

# Results-Based Monitoring of Competency-Based Curriculum Integration in Public Primary Schools In Kenya: Examining the Kenya Primary Education Equity in Learning (KPEEL) Programme

Mwajima Imanuel Ngowa, Cecilia Mumbua Malui

Director, CEO Gashesa Enterprise, Mwajima Imanuel Ngowa, Researcher, South Eastern Kenya University

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## ABSTRACT

The implementation of the Competency Based Curriculum (CBC) in Kenya is one of the biggest education reforms in Sub-Saharan Africa that demands strong monitoring systems to guarantee their successful implementation and fairness in learning outcomes. This study looks in detail at the results-based monitoring architecture used for CBC integration in public primary schools, specifically the Kenya Primary Education Equity in Learning (KPEEL) Programme (2022-2026). The study used a qualitative document review and policy analysis approach, informed by Results Based Management Theory, the Context–Input–Process–Product (CIPP) Evaluation Model developed by Stufflebeam and Socio-Technical Systems Theory. Information was compiled from government reports, programme appraisal documents, monitoring frameworks, institutional evaluations and peer-reviewed literature from 2022-2025. It looked at the effectiveness of the monitoring mechanisms such as the National Education Management Information System (NEMIS), the Teacher Performance Appraisal and Development (TPAD) system, the Competency Based Assessment (CBA) portal and the Independent Verification Agency (IVA) framework. The results show that Kenya has a wide range of monitoring platforms in place but there is a lack of interoperability; monitoring data is not being used effectively for instructional improvement; capacity to use monitoring data at school level is too low; and there are still equity gaps in marginalised areas. There is some evidence that monitoring tools continue to focus on compliance and reporting upwards and not on adaptive decision making and continuous improvement. The study highlights the presence of an ongoing feedback utilization gap as a major challenge and suggests a systems strengthening strategy, which focuses on closed loop feedback mechanisms, improved platform integration, ongoing professional support and resource availability based on needs. The results add to the current debate on educational accountability, results-based management, and implementation of curriculum reform in developing countries.

**Keywords:** Competency Based Curriculum, Results Based Monitoring, Educational Accountability, KPEEL Programme, Monitoring and Evaluation, Kenya.

## INTRODUCTION

### Background

The world of education is moving towards a competency-based approach from content-based approach, aimed at providing individuals with the knowledge, skills, values and attitudes necessary to participate in these rapidly changing social and economic spaces. This shift mirrors the realization that traditional education systems with a focus on exams are not necessarily effective in preparing students for the twenty first century's demands, such as critical thinking, creativity, problem-solving, communication, collaboration, and digital skills (UNESCO, 2023). As a result, numerous countries have embraced competency-based curriculum reforms as part of the larger agenda of enhancing the quality of education, preparing them for the workforce, and making them more competitive.

This change in Kenya is reflected in the Competency Based Curriculum (CBC) that was introduced in 2017. This is the Competency Based Curriculum (CBC) implemented in Kenya in 2017 instead of the old 8-4-4 education system. The CBC is learner-centred pedagogical principles that aim at moving away from the mere memorization approach to learning, to one that involves learners in continuous assessment and competency development (Kenya Institute of Curriculum Development, 2022). The reform is aligned to the national development goals expressed in Kenya Vision 2030 and the Sustainable Development Goal 4 which focuses on access to inclusive and equitable quality education for all. There are seven competencies that are emphasized in the CBC: communication and collaboration, critical thinking and problem-solving, creativity and imagination, citizenship, digital literacy, learning to learn, and self-efficacy. But if these goals are to be met, the curriculum must be redesigned, and there must be effective systems for monitoring the implementation of the new curriculum and providing support for ongoing improvements.

Monitoring and evaluation are central to large scale education reforms as they provide evidence for decision-making, accountability, resource allocation and institutional learning (Kusek & Rist, 2004). Traditional monitoring systems in education have been concerned more with inputs (infrastructure, teachers, textbooks, etc.). Such measures are still relevant but they do not necessarily indicate if learners are learning the intended competencies or if the teaching and learning practices have altered in relation to the reform goals. An alternative approach is Results Based Management (RBM), which focuses on results, accountability and evidence-based programme implementation and policy adjustment (World Bank, 2022). In the education sector, the aim of results-based monitoring is to identify focused connections between resources, activities, outputs, outcomes and long-term impacts, and to facilitate regular monitoring and adjustment of programs.

The Kenya Primary Education Equity in Learning (KPEEL) Programme is Kenya's main framework for supporting and monitoring the implementation of CBC, which receives funding from the International Development Association (IDA), the LEGO Foundation (Global Partnership for Education, 2025) and the Global Partnership for Education (GPE). It is a results-based financing programme with institutional capacity building, aiming to enhance access, equity, quality and accountability in education. The mechanisms for monitoring implementation of programmes are digital and institutional and include the National Education Management Information System (NEMIS), the Teacher Performance Appraisal and Development (TPAD) system, the Competency Based Assessment (CBA) portal, and also the Independent Verification Agency (IVA) for validation of programme results that are connected to financing disbursements (Opondo & Were, 2024).

## **Problem Statement**

Even with the creation of this broad monitoring framework, there is growing evidence that there are important implementation obstacles. Previous research has documented issues on the quality of data, lack of interoperability among monitoring platforms, failure to effectively use monitoring data for instructional improvement and the persistent gaps that exist in marginalized regions and vulnerable populations (Wekesa & Kafwa, 2024). Although there has been significant focus on challenges of implementing CBC, there has been less work on assessing the effectiveness of the monitoring systems designed to drive the reform. Besides, the existing evidence is scattered in programme reports, policies, institutional assessments and separate empirical studies, which makes it challenging to build a holistic picture of the strengths and challenges of the results-based monitoring architecture in Kenya.

One of the most salient issues that have been raised in the literature is a lack of linkage between data collection and data use. Whilst ample educational data is produced from monitoring systems, evidence shows that such data are often collected to meet compliance requirements instead of being used for adaptive management, teaching and learning improvement, and evidence-based decision making (Ochieng & Wanjala, 2023). The phenomenon in this study, the feedback utilization gap, warrants thought on the degree to which monitoring systems help to further educational improvement in addition to accountability and reporting demands.

## Objectives of the Study

This study addressed the following objectives:

1. To examine the theoretical and conceptual foundations underpinning results-based monitoring of CBC integration in Kenya.
2. To assess the operational performance of key monitoring tools, including NEMIS, TPAD, the CBA portal, and the Independent Verification Agency framework.
3. To evaluate the relationship between monitoring quality and educational outcomes, including teaching quality, equity of implementation, and learner achievement.
4. To propose a systems-strengthening framework for improving feedback utilization and enhancing the effectiveness of results-based monitoring within Kenya's CBC reform.

## Significance of the Study

This research adds to the body of work on the themes of accountability for education, the implementation of curriculum changes, and results-based management in the context of developing countries. The findings identify points of leverage for researchers, development partners, education managers, and policy-makers aiming to enhance the capacity of monitoring systems for meaningful and sustainable educational transformation, by synthesizing existing evidence in a systems perspective. The study also advances the theory of how monitoring systems work as socio-technical arrangements as well as how feedback mechanisms can be enhanced to facilitate the connection between data collection and instructional improvement.

## LITERATURE REVIEW

### Theoretical Framework

The study employed socio-technical systems (STS) theory, Stufflebeam's CIPP evaluation model and Results Based Management (RBM) theory as complementary theories. The RBM Theory served as a starting point to explore how monitoring systems can be used to measure progress toward educational outcomes and to enable accountability. Kusek and Rist (2004) defined RBM as a management strategy that aims for outcomes by employing systematic monitoring and adaptive management. The theory is still applicable as a result, the KPEEL Programme explicitly chooses to implement result-based financing mechanisms that are tied to verified performance indicators (World Bank, 2022). Stufflebeam and Zhang (2017) developed a CIPP Evaluation Model, which was used to assess monitoring processes in the contextual, operational, implementation and outcome dimensions. STS Theory was used for analysis of the relationship between technological platforms, institutional structures and human actors. Murphy, Lyytinen and Somers (2023) pointed out that the success of your technology adoption relies on technical systems and social systems aligning within your users and organizations. Likewise, Akbarighatar et al. (2023) suggested that the implementation of new technologies should be linked to organizational readiness, and Kudina and van de Poel (2024) showed how value alignment is essential to making desired improvements from technical solutions. This incorporation of these views allowed for a holistic view of the effectiveness of monitoring from the technical and organizational aspects.

### Empirical Review

Internationally, there has been a large increase of results-based monitoring in education. OECD (2023) found that effective monitoring systems are associated with improved educational outcomes, and UNESCO (2023) highlighted the need to go beyond collecting data, to using it and ensuring it is inclusive and equitable. The World Bank (2024) noted that results-based financing programmes are a contributing factor to better learning outcomes; however, effectiveness is dependent on institutional capacity. Rugeiyamu and Mesdo (2025) noted that education management information systems lack interoperability and lack of use of monitoring information

in Africa. Eshetie and Ambaye (2024) identified that institutional fragmentation makes effective monitoring on the continent challenging. In Kenya, Gichuru and Otieno (2023) reported that although NEMIS enabled easier access to data, data quality and utilization were still to be a major concern. Muthoni, Karanja, and Omondi (2025) found that while TPAD has enhanced teacher accountability, it does not always lead to better teachers' instructional practices. The KPEEL Programme set up results-based financing mechanisms based on verified performance indicators (World Bank, 2022). Monitoring is done using NEMIS for administrative, TPAD for teacher performance, CBA portal for learner assessment and IVA for independent verification (Opondo & Were, 2024). Monitoring framework by Kenya Institute of Curriculum Development (2022) pledged continuous improvement, whereas Mulwa, Mwanja and Kimiti (2023) reported that monitoring varied county by county, with no monitoring taking place in marginalised counties due to lack of infrastructure and staff. Ochieng and Wanjala (2023) called for "plugging the gap between monitoring and classroom practice".

## Research Gaps

In the literature, considerable efforts have been dedicated to describing the barriers to implementing CBC and to developing monitoring systems. But there are gaps that need to be addressed. A first, limited research has focused on the function of monitoring systems on a collective level as part of an integrated architecture. Second, there have been very few studies that have systematically examined factors that exacerbate the feedback utilization gap and offered evidence-based recommendations for improving feedback loops. Thirdly, there is a lack of studies that apply socio-technical approaches to develop an understanding of the relations between the digital platform, the institutional structure, and human capacity. This study aims to fill some of these gaps by synthesizing data from many monitoring systems and including complementary theoretical perspectives to provide actionable recommendations.

## METHODOLOGY

### Research Design

The study used a qualitative document review and policy analysis design to explore the effectiveness of results-based monitoring mechanisms that could be used to monitor the implementation of the Competency Based Curriculum (CBC) in Public Primary Schools in Kenya. The design was chosen as it allowed for the systematic review of the available evidence from policy documents, programme reports, institutional evaluations and peer-reviewed literature available on curriculum implementation, educational monitoring and results-based management.

Document review and policy analysis are commonly used in educational research to summarize evidence, establish trends in implementation, assess institutional structures and to develop policy and practice recommendations. Considering that CBC was to be implemented at the national level and there was a rich programme documentation to be found under the Kenya Primary Education Equity in Learning (KPEEL) Programme, a secondary-data approach was deemed suitable for the purpose of assessing the strengths, challenges and effectiveness of existing monitoring systems.

### Data Sources

In the study, all secondary data were sourced from various documentary ones published from 2022 to 2025. The materials reviewed comprised government policy documents and implementation guidelines on the Competency Based Curriculum; reports and implementation assessments of the KPEEL Programme; M and E reports of the Ministry of Education; reports generated through NEMIS, TPAD implementation assessment reports, CBA framework documents and assessment reports; IVA reports; peer-reviewed journal articles on curriculum reform, educational monitoring and accountability systems, and results based management; and publications by International Development Partners engaged in educational reform and programme evaluation. Multiple data sources added to the robustness and reliability of the analysis, allowing for triangulation of results from various institutional and academic viewpoints.

**Table 1: Summary of Data Sources and Document Categories**

| Document Category          | Type of Documents                                                             | Primary Purpose                                                                                       | Key Institutions/Authors                                                                                           |
|----------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Policy Documents           | Curriculum guidelines, monitoring frameworks, implementation manuals          | Define standards, expectations, and procedures for CBC implementation and monitoring                  | KICD (2022); Ministry of Education (2025); Kenya Education Management Institute (2024)                             |
| Programme Reports          | Appraisal documents, implementation status reports, completion reports        | Document programme progress, results, challenges, and lessons learned                                 | World Bank (2022; 2025; 2026); Global Partnership for Education (2025)                                             |
| Monitoring System Reports  | NEMIS reports, TPAD reports, CBA assessment reports, IVA verification reports | Provide performance data on enrollment, teacher performance, learner assessment, and verified results | Opondo & Were (2024); Kenya National Examinations Council (2024); Gichuru & Otieno (2023)                          |
| Peer-Reviewed Literature   | Journal articles, systematic reviews                                          | Contribute theoretical perspectives, empirical evidence, and comparative analysis                     | Akinyi et al. (2023); Mulwa et al. (2023); Ochieng & Wanjala (2023); Wafula & Simiyu (2024); Wekesa & Kafwa (2024) |
| International Publications | OECD reports, UNESCO reports, World Bank publications                         | Provide global comparative perspectives and best practice guidance                                    | OECD (2023); UNESCO (2023); World Bank (2024); Kusek & Rist (2004)                                                 |

## Document Selection Criteria

Document sampling was done by purposive sampling to select documents relevant to implementing CBC and education monitoring in Kenya. To ensure consistency and quality, documents were included if they met the following criteria: directly addressed CBC implementation, educational monitoring, programme evaluation, accountability systems, or results-based management; were published between 2022 and 2025 to ensure relevance to the KPEEL implementation period; originated from credible sources, including government institutions, development partners, academic journals, and recognized educational organizations; and contained evidence relevant to monitoring systems, educational outcomes, implementation challenges, or accountability mechanisms. Documents were not included in the analysis if they were not methodologically transparent, if there was insufficient information, or if it was not related to monitoring and evaluation processes.

## Data Analysis

Thematic content analysis was used to abstract the data from the documents reviewed. Several steps were taken in the analysis. First, documents were read many times to gain familiarity with the content and to detect themes. Secondly, the relevant information was coded based on the key concepts that stemmed from the research objectives and the theoretical framework. Third, codes that were related to each other were organized across themes, such as monitoring system effectiveness, data quality, accountability mechanisms, feedback use, implementation challenges, interoperability, equity considerations, and education outcomes.

Thematic patterns were then identified across all documents, and synthesized to give an overall picture of Kenya's results-based monitoring architecture, its strengths and weaknesses. If such quantitative results were reported in empirical studies conducted in the past, these results were adopted to support the present study's findings and interpreted within the overall thematic analysis and not as data collected within the context of the present study.

## Trustworthiness and Quality Assurance

There were several methods used to increase the credibility and trustworthiness of the analysis. Data triangulation was ensured by using multiple documentary data for example government reports, programme evaluations and peer-reviewed literature. Second, results were analysed using various perspectives to minimize the impact of single perspective bias. Thirdly, evidence was checked across the sources to look for convergence and divergence. These are the procedures that enhanced the trustworthiness of the findings and increased confidence in the interpretations and recommendations of the study.

## Ethical Considerations

The study only used secondary sources and publicly available documents and so did not include any direct interaction with human participants. As a result, no personal information was collected, and no particular respondents were placed at risk. However, academic honesty, transparency and source citation were maintained during the entire study. Appropriate citations per APA 7th Edition guidelines were used for all documents reviewed.

## RESULTS

### Results Based Monitoring Architecture Supporting CBC Implementation

From the review, four major monitoring mechanisms supporting the implementation of CBC were identified: National Education Management Information System (NEMIS), the Teacher Performance Appraisal and Development (TPAD) system, the Competency-Based Assessment (CBA) portal, and the Independent Verification Agency (IVA) framework. These systems collect administration, instruction, assessment and accountability information that can be used to assess educational outcomes and programme performance.

**Table 2: Key Monitoring Mechanisms Supporting CBC Implementation**

| Monitoring Mechanism                                     | Primary Function                                    | Key Data Collected                                                                  | Institutional Responsibility        |
|----------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|
| National Education Management Information System (NEMIS) | Administrative data and resource tracking           | Learner enrollment, teacher deployment, infrastructure, resource allocation         | Ministry of Education               |
| Teacher Performance Appraisal and Development (TPAD)     | Teacher accountability and professional development | Teacher lesson planning, classroom observation, professional development records    | Teachers Service Commission         |
| Competency-Based Assessment (CBA) Portal                 | Learner assessment and competency tracking          | Continuous assessment results, learner progress, competency achievement             | Kenya National Examinations Council |
| Independent Verification Agency (IVA)                    | Results verification for results-based financing    | Validated performance indicators, programme results, disbursement-linked indicators | Independent contracted agencies     |

The results show that Kenya has put in place one of the most well-developed educational monitoring systems in the region. Incorporating digital platforms has increased data access, reporting efficiencies, and accountability at national and county levels. Monitoring is undertaken regularly to monitor enrolment of learners, teachers' performance, assessment participation, infrastructure development, and programme implementation milestones.

## Performance of Monitoring Systems

A review of the documents indicates that NEMIS has greatly facilitated access to real-time educational data and improved processes of resource allocation. Gichuru and Otieno (2023) noted that NEMIS has supported effective monitoring of learners' enrolment, teachers' deployment and infrastructure development in counties. Likewise, TPAD has enhanced teacher accountability by institutionalising teacher appraisal processes, as pointed out by Muthoni, Karanja and Omondi (2025) that the system has positively impacted teacher planning and lesson preparation.

**Table 3: Operational Performance of Monitoring Systems**

| System        | Strengths Documented                                                             | Challenges Identified                                                                 | Evidence Sources                             |
|---------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------|
| NEMIS         | Real-time data access, improved resource tracking, enhanced reporting efficiency | Data quality inconsistencies, submission delays, limited analytical capacity          | Gichuru & Otieno (2023); Mulwa et al. (2023) |
| TPAD          | Structured appraisal, improved lesson planning, accountability mechanisms        | Limited impact on instructional practice, compliance orientation, inadequate feedback | Muthoni et al. (2025); Wekesa & Kafwa (2024) |
| CBA Portal    | Continuous assessment, centralized reporting, competency tracking                | Fragmented integration, limited teacher capacity, assessment consistency concerns     | Kenya National Examinations Council (2024)   |
| IVA Framework | Independent verification, results-based financing support                        | Verification capacity constraints, limited coverage, high operational costs           | Opondo & Were (2024); World Bank (2025)      |

The CBA portal has made continuous assessment of learners easier and has centralized reporting, thus enabling the implementation of competency-based assessment. The portal has contributed to transitioning from summative examination to continuous competency assessment as noted by the Kenya National Examinations Council (2024). As outlined by Opondo and Were (2024), the IVA framework has been used to verify the outcomes of the programmes, which helps strengthen the credibility of the results-based financing mechanisms.

Despite all these accomplishments, some operational challenges were identified. Both the quality of data and its timeliness were mentioned, as well as the limited technical capabilities of users and the lack of a unified application of monitoring platforms. There was a consistent concern that NEMIS, TPAD and CBA systems were not fully interoperable, which hindered efficient use of the data and evidence to inform decision making.

## Monitoring Quality and Educational Outcomes

The reviewed evidence indicates that positive outcomes exist between effective monitoring and the educational outcomes. Better monitoring and reporting was correlated with better curriculum implementation, teacher engagement and better learner assessment practices in schools with better monitoring and reporting. Wekesa and Kafwa (2024) showed that instructional supervision and monitoring had positive relationship to the quality of the delivery of CBC, and Kioko and Nyaga (2022) showed that the monitoring practices in school affected teacher motivation and performance.

**Table 4: Relationship Between Monitoring Quality and Educational Outcomes**

| Monitoring Practice       | Observed Relationship with Outcomes                  | Evidence Sources                            |
|---------------------------|------------------------------------------------------|---------------------------------------------|
| Consistent data reporting | Improved resource allocation, targeted interventions | Gichuru & Otieno (2023); World Bank (2024)  |
| Instructional supervision | Enhanced teaching quality, improved lesson delivery  | Wekesa & Kafwa (2024); Kioko & Nyaga (2022) |

|                           |                                                             |                                            |
|---------------------------|-------------------------------------------------------------|--------------------------------------------|
| Continuous assessment     | Better competency tracking, improved learner feedback       | Kenya National Examinations Council (2024) |
| Independent verification  | Strengthened accountability, improved programme credibility | Opondo & Were (2024); World Bank (2025)    |
| Equity-focused monitoring | Enhanced identification of underserved schools              | Akinyi et al. (2023); UNESCO (2023)        |

But there was also significant variation in implementation quality from region to region. In underserved and resource-limited communities, schooling was often hampered by technical problems, connectivity, shortages of teachers and support, and issues with digital infrastructure. Such differences related to both the effectiveness of monitoring and to the overall implementation of CBC.

### Feedback Utilization and Decision Making

Feedback utilization gap was one of the most consistent phenomena observed in the literature reviewed. There is also amassed a considerable amount of monitoring data, although evidence indicates that this is not necessarily informing school-level learning and teaching in relation to programme adaptations or targeted support. According to Mulwa, Mwanja and Kimiti (2023) the practices of monitoring were put in place but the impact in improving instruction was minimal. This was also reported by Ochieng and Wanjala (2023) who found a significant disconnect between data collected and classroom practice.

**Table 5: Evidence of the Feedback Utilization Gap**

| Dimension              | Evidence of Gap                                                         | Implications                                 | Evidence Sources                                                     |
|------------------------|-------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------|
| Data-to-Instruction    | Limited translation of assessment data into teaching adjustments        | Reduced impact on learning outcomes          | Ochieng & Wanjala (2023); Wafula & Simiyu (2024)                     |
| Compliance Orientation | Monitoring primarily for reporting rather than improvement              | Missed opportunities for adaptive management | Mulwa et al. (2023); Muthoni et al. (2025)                           |
| School-Level Capacity  | Inadequate data interpretation skills among teachers and school leaders | Limited evidence-informed decision-making    | Gichuru & Otieno (2023); Kenya Education Management Institute (2024) |
| Feedback Loops         | Weak mechanisms for feeding monitoring findings back to schools         | Limited institutional learning               | Opondo & Were (2024); World Bank (2025)                              |

As a result, continuous learning, organizational improvement, and evidence-informed decision-making opportunities are not leveraged. This challenge became a key issue in the existing monitoring system.

### Equity and Inclusion Considerations

Based on the review, results-based monitoring systems have helped to deepen the understanding of educational inequities and enhanced capacities to identify under-served schools and learners. Akinyi, Odundo and Gunga (2023) noted on gender responsive monitoring practices; UNESCO (2023) highlighted the need for equity-oriented monitoring in inclusive education. However, there are still significant inequalities between different geographical areas, socio-economic groups and schools for vulnerable learners.

There are already monitoring systems in place that include a number of relevant implementation measures, though not necessarily enough to give a clear picture of contextual barriers that impact educational outcomes. Therefore, data quality and data interpretation are still a concern in equity-focused decision making.

## DISCUSSION

The results show that there has been a remarkable progression in establishing a results-based monitoring system in Kenya by incorporating NEMIS, TPAD, the CBA portal and IVA mechanisms. From the Results Based Management point of view, the systems provide a considerable amount of performance information and connect activities with desired results (Kusek and Rist 2004). The CIPP Evaluation Model shows that the architecture does consider contextual factors and assesses outcomes. The biggest challenge, however, is the low use of evidence to inform teaching and learning, which is in line with the international literature indicating that monitoring systems tend to focus on reporting rather than organizational learning (OECD 2023). The feedback utilization gap is a key gap that needs to be overcome: In this case, monitoring is not used for continuous improvement, but only to check compliance. Monitoring systems are found to be socio-technical arrangements and not simply technological solutions (Murphy et al., 2023), alongside the human capacity, organizational culture and institutional incentives (Akbarighatar et al., 2023). To overcome the persistent inequities, it is necessary to move beyond aggregate reporting to equity-oriented approaches (UNESCO 2023).

The Kenyan experience is in line with the wider experiences in developing countries with regards to the quality of data and inadequate analytical capacity (Rugeiyamu and Mesdo 2025). This is however noted to be Kenya's notable strength, both in terms of integration of several platforms and result-based financing, the IVA model building trust and credibility (Opondo and Were 2024). Findings have implications for governance and practice. Interoperability, capacity building, and decision-making that is based on monitoring feedback and informed by the STS Theory are necessary steps toward strengthening monitoring, moving beyond data collection to data utilization. Second, there must be closed-loop feedback systems linking data analysis and interventions that have an impact. Third, equity needs to be incorporated to develop actionable intelligence on barriers to contexts experienced by marginalised communities. The study adds to the theory by providing an example of how to effectively monitor by engaging technical systems, institutional systems, and human systems all together. The gap in using feedback demonstrates that good designs can fall short even when monitoring data is well designed.

## CONCLUSION AND RECOMMENDATIONS

### Key Findings

The paper concluded that Kenya has a results-based monitoring framework in place to support the implementation of the CBC, such as NEMIS, TPAD, CBA portal and the IVA framework. These systems have led to increased data availability, increased accountability, and increased credibility of programme monitoring. Yet there are still major obstacles to overcome such as: interoperability challenges, low use of data, disparities in equity, and a feedback utilization gap (FUG) that is limiting the impact of monitoring to instructional improvement and adaptive management. The results reiterate that technology investments are not enough to achieve successful monitoring results; human resources, institutional culture, and feedback are also important factors for success.

### Policy Recommendations

The MoE and the Teachers Service Commission should create a complete interoperability framework to link NEMIS, TPAD and CBA systems, in order to standardise the monitoring practice and enhance the use of data. This would facilitate the sharing of data seamlessly and would lead to more efficient evidence-based decision making. On the national level, the Ministry of Education, working with development partners, should create clear data governance procedures to outline roles and responsibilities and data sharing requirements for each monitoring platform.

Using monitoring data in school performance agreements and teacher appraisal systems will make evidence-based governance and continuous improvement a part of school life. There is a need to build the capacity of school leaders and teachers in understanding and utilizing monitoring data in targeted professional development programmes that can be provided through institutions like the Kenya Education Management Institute.

### Practical Recommendations

Schools and county education offices are encouraged to prioritize building school-level monitoring committees that review monitoring data regularly, determine areas for improvement, and take action based on the data. The use of monitoring dashboards in daily instructional planning and school improvement processes will help create transparency and accountability.

Ensuring that monitoring data are used in school improvement planning, teacher professional development, and resource allocation decisions is a critical component in closing the gap in feedback use. This is consistent with the principle of STS: Digital systems will be effective when they are part of supportive institutional practices. County governments should provide specific resources to monitor the capacity building and technology support, especially in remote and under-served areas.

### Suggestions for further research.

Further study should explore the effects of results-based monitoring on learning outcomes over several cycles of implementation to assess how sustainable the results are and how they will impact learning. Comparisons within a region in East Africa, in particular, might help to illuminate trends in educational monitoring and institutional learning among similar governance settings. To understand how monitoring systems affect classroom practice and instructional quality, further research on the impact of monitoring practices and teacher professional development is needed.

Fusion of STS and BIT theories may lead to more significant models on the relation between leadership, culture and technology in educational monitoring. The analysis of the trends of monitoring systems and their effect on educational equity and inclusion using longitudinal studies would be useful for informing policy.

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