10); 66.5% untrained
Macheso et al. (2024)	Kenya, N. Rift/Western; primary	Mixed methods; 246 schools	CBA tools only moderately used; private > public
Maiyuria et al. (2024)	Kenya, S. Kinangop; primary	Descriptive survey; n = 77	Public schools far lower resource adequacy than private
Kawinzi (2025)	Kenya, Mbooni West; JSS	Mixed methods; n = 100	99% cited inadequate training; 100% inadequate infrastructure
Murithi & Yoo (2021)	Kenya; primary	Cross-sectional survey; n = 351	87.7% lacked internet; 58.4% could not integrate ICT
Rugut (2026)	Kenya & Uganda; basic	Desk review	Technology constrained by limited teacher preparedness
Ouma-Odero (2025)	Kenya; primary	Qualitative; 5 headteachers	~70k of 300k teachers ICT-trained at rollout
Muchira et al. (2023)	Kenya/USA/S. Korea	Scoping review (PRISMA)	Educators lack preparation; thin empirical base
Nyamboki et al. (2026)	Kenya, Homa Bay; junior	Mixed methods; n = 101	Attitude and self-efficacy significantly shape ICT use
Irene & Mutwiri (2025)	Kenya, Meru; primary	Descriptive survey; n = 34	Moderate self-efficacy; confidence-implementation $r = .56$
Kalla et al. (2025)	Kenya, Marsabit; primary	Mixed methods	28% never retooled; 91% rated training poor
Keter & Wabuke (2026)	Kenya, Bomet; senior	Descriptive survey; n = 185 + 10	72.4% retooled but short-term; retooling $R^2 = 46.8\%$

Wanyama (2025)	Kenya; early years	Descriptive survey	Teachers not sufficiently retooled on pedagogy, assessment
Kubai & Owiti (2022)	Kenya; JSS/senior/university	Exploratory/policy	Universities lack policy to align training with CBC
Kasuga & Kalolo (2025)	Tanzania, Njombe; secondary	Qualitative; n = 78	Teachers lack training/support; assessment exam-dominated
Wawire et al. (2025)	Africa (7 countries)	Scoping review	Teacher-centred practice persists; inadequate PD
Mutabazi & Saine (2025)	Rwanda; primary/secondary	Systematic review	Many teachers untrained; revert to traditional methods
Nsengimana et al. (2021)	Rwanda; secondary science	Multiple case study; 12 teachers	Strong in class/assessment, weak in science-in-society
Mpofu & Sefotho (2024)	Zimbabwe; SEN learners	Qualitative; n = 9	Poor teacher preparation; negative attitudes; few resources
Isaboke (2021)	Kenya, Nairobi; pre-primary	Mixed methods; n = 180	Only 34.1% trained; teachers not adequately prepared

Note: PD = professional development; CBA = competency-based assessment; ICT = information and communication technology; SEN = special educational needs; CBAM = Concerns-Based Adoption Model.

3.3 Thematic Synthesis

3.3.1 Pre-service Teacher Education

Evidence on initial preparation is comparatively thin, which is itself telling: the reform has been managed largely as a retrofit of serving teachers rather than a redesign of the pipeline that produces them. Kubai and Owiti (2022), in an exploratory analysis of teacher-training pathways in Kenyan university education, argue that universities have not yet issued clear policy to align teacher preparation with the competency-based pathways, and that preparation programmes must evolve to build multi-subject and talent-based competencies. As a policy analysis without a measured sample, the study is indicative rather than confirmatory, but it names a structural fault upstream of the classroom. Ndambuki et al. (2024), reviewing junior secondary agriculture, estimate that some 97% of agriculture teachers have low content mastery attributable to non-specialised recruitment and training; as a desktop review of secondary sources, the figure should be read as a signal rather than a measurement, yet it points to a subject-specialism problem that will intensify in senior school pathways. Kawinzi (2025) reports that 99% of surveyed junior secondary teachers cited inadequate training and teacher shortages and that many continued to teach with 8-4-4 methods; the single-sub-county, self-report design limits generalisation, but the magnitude is striking. The comparative literature echoes the pattern: Muchira et al. (2023) find a shortage of pre-service and in-service training opportunities to be a common obstacle across Kenya, the United States and South Korea, and observe that more than 60% of the Kenyan studies they screened were themselves reviews rather than original research, a caution about the depth of the empirical base. Mutabazi and Saine (2025) in Rwanda and Mpofu and Sefotho (2024) in

Zimbabwe similarly attribute weak enactment to poor initial preparation, the latter within a small qualitative study of inclusive settings. Taken together, the pre-service dimension is under-researched and, where examined, found wanting.

3.3.2 In-service Training and Continuing Professional Development

In-service retooling is the most heavily evidenced dimension, and the evidence is sobering. Okeyo and Mokua (2023), in a large convergent mixed-methods study of 483 respondents framed by CBAM, found that public secondary schools in Nyamira South were ill-prepared and that most teachers had not been trained before implementation began; the sample size and theoretical grounding make this among the stronger Kenyan studies. Mohamed et al. (2022) reported that 88.5% of Kirinyaga secondary teachers had attended no in-service training, although the sample of 40 constrains inference. In marginalised North Horr, Marsabit, Kalla et al. (2025) found that 28% of educators had never been retooled and that 91% of those who had rated the training as poor, citing short duration and underqualified facilitators, with training duration statistically predicting implementation success. A closely related study from the adjacent senior tier, Keter and Wabuke (2026) in Bomet County, found that although 72.4% of teachers had been retooled, training was short-term and only 30.3% received follow-up mentoring, yet retooling still explained 46.8% of the variance in implementation ($r = 0.684$); because junior-school cohorts feed directly into senior school, this evidence that the quantity of training matters while its brevity and the absence of follow-up cap its effect is pertinent, if only indirectly, to the junior tier. Maiyuria et al. (2024) sharpen the point by showing that in-service uptake was similar in public and private schools (88.9% and 86.7% respectively) even as resource adequacy diverged sharply, implying that training alone cannot compensate for systemic under-resourcing. Isaboke (2021), in a robust doctoral study of 180 respondents, found only 34.1% of pre-primary teachers trained and a highly significant association between training extent and implementation ($p = .000$). Wanyama (2025) reports that early-years teachers were not sufficiently retooled on pedagogy and assessment. The consistent finding across strong and weak studies alike is that retooling has been broad in intention but shallow in execution: cascade-delivered, brief, and rarely sustained by mentoring.

3.3.3 Pedagogical Content Knowledge and Competency-Based Pedagogy

Where studies probe what teachers can actually do, they find command of competency-based pedagogy to be partial. Karua et al. (2025) recorded low awareness of curriculum tenets among Kinangop primary teachers ($M = 2.10$ on a five-point scale) and found that 52.3% were unable to prepare schemes of work competently, a deficit that cascades into weak lesson planning; the descriptive survey of 161 teachers is reasonably powered for its setting. Keter and Wabuke (2025), in Bomet junior secondary, similarly identified gaps in pedagogical expertise despite foundational awareness. Nsengimana et al. (2021), in a multiple case study of Rwandan secondary science teachers, offer a more granular reading: implementation was relatively strong in classroom interaction and assessment

but weak in integrating science-in-society content, showing that pedagogical readiness is uneven across the components of a subject rather than uniformly absent. Irene and Mutwiri (2025) found that Meru primary teachers, though academically qualified, had only moderate ability to adapt learner-centred approaches. At the regional scale, Wawire et al. (2025), in a scoping review across seven African countries, conclude that teacher-centred practice persists despite reforms that call for transformative, learner-centred teaching, and Mutabazi and Saine (2025) report Rwandan teachers reverting to traditional methods when confidence fails. The weight of evidence indicates that awareness of competency-based vocabulary is widespread but the deeper pedagogical shift it demands is not, a distinction that senior school, with its specialised pathways, will test severely.

3.3.4 Assessment Literacy

Competency-based assessment is a recurring weak point. Macheso et al. (2024), surveying 246 schools across three North Rift and Western counties (Trans-Nzoia, Bungoma and Busia), found competency-based assessment tools only moderately utilised ($M = 2.88$) and documented a significant public-private gap that they attribute to class size, since larger public classes make time-intensive assessment methods impractical. Ndambuki et al. (2024) report that agriculture teachers found competency-based assessment tedious and time-consuming relative to the examination-based approach it replaced. Irene and Mutwiri (2025) identify the design of competency-based assessments as a specific area of low self-efficacy. The comparative evidence aligns: Kasuga and Kalolo (2025) find that assessment in Tanzanian secondary schools remains dominated by traditional examinations rather than continuous skills-based evaluation, and Wawire et al. (2025) report assessment practices lagging behind reform intentions across the region. Assessment literacy thus emerges as a dimension where structural constraints, especially class size and workload, interact with capability gaps, so that even willing teachers struggle to assess competencies as the curriculum envisages.

3.3.5 Resource and ICT Readiness

Resource and information and communication technology readiness is the most densely evidenced constraint, and the numbers are stark. Murithi and Yoo (2021), in a cross-sectional survey of 351 teachers, found that 87.7% lacked internet access, 66.4% had received no in-service ICT training, and 58.4% could not integrate technology into lessons. Ouma-Odero (2025) reports that only about 70,000 of Kenya's roughly 300,000 teachers had received ICT or EdTech training at rollout, and that 84.2% of public-school teachers reported difficulty using technology in class. Maiyuria et al. (2024) found that 80% of public head teachers said their schools lacked requisite infrastructure, and Kawinzi (2025) reported that 98% of junior secondary teachers lacked adequate teaching resources and ICT while all cited inadequate infrastructure. Keter and Wabuke (2026), in the adjacent senior tier, list inadequate ICT facilities among their principal implementation challenges, indicating that the resource deficit follows the reform beyond the junior tier as well. Regionally, Nsengimana et al. (2021) call for the provision of

teaching and learning resources alongside training, and Rugut (2026) argues that technology's potential to support competency-based education is throttled by infrastructure and access gaps. The evidence leaves little doubt that preparedness is not only a matter of teacher capability but of the material conditions in which capability can be exercised, and that public and rural schools are systematically disadvantaged.

3.3.6 Attitudes and Self-Efficacy

Teacher attitudes and self-efficacy emerge as significant, and largely favourable, levers. Nyamboki et al. (2026), studying junior schools in Rangwe, Homa Bay, found that attitude and self-efficacy significantly determined the integration of ICT in competency-based education, and recommended post-training mentorship and the empowerment of digital-mentor teachers to build confidence. Irene and Mutwiri (2025) reported a positive correlation between teacher confidence and implementation success ($r = .56$), positioning self-efficacy as a pivotal determinant. Yet the evidence is not unanimous. Isaboke (2021) found no significant relationship between teacher perceptions and implementation ability ($p = .603$) even as training and technological skills were significant, a dissenting result that cautions against treating attitude as a sufficient condition. Murithi and Yoo (2021) add nuance, finding that a majority believed technology improved organisation while a substantial minority perceived its use as time-consuming, so that positive belief and practical friction coexist. The comparative studies, including Mpofu and Sefotho (2024) on negative attitudes toward learners with disabilities, show that dispositions can also obstruct. The balance of evidence suggests that self-efficacy strongly enables enactment where the material and training conditions permit, but cannot substitute for them.

3.3.7 Support Systems

The final dimension, the ongoing support that surrounds a teacher after formal training, recurs as the connective tissue between preparedness and enactment. Keter and Wabuke (2026) make the deficit concrete: in the adjacent senior tier, only 30.3% of retooled teachers received follow-up mentoring, and the absence of sustained support is offered as a key reason retooling underdelivers. Nyamboki et al. (2026) recommend school-based coaching, peer support and digital mentors as the mechanisms most likely to convert training into confident practice, and Irene and Mutwiri (2025) similarly call for peer mentorship and leadership support. Maiyuria et al. (2024) included curriculum support officers in their sample, pointing to the role of the external support cadre, while Kalla et al. (2025) show that the quality and duration of facilitation, not merely its occurrence, determine whether support helps. Kawinzi (2025) notes that poor administrator-teacher relationships hindered implementation, locating support within the school's internal climate as well as its external structures. Across the corpus, the studies that ask what sustains preparedness converge on mentorship, coaching and institutional support as the missing layer that brief training cannot supply on its own.

4. Discussion

4.1 Summary of Evidence

Read across the seven dimensions, the evidence answers the first three review questions with unusual consistency. Teacher preparedness is genuinely multidimensional, but the dimensions are not equally evidenced: in-service retooling and resource and ICT readiness dominate the literature, pedagogical content knowledge, attitudes and support systems are moderately covered, while assessment literacy and, most acutely, pre-service preparation remain comparatively neglected. On the second question, preparedness demonstrably shapes implementation; where it is measured against implementation outcomes, the association is positive and often substantial, as in Keter and Wabuke's (2026) finding that retooling explained close to half the variance in implementation, and Isaboke's (2021) highly significant training effect. On the third question, the barriers are remarkably stable across studies and countries, and the enablers are equally recognisable, as summarised in Table 2.

Table 2: Barriers and enablers of teacher preparedness for competency-based education

Barriers	Enablers
Brief, cascade-delivered in-service training	Longer, higher-quality retooling with practical focus
Absence of post-training mentoring and follow-up	School-based coaching, peer support and digital mentors
Inadequate ICT, infrastructure and learning resources	Investment in resources and connectivity
Large classes limiting competency-based assessment	Manageable teacher-learner ratios
Weak pre-service alignment to competency pathways	Teacher self-efficacy and positive attitudes
Rural and marginalised-region disadvantage	Curriculum support officer and leadership support

The pattern is coherent with the theoretical frame. In the terms of the Concerns-Based Adoption Model, teachers are being asked to move to high levels of use without passing through the supported stages of concern that make such movement durable; in Rogers' terms, the innovation's demands outrun the relative advantage teachers can perceive when resources and support are absent; and in the terms of the Technological Pedagogical Content Knowledge framework, technological readiness cannot be assumed where infrastructure and training are lacking.

4.2 Research Gaps

The fourth review question concerns gaps, and the synthesis exposes them clearly. Although a body of evidence on teacher preparedness now exists, it is thin relative to the scale of the junior school tier and unevenly distributed in four respects. Geographically, it clusters in a handful of counties, with large parts of the country unrepresented, so the national picture is inferred rather than observed. By dimension, in-service retooling and

resource and ICT readiness are well covered, but pre-service preparation and assessment literacy, both central to junior-school delivery, are markedly under-evidenced. Methodologically, the corpus leans heavily on small, single-sub-county, self-report cross-sectional surveys, with few observational, longitudinal or intervention designs, and several influential pieces are reviews of an already thin literature, as Muchira et al. (2023) themselves note. And substantively, the distinctive conditions of junior school, its domiciling within secondary schools, its acute subject-teacher shortages, and the demand that teachers cover learning areas outside their specialism, have not been examined as preparedness problems in their own right. Above all, no prior study had drawn the scattered evidence into a consolidated account, which is the gap this review was designed to close and the one that most constrains evidence-based policy for the tier.

4.3 Implications for Policy and Practice

Several implications follow directly from the evidence. First, professional development should be reconceived from a one-off cascade into sustained, mentored provision, since the studies that measured follow-up found it both rare and decisive (Keter & Wabuke, 2026; Nyamboki et al., 2026). Second, the junior school tier requires subject-specialist retooling aligned to its learning areas, addressing the content-mastery and pre-service alignment gaps flagged by Kubai and Owiti (2022) and Ndambuki et al. (2024). Third, investment in ICT, infrastructure and learning resources is a precondition, not an accompaniment, of preparedness, given the severity and consistency of the resource findings. Fourth, assessment-literacy support must be paired with workload and class-size relief so that competency-based assessment becomes practicable (Macheso et al., 2024). Fifth, building teacher self-efficacy through coaching and peer structures offers a relatively low-cost lever with demonstrated returns. At the national level, the immediate priority is a coordinated programme of county-level baseline studies of junior-school teacher preparedness, concentrated in the regions this evidence base leaves unrepresented, to convert this synthesis into locally actionable evidence.

4.4 Limitations

This review has limitations. Most importantly, only four of the included studies examine the junior tier directly, so the review's junior-school conclusions rest substantially on transferable evidence from adjacent basic-education levels and from one senior-tier study, an inference that is reasonable but is not a substitute for junior-specific data. The search, although systematic in approach, drew on web-accessible databases and publisher platforms rather than an exhaustive multi-database export, so some records may have been missed; it was confined to English-language, full-text sources, and seven otherwise relevant records could not be retrieved and were excluded, which may bias the corpus toward more accessible outlets. Several included studies were published in emerging regional journals of variable peer-review depth, and a number relied on small self-report samples; these were weighted accordingly in the synthesis but still shape the aggregate picture. In particular, six of the 24 included studies were published in a single

emerging outlet, the International Journal of Research and Innovation in Social Science, so the independence of that portion of the evidence base is limited and the conclusions drawn from it should be treated as provisional; the corpus also includes five reviews, so parts of the synthesis necessarily aggregate already-synthesised evidence, and a few author teams recur across the included studies, which further limits the independence of the evidence base. Screening and extraction were performed by a single reviewer with cross-checking against source publications rather than by formally independent double review, which may introduce selection and extraction bias. As a PRISMA-informed rather than fully PRISMA-registered review, it applied a proportionate credibility appraisal rather than a formal risk-of-bias instrument. These constraints temper the certainty of the conclusions without, in the author's judgement, overturning the consistency of the central findings.

5. Conclusion and Recommendations

5.1 Conclusion

The evidence assembled here supports a clear conclusion: teachers in Kenya's public junior schools, like their counterparts across comparable Sub-Saharan African systems, remain inadequately prepared to implement competency-based education, and their preparedness is multidimensional, fragile and unevenly distributed, weakest in public, rural and marginalised settings. It rises and falls with the depth and continuity of in-service training, the presence of mentoring and support, the adequacy of resources and technology, and the self-efficacy of teachers, while the pre-service pipeline and the specialised, cross-specialism demands of the junior tier remain largely unaddressed. The existing evidence, though real and growing, has until now been scattered and unsynthesised; this review consolidates it into a first synthesis of a geographically uneven evidence base and shows both what is known and where the silences lie.

5.2 Recommendations

Five recommendations follow, each traceable to a specific finding and addressed to the actor best placed to act. The Kenya Institute of Curriculum Development and the Teachers Service Commission should replace one-off cascade retooling with sustained, mentored professional development, since follow-up mentoring proved both rare and decisive (Keter & Wabuke, 2026; Nyamboki et al., 2026). Teacher-training institutions and universities should align pre-service preparation to junior-school learning areas and build the subject-specialist depth whose absence Kubai and Owiti (2022) and Ndambuki et al. (2024) document. The Ministry of Education and county governments should treat investment in ICT, infrastructure and learning resources as a precondition of preparedness rather than an optional accompaniment, given the severity and consistency of the resource findings, and should pair assessment-literacy support with workload and class-size relief so that competency-based assessment becomes practicable (Macheso et al., 2024). School leaders should institutionalise coaching and peer structures that build

teacher self-efficacy, a low-cost lever with demonstrated returns. Finally, researchers, supported by these agencies, should mount a coordinated programme of county-level baseline studies of junior-school teacher preparedness in the regions this synthesis leaves unrepresented, so that the national gap it has exposed is progressively closed.

Funding Statement

This review received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data Availability Statement

All data supporting this review are drawn from the published studies listed in the references; the resolvable source for every included study is provided in the verification log in Appendix C.

Creative Commons License Statement

This research work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <https://creativecommons.org/licenses/by-nc-nd/4.0>. To view the complete legal code, visit <https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode.en>. Under the terms of this license, members of the community may copy, distribute, and transmit the article, provided that proper, prominent, and unambiguous attribution is given to the authors, and the material is not used for commercial purposes or modified in any way. Reuse is only allowed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

Conflict of Interest Statement

The author declares no conflicts of interest.

About the Author

Philip Kimutai Arap Kirui holds a PhD from Egerton University, Kenya, and researches the implementation of competency-based education in Kenya.

References

- Hall, G. E., & Hord, S. M. (2020). *Implementing change: Patterns, principles, and potholes* (5th ed.). Pearson. Retrieved from https://books.google.ro/books/about/Implementing_Change.html?id=DQ6yQQAACAAJ&redir_esc=y
- Irene, M. M., & Mutwiri, L. M. (2025). An assessment of teachers' self-efficacy in the implementation of the competency-based curriculum in Imenti North Sub-County public primary schools, Meru County, Kenya. *International Journal of Research and*

-
- Innovation in Social Science*, 9(10), 4853–4857.
<https://doi.org/10.47772/IJRISS.2025.910000400>
- Isaboke, H. G. (2021). *Relationship between teacher preparedness and implementation of the competency-based curriculum in public pre-primary schools in Nairobi City County, Kenya* [Doctoral dissertation, Kenyatta University]. Kenyatta University Institutional Repository. Retrieved from <https://ir-library.ku.ac.ke/server/api/core/bitstreams/11c9336b-0d91-45c7-83f5-35c805772c39/content>
- Kalla, P. H., Kanga, A., & Wambiya, P. (2025). Teacher retooling and effective implementation of the competency-based curriculum in North Horr Ward, Marsabit County, Kenya. *Journal of Education and Practice*, 9(2), 77–96.
<https://doi.org/10.47941/jep.2654>
- Karua, G. W., Manyasi, B., & Kara, A. (2025). Teacher preparedness to implement competency-based curriculum in public primary schools in Kinangop Sub County, Kenya. *International Journal of Scientific Research and Management*, 13(2), 22–41.
<https://doi.org/10.18535/ijstrm/v13i02.ee01>
- Kasuga, W., & Kalolo, J. F. (2025). Competency-based curriculum in Tanzania: Charting dilemmas for successful implementation. *Cogent Education*, 12(1).
<https://doi.org/10.1080/2331186X.2025.2563711>
- Kawinzi, J. M. (2025). Challenges experienced in the implementation of the competence-based curriculum (CBC) in public junior secondary schools in Kenya. *International Journal of Research and Innovation in Social Science*, 9(1), 2328–2332.
<https://doi.org/10.47772/IJRISS.2025.9010187>
- Kenya Institute of Curriculum Development. (2017). *Basic education curriculum framework*. KICD.
- Keter, J. K., & Wabuke, J. M. (2025). Teacher preparedness and implementation of competency-based curriculum in public junior secondary schools in Bomet County, Kenya. *International Journal of Social Science and Economics Invention*, 11(7), 116–123. <https://doi.org/10.23958/ijsssei/vol11-i7/404>
- Keter, J. K., & Wabuke, J. M. (2026). An investigation of teachers' retooling status and its influence on implementation of competency-based curriculum in senior schools in Bomet County, Kenya. *International Journal of Research and Innovation in Social Science*, 9(12), 3347–3355. <https://doi.org/10.47772/IJRISS.2025.91200256>
- Kubai, J. T., & Owiti, B. (2022). Teacher training pathways for competency-based curriculum (CBC) in the university education in Kenya. *African Journal of Science, Technology and Social Sciences*, 1(1). <https://doi.org/10.58506/ajstss.v1i1.44>
- Macheso, I. S., Kati, R. O., & Wafula, R. W. (2024). Implementation of competency-based assessment in Kenya: Extent of utilization of competency-based assessment tools and types. *International Journal of Research and Innovation in Social Science*, 8(6), 3124–3134. <https://doi.org/10.47772/IJRISS.2024.806236>
- Maiyuria, M. N., Mackatiani, C. I., & Gakunga, D. K. (2024). Competency based curriculum in Kenya: Impact of resources on implementation of the programme.
-

- International Journal of Research and Innovation in Social Science*, 8(8), 3659–3668.
<https://doi.org/10.47772/IJRISS.2024.8080271>
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
<https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Mohamed, M. M., Ondigi, S. R., & Mueni, N. K. (2022). Teachers' pedagogical preparedness for the implementation of the competency-based curriculum in public secondary schools in Kirinyaga County, Kenya. *IOSR Journal of Research & Method in Education*, 12(1), 33–40. <https://doi.org/10.9790/7388-1201033340>
- Mpofu, J., & Sefotho, M. M. (2024). Challenges of competency-based curriculum in teaching learners with learning disabilities. *African Journal of Disability*, 13, Article 1268. <https://doi.org/10.4102/ajod.v13i0.1268>
- Muchira, J. M., Morris, R. J., Wawire, B. A., & Oh, C. (2023). Implementing competency-based curriculum (CBC) in Kenya: Challenges and lessons from South Korea and USA. *Journal of Education and Learning*, 12(3), 62–77.
<https://doi.org/10.5539/jel.v12n3p62>
- Murithi, J., & Yoo, J. E. (2021). Teachers' use of ICT in implementing the competency-based curriculum in Kenyan public primary schools. *Innovation and Education*, 3(1), Article 5. <https://doi.org/10.1186/s42862-021-00012-0>
- Mutabazi, M., & Saine, E. (2025). Competence based curriculum implementation in Rwanda: Strategies and challenges. *International Journal of Research and Innovation in Social Science*, 9(11), 7189–7202. <https://doi.org/10.47772/IJRISS.2025.91100558>
- Ndambuki, R. K., Recha, O. R., & Karani, A. O. (2024). An investigation of the teacher preparedness in the implementation of the competence-based agriculture subject curriculum at junior secondary schools in Kenya. *International Journal of Education, Technology and Science*, 4(2), 1873–1892. Retrieved from <https://ijets.org/index.php/IJETS/article/view/269>
- Nsengimana, T., Mugabo, L. R., Ozawa, H., & Nkundabakura, P. (2021). Science competence-based curriculum implementation in Rwanda: A multiple case study of the relationship between a school's profile of implementation and its capacity to innovate. *African Journal of Research in Mathematics, Science and Technology Education*, 25(1), 38–51. <https://doi.org/10.1080/18117295.2021.1888020>
- Nyamboki, S., Areba, G. N., & Oranga, J. (2026). Attitude and self-efficacy as determinants of ICT integration in implementing competency-based education in junior schools, Rangwe Sub-County, Homa Bay County, Kenya. *Journal of the Kenya National Commission for UNESCO*, 6(2).
<https://doi.org/10.62049/jkncu.v6i2.563>
- Okeyo, S. M., & Mokuu, Z. O. (2023). Preparedness of teachers for implementing competency-based curriculum system of education in public secondary schools in Nyamira South Sub-County. *East African Journal of Education Studies*, 6(2), 406–418.
<https://doi.org/10.37284/eajes.6.2.1387>

- Ouma-Odero, M. (2025). EdTech integration in Kenya's competency-based curriculum: Challenges and opportunities. In *Proceedings of EDULEARN25* (pp. 6522–6525). IATED. <https://doi.org/10.21125/edulearn.2025.1604>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press. Retrieved from https://books.google.ro/books/about/Diffusion_of_Innovations_5th_Edition.html?id=9U1K5LjUOwEC&redir_esc=y
- Rugut, C. K. (2026). Leveraging technology to promote the implementation of competency-based curriculum in Kenya and Uganda. *East African Journal of Education Studies*, 9(2), 877–887. <https://doi.org/10.37284/eajes.9.2.5190>
- Wanyama, B. W. (2025). Competency based curriculum in Kenya: Taking stock of implementation process at early years education. *Culture, Education, and Future*, 3(1), 135–158. <https://doi.org/10.70116/2980274199>
- Wawire, B. A., Kiambati, F., Muhia, N., Gathoni, G., & Abuya, B. (2025). Competence-based curriculum implementation in Africa: A scoping review of pedagogical and assessment practices. *Journal of Curriculum Studies*, 58(4), 556–585. <https://doi.org/10.1080/00220272.2025.2523429>

Appendix A: Search Strings

The following concept blocks were combined with the Boolean operator AND and adapted to each database's syntax and field tags. Truncation is denoted by an asterisk.

Block A (teacher preparedness): “teacher prepared*” OR “teacher readiness” OR “teacher preparation” OR “teacher training” OR “professional development” OR “teacher competen*” OR “self-efficacy”

Block B (competency-based education): “competency-based education” OR “competency-based curriculum” OR “competence-based” OR CBC OR CBE

Block C (context): Kenya OR “junior school” OR “junior secondary” OR JSS OR “Grade 7” OR “Grade 8” OR “Grade 9” OR “basic education” OR “secondary school” OR “senior school” OR “East Africa” OR “sub-Saharan Africa”

Combined: (Block A) AND (Block B) AND (Block C), filtered to 2019–2026, English, full text available.

Appendix B: PRISMA 2020 Checklist (Condensed)

The review addresses the core PRISMA 2020 reporting items as mapped below.

PRISMA 2020 item	Where reported
Title identifies the report as a systematic review	Title
Structured summary (background, objective, methods, results, conclusions)	Abstract
Rationale and objectives	Sections 1.3–1.5
Eligibility criteria	Section 2.2
Information sources	Section 2.3
Search strategy (full strings)	Section 2.3; Appendix A
Selection process	Section 2.4
Data items and extraction	Section 2.5; Table 1
Study risk-of-bias / credibility appraisal	Section 2.6
Synthesis methods	Section 2.5; Section 3.3
Study selection flow (records to included)	Figure 1
Results of syntheses	Section 3.3
Limitations of the evidence and review	Section 4.4
Registration and protocol	Section 2.1 (not registered)