LEVERAGING TEACHER CONCERNS IN EDUCATIONAL CHANGE: A CASE OF THE UGANDA LOWER SECONDARY CURRICULUM REFORM

BY

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DECLARATION

Declaration by Candidate

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DEDICATION

To CERM-ESA: Thank you for counting me worthy.

And to the teachers of Uganda: because we are, the nation is.

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ABSTRACT

Teacher concerns are the pulse of educational change. Scholarship on various educational change endeavours across sub-Saharan Africa identified inattention to teacher factors as a major cause of failure to achieve intended educational outcomes. The theoretical framework for this study: the Concerns Based Adoption Model, avers that change facilitators must acknowledge the personal dimension of change represented by teacher concerns. This study therefore sought to determine how teacher concerns in the Uganda lower secondary curriculum reform can be leveraged to facilitate an effective educational change through an exploration of the relationships between curriculum reform strategies (CRS) utilised by the change facilitators, the concerns of teachers (TC), and quality of curriculum implementation (QI). The study objectives were to: analyse the concerns of teachers implementing the Uganda LSC reform; determine the extent to which TC mediated the relationship between CRS and QI; explore selected change facilitators' perceptions of CRS, TC, and QI; appraise the CRS and their influence on TC and QI in selected schools; and elaborate upon the patterns in TC and the relationships between CRS, TC, and QI of the LSC using themes distilled from the qualitative data. The research population was all secondary school teachers in Uganda. Located within the pragmatic worldview, the study employed a mixed methods case study design by using a convergent parallel mixed methods design in the initial phase, followed by a multiple case study. Data for the initial phase were collected through a questionnaire and interviews, and in the second phase through interviews, lesson observations, and document analysis. The initial-phase sample comprised 387 teachers selected by cluster random sampling from 44 government secondary schools in Central Uganda. Four MoES and five NCDC officials were purposively-selected for interview. Subsequently, two instrumental cases were identified from which ten teachers and four school administrators were purposively-selected for interviews. Data from the quantitative phase was analysed descriptively and inferentially; and that from the qualitative phase, thematically. Quantitative and qualitative datasets were integrated through narration and joint display analysis. Quantitative results revealed that the group concerns profile of the respondents was that of a disinterested negatively-disposed non-user. Further, negative perceptions were found on most of the indicators of CRS and QI. Mediation analysis revealed a significant effect of CRS on QI in the presence of TC ($\beta = 0.644$, $t = 18.576$, $p < 0.001$), but no significant mediating effect of TC on QI ($\beta = 0.019$, $t = 0.959$, $p = 0.337$). Hence a direct-only non-mediating effect was inferred. Qualitative findings from interviews and multiple case studies confirmed and expounded these results by underscoring the various school-level challenges facing teachers including inadequate infrastructure, big classes, inadequate training, and insufficient supervisory support. It was concluded that teacher concerns and hence implementation quality were most influenced by the school socio-economic contexts hence they were best-leveraged at this level. It was recommended that the MoES and NCDC incorporate contextually-generated teacher concerns into the curriculum management process to ensure effectiveness of planned reforms.

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ABBREVIATIONS

CBAM:	Concerns Based Adoption Model
CBC:	Competency-based curriculum
CBE:	Competency-based education
CRS:	Curriculum reform strategies
CURASSE:	Curriculum, Assessment, and Examinations report
DES:	Department of Education Standards
ESSP:	Education Sector Strategic Plan
LSC:	Lower Secondary Curriculum
MoES:	Ministry of Education and Sports
NCDC:	National Curriculum Development Centre
NDP:	National Development Plan
NRM:	National Resistance Movement
QI:	Quality of Implementation
SoCQ:	Stages of Concerns Questionnaire
UNEB:	Uganda National Examinations Board

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction

Teacher concerns are a fact of school life. They are a ubiquitous element of the school institution, affecting every aspect of school operation. This chapter provides a background to the lower secondary curriculum reform in Uganda; the case under study. The position of teachers in this reform is touched on briefly, showing the importance of illuminating upon their concerns. The statement of the problem, research objectives, and questions as well as hypotheses are then outlined. A justification for this study is also provided together with its perceived significance for various stakeholders. The assumptions under which the study was conducted and its limitations are explicated as well. A theoretical framework and conceptual framework are provided for the study with an explanation of the variables under investigation. Finally, key terms used are operationalised. It is demonstrated that teacher concerns drive the quality of implementation of curriculum reform and must therefore be consistently monitored and addressed by change facilitators at all levels.

1.2 Background to the Study

Education is arguably the foremost instrument of advancement of any society. That is why the curriculum through which education works is a matter of keen interest for politicians and common folk alike. Testament to this is the phenomenon of curriculum reform; a critical activity through which nations all around the world reconcile their education systems with their needs and aspirations. More recently, curriculum reform has been necessitated by pertinent global issues including global warming and climate change, environmental degradation, great technological advancements such as the 4th Industrial Revolution, and global economic growth and wealth creation. The world has

also seen increased interconnectedness of people which has brought into focus issues of cultural and religious tolerance as well as race and ethnic division as magnified by movements like Black Lives Matter. These and many more global issues have forced a rethinking into how compatible education is with the real and emerging needs of society both locally and globally. Curriculum reform has therefore become a matter of urgency, more so for developing countries like Uganda.

In 2015, the United Nations formulated 2030 Sustainable Development Goal number 4 (SDG 4) as a response by the educational sector to these and other pressing global issues. UNSDG 4 targeted quality, inclusive, equitable education and lifelong learning. Other priorities here included Competency-Based Education (CBE), digital transformation, global citizenship education, and inclusive education (United Nations Educational Scientific and Cultural Organization [UNESCO], 2016). Key support for these global education policy initiatives, especially CBE and digital transformation in education, was provided by bodies like the World Bank, the Organisation for Economic Co-operation and Development (OECD), and *Organisation International de la Francophonie* (Akkari et al., 2013; Gouëdard et al., 2020).

In sub-Saharan Africa, educational reform was championed primarily by the African Union through its Continental Education Strategy for Africa (CESA 16-25). This initiative not only adopted the UN SDG 4 but also strived to establish: “a qualitative system of education and training to provide the African continent with efficient human resources adapted to African core values and therefore capable of achieving the vision and ambitions of the African Union.” (African Union, 2015, p.7). In the same spirit, regional bodies like the East African Community (EAC) and the Southern African Development Community (SADC) undertook to effect educational change through

harmonization of curricula towards CBE, inclusive educational policies, Technical and Vocational Education and Training (TVET), Science, Technology, Engineering, and Mathematics (STEM) Education, and decolonization of education (Cunningham, 2018; EAC Secretariat, 2014; Fleisch et al., 2019). The Ugandan Ministry of Education thus took the baton from the initiatives by implementing the lower secondary competence-based curriculum (LSC).

The success of these curriculum reforms rides precariously on the effectiveness of the strategies employed by policy makers. Curriculum reform strategies affect the quality of implementation through alignment of resources with the educational goals, provision of capacity development for teachers, and stakeholder engagement for buy-in and sustainability of the educational change (Fullan, 2015; Hall & Hord, 2015). Accordingly, the OECD asserted that a robust curriculum reform strategy must incorporate three key dimensions: smart policy design, inclusive stakeholder engagement, and a conducive implementation context (Gouëdard et al., 2020). A range of educational policy implementation literature agreed, revealing that effective change requires attention to the interplay between the stakeholders and their various roles (teachers, administrators, parents, students, and community); the implementation context and its specific characteristics; and the policy itself (the curriculum reform) (Fullan, 2015; Johnson, 2001; Rogan & Aldous, 2005; Stabback, 2016).

At the heart of all curriculum reform efforts are the teachers. Teachers are essential to the successful implementation of curriculum reforms as they directly translate policy changes into classroom practices (Ball et al., 2011; Fullan, 2015). Their ability to understand, adapt, and apply new teaching methods and content determines the quality of reform outcomes. Effective implementation relies on teachers' ability to adopt new

pedagogical approaches, such as competency-based instruction, and integration of digital tools. Thus, in addition to continuous professional development to equip teachers with the necessary knowledge and expertise, it is vital to solicit their feedback as this provides valuable insights for refining reforms. This study sought to achieve the latter in the case of the Uganda LSC reform.

The following section presents an overview of the Ugandan LSC reform to frame the study.

Uganda, a low-income nation in East Africa, has recently instituted her first major curriculum reform since independence in 1962. Uganda is a country of interest primarily because of its overwhelmingly youthful population. Currently, over 50% of Uganda's population is below the age of 18 and the number of children, adolescents and youth is expected to reach 75.9 million by 2080 (National Population Council et al., 2020). With Africa being projected to supply 25.5% of the global workforce by 2050; and 41.4% by 2100 (Mo Ibrahim Foundation, 2023), Uganda offers an ideal instrumental case by which to monitor the quality of this future workforce in terms of knowledge and competences. Particularly, the quality of secondary level education on offer in Uganda and Africa at large will determine the quality of participation of the youth in global labour markets (MasterCard Foundation, 2019). Thus, the development and progress of the Uganda LSC is of national, continental, and global interest.

The institution of the competency-based LSC has followed a series of minor reforms that have been implemented by the Uganda Ministry of Education and Sports in pursuance of quality education at the secondary level. However, instituting a curriculum reform is one thing but ensuring that it is implemented successfully and results in fundamental educational change is quite another (Fullan, 2015). Thus, the transition

from the longstanding knowledge-based, examination-oriented curriculum to the new competency-based curriculum constitutes a formidable challenge for officials at the Uganda National Curriculum Development Centre (NCDC) the principal curriculum developers, Ministry of Education and Sports officials, school administrators at all levels, teachers, and all other stakeholders in Uganda's education sector.

In 1987, the ruling National Resistance Movement (NRM) government launched the Education Policy Review Commission (EPRC) to recommend policies upon which Uganda's education sector could be reconstructed following a decade-long period of civil war (Evans & Kajubi, 1994). The Government White Paper on Education (GWPE) was adopted and published in response to the EPRC report. Back then, just like today, there was a general sense that education was failing: "to promote a sense of national unity, self-reliance, social justice and equity, scientific and technological knowledge, cultural values, literacy, and a sense of mutual social responsibility to a degree that society would like to see" (Evans & Kajubi, 1994, p.142). The 1992 GWPE, still widely considered the blueprint for Uganda's education sector, proposed the following overarching aims for education in Uganda:

i. promote national unity, patriotism, and cultural heritage,
ii. develop in the individual moral, ethical, and spiritual values, self-discipline, integrity, tolerance, and human fellowship,
iii. promote a sense of service, duty, and leadership within civic, social, and national spheres,
iv. promote scientific, technical and cultural knowledge, skills and attitudes for development,
v. eliminate illiteracy, and

vi. contribute to the building of an integrated, self-sustaining, and independent national economy. (Ministry of Education and Sports, 1992, pp. 7-8)

However, even with the aspirations of the GWPE, Tumushabe and Makaaru (2013) observed that the Ugandan education sector had been plagued by systemic failures including lack of policy and political leadership, and a lack of accountability and governance mechanisms. This state of affairs has persisted despite a series of curriculum reform efforts targeting the quality, access, equity, and inclusivity of education.

This most recent curriculum reform effort was preceded by a major reform in the primary school curriculum that introduced the thematic curriculum also known as the Lower Primary Curriculum in 2007. The thematic curriculum attempted to remedy persistent challenges including: an overloaded curriculum, an emphasis on facts acquisition, and alarmingly low literacy and numeracy skills among learners (Altinyelken, 2010). The three aims of the thematic curriculum were: i) to rapidly improve early literacy and numeracy, ii) to integrate learning around themes meaningful and relevant to learners, and iii) to use learners' mother tongue as the initial language of instruction and literacy (Cunningham, 2018, p. 3). Unfortunately, the problem of low quality of primary education in Uganda persists with numeracy and literacy levels still below the desired levels (National Planning Authority, 2015; Uwezo Uganda, 2019). Cunningham, in his review for the UNICEF Think Piece Series ascribed this to failure in implementation with inadequately-trained teachers, insufficient instructional materials and ineffective ongoing support and supervision (Cunningham, 2018).

The revised LSC in Uganda is no less ambitious but seems to have run into similar challenges. It seeks to address the significant challenges of the existing curriculum as pointed out by the World Bank sponsored Curriculum, Assessment, and Examinations (CURRASSE) report. These include:

i. Teaching methodologies that do not promote effective learning and acquisition of skills.
ii. A greatly overloaded curriculum menu.
iii. Failure of the curriculum to address the needs of the majority of students.
iv. Failure of the curriculum to adequately address the social and economic needs of the country by focusing primarily on the academic elite.
v. The inadequacy of the curriculum to address emerging fields of knowledge.
vi. The absence of key characteristics of a 21st century curriculum.
vii. The unsustainably high operational costs of the existing curriculum.

(Clegg et al., 2007)

The plan to revise the existing curriculum was outlined in the Education Sector Strategic Plan 2007-2015 in which a key objective was to help students acquire competencies they would need to join the workforce and to continue their education. This was to be done by: revising the curriculum and improving instruction and assessment, making more efficient use of resources, and reconfiguring the post-primary sector on a qualifications framework (Ministry of Education and Sports, 2008). The MoES thus aspired to firmly integrate academic and vocational curricula for all schools by 2015 (p. 38). Not only were student course loads to be reduced, but the curriculum menu was also to be rationally reduced through the integration and merging of subjects.

The revised LSC was implemented in February 2020. It departed from the old curriculum in that it was now a competency-based curriculum (CBC) with all the attendant changes in pedagogy, assessment, and instructional materials (Museveni, 2020). From the onset various stakeholders including parliamentarians and educationists raised concerns spanning from inadequate training of teachers and lack of instructional materials to questions regarding the subject menu (Ahimbisibwe, 2020). In fact, unlike the primary level thematic curriculum, the LSC was not field piloted, so schools countrywide adopted it despite a lack of empirical evidence on its effectiveness in a sample Ugandan context (McRory, 2013; Museveni, 2020).

Acknowledging the central role of teachers in the implementation effort, the NCDC invited teacher representatives for the maiden training sessions in January 2020. The NCDC adopted a cascaded training model in which the 20,000 teachers who received the initial training were expected to train their colleagues at the school level. Teachers struggled with the pedagogy endorsed by the new curriculum (Olema et al., 2021), which comprised novelties such as criterion-referenced assessment, and activities of integration. This was amidst other logistical challenges, including the breakout of COVID-19, which led to prolonged school closures, and the lack of instructional materials. These frustrations were expressed by the general secretary of the Uganda National Teachers' Union (UNATU):

> While schools were still figuring out how to begin the new syllabus, the schools closed. Training wasn't enough for teachers to roll it out. There are issues they raised after that training that they needed to get acquainted with the new curriculum. The textbooks are not there. They only sent online materials. They even sent prototypes… The situation is complex. The Senior Ones will suffer the consequences throughout their cycle. The time has shortened and teachers are supposed to fit within the remaining time, but the content has remained the same. (Ahimbisibwe, 2021, par. 9-10)

Teachers therefore found themselves in the position of having to deliver on a curriculum reform notwithstanding numerous challenges. It was noted by the Department of Education Standards (DES) that several teachers are still teaching with the pedagogy of the old curriculum like using the old practice of dictating notes to learners, and giving tests and examinations contrary to the principles of the new curriculum (UgColleges, 2022). The apparent struggles that teachers are going through to implement the curriculum is an indication that they are harbouring certain concerns that need to be addressed with prudence to make the curriculum reform effort successful over the long haul. In this study therefore, these concerns were uncovered and their impact on the implementation of the revised LSC empirically analysed.

1.3 Statement of the Problem

This LSC reform introduces competency-based education at the secondary level. It represents a high-stakes educational change for Uganda as it is poised to close the significant gap between basic education and labour market demands as highlighted in the State of the Youth report of 2019 (Kwesiga et al., 2019). Importantly, too, it is expected to support Uganda to meet the United Nations 2030 Sustainable Development Goal 4: ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (UNESCO, 2016). Uganda is one of many African countries, including South Africa, Rwanda, Kenya, and Tanzania that have engaged such a large-scale reform towards a competency-based curriculum. Unfortunately, as noted by Fleisch et al. (2019), such large scale reforms have not met with much success in sub-Saharan Africa.

A persistent challenge to curriculum reform as reported in literature across Africa has involved the teacher (Akala, 2021; Isaboke, Mweru, et al., 2021; Kabombwe &

Mulenga, 2019; Makunja, 2016; Nsengimana, 2021; Olema et al., 2021). Challenges cited have included: low teacher competency, inadequate conceptualisation of reform principles, and poor teacher motivation. The intervention measures recommended in the literature are typically further teacher training, skilling, and capacity building. This neglects the personal and professional domains through which teachers experience change.

As asserted by Fullan (2015) neglecting the phenomenology of change with regard to change implementers poses the danger that curriculum reform may end up being a superficial one in practice. Moreover, teachers may revert to knowledge-based pedagogy or mix up the two curricula in their classroom practice as has been observed in other African countries (Kabombwe & Mulenga, 2019; Komba & Mwandaji, 2015). Eventually, national goals and ambitions might be curtailed. This situation can most effectively be arrested at the school level. Hall and Hord (2015) showed that educational change is better poised to succeed when change facilitators, especially those at school level understand the concerns of teachers so as to guide them appropriately. In Uganda, this is challenged by the limited scholarship on teacher concerns.

This study therefore responded to the paucity in research on teacher concerns regarding the lower secondary competency-based curriculum in Uganda which represents a lacuna in understanding this critical curriculum reform process. A consequence of this gap in understanding is that the leadership of schools may not support the reform effort effectively or sustainably. It also calls into question the effectiveness of national teacher professional development programs meant to scaffold the curriculum reform effort. Fuller's concerns theory asserted that teachers ought to be offered support in accordance with their needs per time. Framing teacher concerns within the Concerns-based

Adoption Model, thus offered a more structured approach to understanding and addressing these concerns (George et al., 2013). This problem was studied under the auspices of the field of educational leadership and management.

1.4 Purpose of the Study

The purpose of this study was to determine how teacher concerns in the Uganda lower secondary curriculum reform can be leveraged to facilitate an effective educational change through an exploration of the relationships between curriculum reform strategies, teacher concerns, and quality of implementation by teachers.

1.5 Objectives of the Study

1. To analyse the concerns of teachers implementing the Uganda lower secondary curriculum reform.
2. To determine the extent to which teacher concerns mediate the relationship between the curriculum reform strategies and the quality of implementation.
3. To explore selected change facilitators' perceptions of curriculum reform strategies, teacher concerns, and quality of implementation of the curriculum.
4. To appraise the curriculum reform strategies and their influence on teacher concerns and implementation quality in selected schools.
5. To elaborate upon the patterns and relationships between curriculum reform strategies, teacher concerns, and quality of implementation of the lower secondary curriculum using themes distilled from teacher perceptions and experiences, lesson observations, and interviews with change facilitators.

1.6 Research Questions

1. a. What are the patterns in concerns of teachers implementing the Uganda lower secondary curriculum reform?

b. What are the expressed concerns of teachers implementing the Uganda lower secondary curriculum reform?

2. To what extent have teacher concerns mediated the relationship between curriculum reform strategies and the quality of implementation?
3. How do selected change facilitators perceive the curriculum reform strategies, teacher concerns, and implementation quality of the LSC?
4. What is the influence of curriculum reform strategies on teacher concerns and implementation quality in the selected schools?
5. What insights on the patterns and relationships between curriculum reform strategies, teacher concerns, and implementation quality of the LSC can be derived from the qualitatively-established themes?

The following hypotheses were tested for while controlling for the effect of the confounding variables: gender of the teacher, qualification level, teaching experience, and subject group taught on teacher concerns and the quality of implementation:

H_1: Curriculum reform strategies have a statistically significant effect of on the quality of implementation of the Uganda LSC reform.

H_2: Curriculum reform strategies have a statistically significant effect on the concerns of Ugandan secondary school teachers in the LSC reform.

H_3: The concerns of Ugandan secondary school teachers have a statistically significant effect on their quality of implementation of the LSC.

H_4: Teacher concerns have a statistically significant mediating effect on the relationship between curriculum reform strategies and the quality of implementation of the Uganda LSC.

1.7 Justification of the Study

After nearly six decades of independence Uganda, a developing nation, is fighting to transition into middle income status before the year 2040. The National Development Plan III recognises the role that human capital development (of which quality education is instrumental), will play in this endeavour. However, the persistent low quality of education in Uganda has been a major obstacle to this goal and has been decried by President Yoweri Museveni for failing to harness the great potential of Uganda's large youthful population (National Planning Authority, 2020; Tumushabe & Makaaru, 2013; Uwezo Uganda, 2019). The new LSC has emerged as a key response to this challenge, focusing on competencies that are relevant for the workforce and further education, especially in matters of technology and global trends. The success of the LSC is therefore a matter of great national interest.

According to Goodson (2014) facilitators of externally-mandated educational change must not assume the goodwill, purposefulness, and passion of the change implementers, especially teachers. Rather, attention must be paid to their professional beliefs and personal missions. It is difficult to harness the personal and professional commitment of teachers without giving adequate attention to their concerns. In centralised education systems like Uganda's, curriculum and policy implementation often entails giving teachers marching orders and expecting them to comply unquestioningly. Moreover, teacher concerns are often perceived by school administrators, and policy makers in a negative light. Fortunately, the Uganda National Teacher Policy recognized the importance of foregrounding teacher preparedness (which is often reflected in their concerns) in light of the numerous changes introduced by the LSC (Ministry of Education and Sports, 2018).

Scholarship reports a dearth of contextually-informed empirical studies on education changes in sub-Saharan Africa (Cabral, 2021; D'Agostino, 2023). Few studies on curriculum reform in sub-Saharan Africa have focused on teacher concerns and of these, very few have utilised the Concerns Based Adoption Model (CBAM) (Sarfo et al., 2020). In Uganda most studies have focused on the experiences of teachers in the LSC reform without connecting back to curriculum reform strategies and forward to the quality of their implementation (Aheisibwe & Barigye, 2023; Kidega et al., 2023; Monica, 2022; Muhwezi, 2022; Olema et al., 2021). Additionally, there is scarce research globally on the mediation effect of teacher concerns on the relationship between curriculum reform strategies and the quality of implementation of such a large-scale curriculum reform.

Previous studies on the phenomenon of teacher concerns have focused on the correlations between teacher concerns and the quality of implementation of the curriculum reform. A retrospective view of the curriculum reform strategies which breed teacher concerns was included in this study since these strategies are fully within the control of change facilitators. Therefore, it offers a theoretical contribution of showing how the actions of change facilitators correlate to the nature of teacher concerns and in turn the quality of implementation of the curriculum.

It is thus contended that teacher concerns ought to be legitimised and utilised to yield sustainable results for the new curriculum. These concerns, rather than being a stumbling block to progress, can be quite instructional for school administrators and policy makers at large, therefore, they ought to be leveraged. The CBAM has been proven effective in measuring and monitoring teacher concerns in educational change in diverse contexts globally (George et al., 2013; Gundy & Berger, 2016; Hall & Hord,

2015), hence its application in this study. The study therefore contributes to the discussion about the most effective ways of supporting teachers to implement curriculum reform, especially in the Ugandan and African context.

1.8 Significance of the Study

School administrators including heads of school, directors of studies, and school department heads are expected to be instructional experts and leaders in their schools, capable of supporting their teams to navigate educational changes. This study sought to contribute to equipping these school administrators with contextually-relevant knowledge and skills to positively handle and leverage teacher concerns, especially regarding the competency-based curriculum. With the findings of this study, school administrators in Uganda may be equipped to actively engage their teaching staff, giving them a genuine audience, and creating actionable school-based solutions to concerns raised.

The policy developers at the Uganda Ministry of Education and Sports (MoES) including the National Curriculum Development Centre (NCDC), the Uganda National Examinations Board (UNEB), and the Department of Educational Standards (DES) also stand to benefit from this study. They are at the top-level and may be shielded from the genuine picture of how the curriculum is actually playing out. This study presents critical feedback from teachers regarding the LSC reform. With this important information, national teacher professional development programs may be made more effective. A framework has also been proposed through which these bodies can continue to glean the concerns of the people on the ground, thereby creating a basis on which the curriculum can be reviewed and continually improved for national interests.

The teachers themselves are poised to benefit from this study. In a system where they are not accustomed to being heard, or if heard, usually in a process of perfunctory opinion-gathering with no real evidence of the impact of their thought processes, this study has platformed their concerns and demonstrated the role of these concerns in the reform process. Through the proposed curriculum management framework, their greater involvement in the curriculum reform process is engendered thereby contributing to the Education 2030 target 4c, strategy 74 of developing feedback systems within educational institutions that include teachers in educational policy implementation (UNESCO, 2016). It may also stir them to actively engage personally and professionally in the curriculum implementation process, beyond the knee-jerk response of doing as they are told thereby offering them a pathway for transition to higher level concerns. Being the people on the ground, their lived experiences and knowledgeable reflections on the same may find audience, thereby opening up opportunity for teachers to actively engage with the curriculum management cycle.

Finally, the study has contributed to the empirical findings regarding how teacher concerns influence curriculum reform specifically in the Ugandan context and generally in similar contexts. These findings may thus guide educational policy formulation in the area of curriculum reform in these contexts. Additionally, the study has applied the Concerns Based Adoption Model (CBAM) in a nation-wide curriculum reform effort. This has filled a contextual knowledge gap by empirically measuring teacher concerns in the East African context in a manner that allows quantitative inferences to be made.

1.9 Scope of the Study

There are numerous factors that may affect a curriculum reform process, including teacher characteristics, self-efficacy, and motivation. However, conceptually, this study

was limited to the exploration of teacher concerns which are the manifestation of attempts by teachers to manage externally-mandated change such as curriculum reform (Fullan, 2015; George et al., 2013). Theoretically, the teachers' concerns were assessed both quantitatively and qualitatively within the framework of the Concerns-Based Adoption Model which categorises concerns into three stages: self, task, and impact.

The study investigated the effect of curriculum reform strategies on the development of teacher concerns. Thus contextually, these strategies were limited to those documented in the statement on the roll-out of the revised LSC by the Uganda Minister of Education (Museveni, 2020). The quality of implementation of the curriculum was measured along three parameters provided by Fullan (2015): use of new instructional materials, adoption of new pedagogies and technologies, and change of professional beliefs and theories.

Geographically, the study was conducted in Uganda and sought to provide a vista of the state of the curriculum reform effort as viewed through the perspective of the secondary school teachers. Participants were drawn from the central sub-region of Uganda. However, the study was limited to Government-funded schools. These schools receive significantly more support in terms of government supervision and resources than privately-funded schools and are therefore less likely to be encumbered in their implementation of the CBC. Finally, the time scope of the study was October 2022 to March 2023, at which period the curriculum reform was three years in (2020 to 2022); so the study was cross-sectional.

1.10 Assumptions of the Study

In this study it was assumed that the teachers who would be recruited to participate in the study had undergone at least one NCDC-facilitated teacher retooling training

exercise. Therefore, they were expected to have a basic working knowledge of the LSC. Consequently, it was assumed that all the participating teachers were active implementers of the LSC. It was also assumed that at the time of data collection, the participating schools were implementing the LSC in senior one, two, and three classes as mandated by the Ministry of Education.

The sampling frame for this study consisted of government secondary schools in the central sub-region of Uganda. In order to make up the desired sample size therefore, it was assumed that the government secondary schools to be included in the sample each had a minimum of twenty teachers in active service. Finally, it was assumed that teacher concerns in the sample schools would remain relatively unaltered in the period between the end of the quantitative phase of the study and the execution of the qualitative phase. In light of the aforementioned assumptions therefore, the limitations of the study are outlined in the following section.

1.11 Study Limitations and Delimitations

This study was conducted among government secondary schools within the Central sub-region of Uganda. Thus, generalisations should be made cautiously considering that school and teacher contexts differ. Nonetheless, interviews with MoES officials and NCDC master trainers supplemented data on the situation with schools nationally. Secondly, the ratio of USE to non-USE schools in the sample was eight to three. This means that concerns of teachers in lower SES contexts may have been over-represented at the expense of those from higher SES contexts. Nonetheless, they may be considered representative of the general teacher concerns since USE schools do outnumber non-USE schools nationally.

The group profile presented in this study proposes that this is the general trend of concerns of Ugandan secondary school teachers implementing the LSC. However, a key assumption of the CBAM is that change is individual, thus it would be erroneous to assume a herd mentality among Ugandan teachers. This finding should therefore be taken together with the qualitative expressions of concern to identify important areas for attention by change facilitators.

A limitation in the inclusion of an open comments section in the questionnaire is that it was not possible to probe the teachers' qualitative responses at the time of data collection. Therefore, there was a possibility of misinterpretation by the researcher on a few statements. However, most of the teachers' statements were straightforward and did not require much decoding.

Lastly, this study evaluated teacher concerns in the third year of implementation of the LSC. It should therefore be expected that they will have evolved if measured at another time since concerns are quasi-developmental. However, the concerns profile revealed in this study provides a good basis for evaluating progress in teacher concerns and the implications thereof.

1.12 Theoretical Framework

Teachers are at the heart of any curriculum reform process; therefore, it is critical to assess teacher factors that could affect the process. Teacher concerns reveal the understandings and perceptions of teachers towards any form of educational change. Change facilitators do well to acknowledge and work with these concerns to facilitate a successful curriculum reform process. The Concerns Based Adoption Model (CBAM) was therefore used to interrogate the concerns of teachers as the main change implementers in Uganda's secondary school curriculum reform. The CBAM has been

found to be a robust and empirically grounded theoretical model for assessing educational change implementation from the perspective of the implementer (Gundy & Berger, 2016).

The CBAM was developed by Hall, Wallace, and Dossett in 1973 (George et al., 2013). The model, shown in Figure 1.1, provides an understanding of the behavioural and affective forces undergirding the implementation of an educational change. It demonstrates that the success of an educational change does not merely rely on the availability of resources and presence of implementers. Instead, change facilitators must acknowledge the myriad factors that determine how well the change implementors utilise the resources to bring an educational change, in this case the CBC, to fruition.

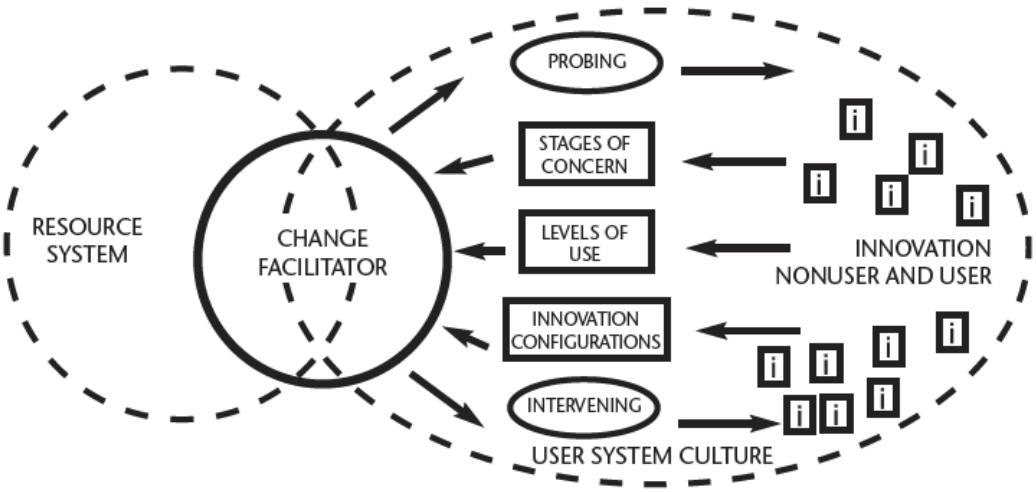


Figure 1.1**:** *The Concerns-based Adoption Model (George et al, 2006, p.1)*

According to the model, the factors are: their concerns about the usage of the innovation, as revealed through the Stages of Concerns profiles, their levels of fidelity to the innovation as well as their expertise in implementing it as determined through the Levels of Use tool, and the different ways in which users implement the innovation which is assessed using the Innovation Configurations tool (Hord et al., 2013). The model therefore allows the change facilitator to probe these different issues and devise

interventions that will support the users to better implement the educational change. The CBAM utilises three diagnostic tools to provide information about how change implementers experience the change process: the stages of concerns questionnaire, the levels of use interview protocol, and the innovations configuration tool.

The model is based on Fuller's concerns theory of 1969 which postulates that concerns of teachers follow a developmental path in a continuum, from concerns about self to concerns about the task of teaching to concerns about the impact on students (Both, 2010). The CBAM builds upon this theory by elaborating seven stages through which it postulates teachers pass as they engage with an educational change: unconcerned, informational, personal, management, consequence, collaboration, and refocusing (George et al., 2013). The CBAM is based on five assumptions:

i. Change is a process rather than an event.
ii. Each teacher experiences change in a unique, personal way.
iii. A genuine understanding of the process of change can only be achieved through understanding what individual change implementers go through as they experience the change.
iv. For each teacher, change takes a developmental trend, both affectively (feelings towards the curriculum) and behaviourally (skill in using the curriculum).
v. The management and implementation of the change process can be facilitated by continuously gathering information about it. (Hord et al., 2013)

The CBAM has been widely used in studies of curriculum change across the world (George et al., 2013). In most cases, researchers have used the stages of concerns questionnaire (Apau, 2021; Gudyanga & Jita, 2018; Kayaduman & Delialioglu, 2016; Sarfo et al., 2020; Tafai, 2017; Yan & Deng, 2019), in a few it has been paired with the levels of use interview tool (Isbell, 2013; Roofe-Bowen, 2007). Very few studies have

utilized the innovations configuration tool and even fewer have used the CBAM toolkit in its entirety (Gundy & Berger, 2016). Katam (2020), in an analysis of the dynamics in the implementation of the CBC in Kenya, used the CBAM as a model of implementation to investigate the levels of use of the curriculum by teachers.

In Ghana, Sarfo et al. (2017) used the CBAM to explore the concerns of teachers about the implementation of an information and communication technology curriculum in basic education, using the stages of concerns questionnaire. Another study was conducted by Pešková et al. (2019) in the Czech Republic investigating primary and secondary teachers' acceptance of a curriculum reform a decade after it was introduced. In this case, the researchers freely adopted the stages of concerns questionnaire and the levels of use instrument to develop a contextualized questionnaire that gave key insights into teacher attitudes towards the curriculum reform and their use of it. This study thus employed the CBAM in both the measurement and exploration of the concerns of Ugandan secondary school teachers in the implementation of the reviewed LSC. The following section details the theorised linkages between the key constructs of curriculum reform, teacher concerns, and quality of implementation as explored in this study.

1.13 Conceptual Framework

In the attempt to initiate, implement, and institutionalise a curriculum reform (Fullan, 2015), change facilitators often employ various strategies. This often includes the review of the current curriculum, stakeholder engagements, benchmarking exercises, development of policy documents, and restructuring of teaching and learning at the school level. The preoccupation in this study was with the initiation and implementation phases of the curriculum reform process as they lay the foundation for successful reform and build upon it.

A relationship of mediation was conceptualised with the quality of implementation of the new curriculum being regulated by the concerns of the teachers and these concerns in turn being triggered by the effectiveness of the curriculum reform strategies employed at this stage of the curriculum reform process. The following section expounds on the variables under study and their perceived relationships to one another as illustrated in Figure 1.2.

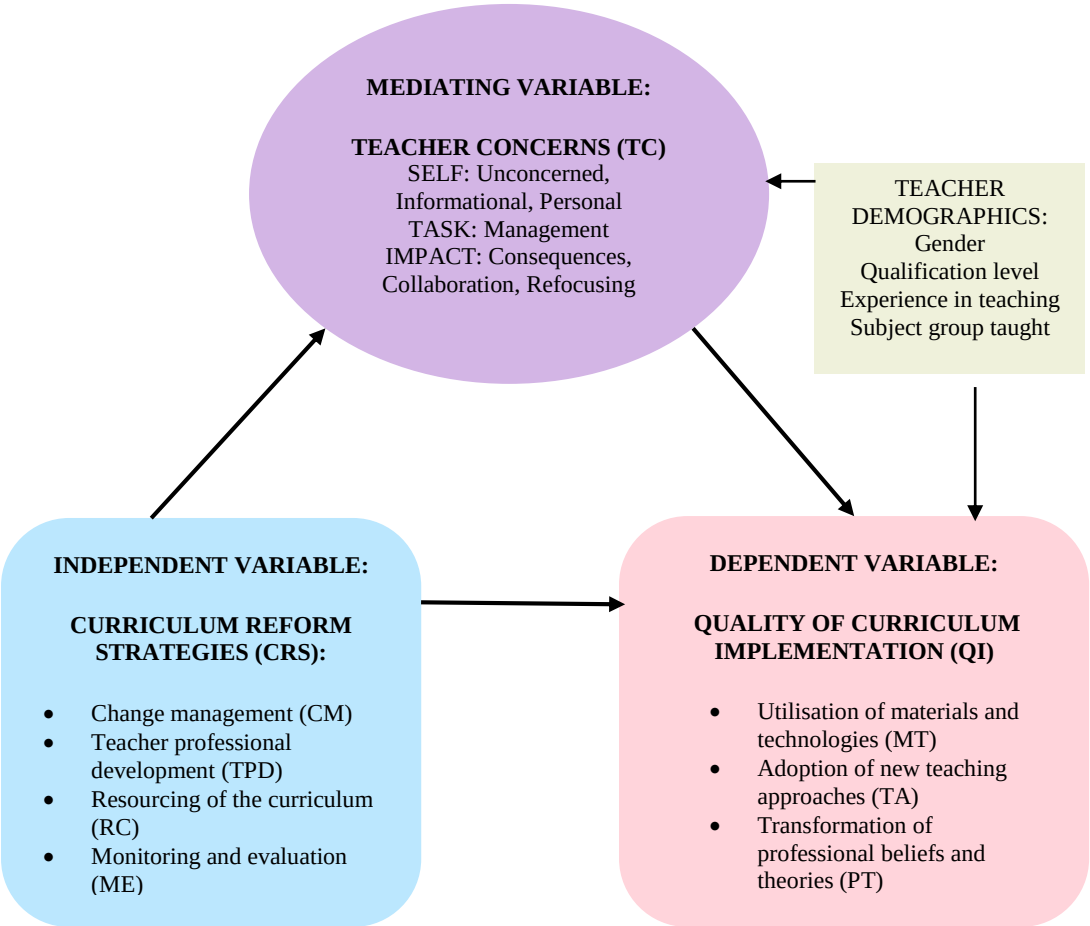


Figure 1.2**:** *A conceptual framework showing the hypothesised mediating effect of teacher concerns on the relationship between strategies to reform the LSC in Uganda and the quality of implementation of the curriculum. (Author, 2022 modified from Hall and Hord, 2015; and Fullan, 2015).*

1.13.1 The Study Variables

In this study the mediating effect of teacher concerns on the relationship between the strategies used by the change facilitators to reform the LSC curriculum and the quality of its implementation by the teachers, who are the key change implementers, was investigated.

1.13.1.1 Independent variable

An independent variable, also known as a predictor is one which causes an effect on another variable (Greener, 2008). In this study, the independent variable was the construct of curriculum reform strategies. These strategic actions by the national and school level change facilitators are targeted at setting into motion and sustaining the curriculum reform process. Museveni (2020) enumerated a number of strategies that were to be employed by the MoES and its affiliated agencies. The curriculum reform strategies were measured through four indicators: change management, teacher professional development, resourcing the curriculum, and monitoring and evaluation.

1.13.1.2 Dependent variable

This is also referred to as the outcome variable and is caused by the predictor variable. In this study, the outcome was taken to be the quality of implementation of the curriculum by the teachers, who are the key implementers. Variations in the effectiveness of the curriculum reform strategies may lead to variations in the quality of implementation of the curriculum. It was theorized that there was quality curriculum implementation if evidence of Fullan's dimensions of change in practice were present. Thus, the quality of implementation of the LSC was measured through three indicators as stipulated by (Fullan (2015): the extent of teachers' utilization of the new instructional materials and technologies; adoption of the new teaching approaches; and

transformation of pedagogical beliefs and theories to align with those of the new curriculum.

1.13.1.3 Mediating variable

According to Hayes (2013), this is an intervening variable which explains the relationship between the predictor and outcome variables. In this study, the construct of teacher concerns was conceptualized as the mediator under the hypothesis that curriculum reform strategies work through teacher concerns to realise a quality curriculum implementation. Thus, the effectiveness with which strategies of curriculum reform are employed affects the nature and intensity of teacher concerns which in turn affect the quality of implementation of the curriculum. Teacher concerns were measured on three levels: self, task, and impact as indicated in Hall and Hord (2015) since each level has a unique implication for the implementation of the reform.

1.13.1.4 Confounding variables

In a causal relationship, it is erroneous to conclude that the mediating variable is fully responsible for the effect observed, hence the need to control for confounding variables (Hayes, 2013). In this study, it was acknowledged that the characteristics of the individual teachers have an effect on the kind of concerns they manifest as well as the manner in which they implement the curriculum. The potential confounding effects of four key teacher characteristics were therefore controlled for in this study: gender, length of teaching experience, level of teaching qualification, and subject group taught.

1.14 Operational Definition of Terms

The following is an explanation of the key constructs as they were used in this study.

Change management: All actions undertaken to: communicate the vision for a particular educational change (the LSC reform in this study); garner acceptance and foster ownership of the change among stakeholders, integrate the change into the existing systems; and address emerging issues with the implementation of the change.

Competency-based Curriculum (CBC): The definition of the International Bureau of Education (2013) was adopted in which the CBC is a learner-centred, adaptive curriculum that focuses on the complex outcomes of a learning process, in terms of knowledge, skills, and attitudes to be applied by learners.

Competency-based Education (CBE): A philosophy and approach to education that emphasizes the demonstration of mastery of both hard and soft skills by the end of a specified learning period. It utilises a wide variety of pedagogical and assessment techniques including projects and problem-based learning as opposed to traditional teacher-centered, content-based, examinations-oriented pedagogies.

Curriculum implementation: The process by which the intended curriculum is translated into classroom practice through the realisation of the three dimensions stated by Fullan (2015): use of prescribed instructional resources, application of new pedagogies and technologies, and adoption of the pedagogical beliefs underlying the curriculum.

Curriculum reform strategies: These are all the actions taken by change implementers at national and school level to initiate, guide, and institutionalise the curriculum reform process.

Curriculum reform: The process of changing or updating the learning objectives by delineating the knowledge, skills, values, and attitudes to be acquired by students. Curriculum reform was used interchangeably with the term educational change since curriculum reform is a key element of educational change (Fullan, 2015). Curriculum reform was also used as a noun to refer to the innovation itself, in this case, the Uganda LSC.

Curriculum resourcing: This is the provision of all forms of tools and requirements for the successful implementation of the curriculum. This may include: time, instructional materials and equipment, human resource, finances, and relevant infrastructure.

Curriculum: The composite of learning experiences including knowledge, skills, and values that a child is exposed to in a school context.

Educational change: A fundamental shift in the prevailing educational system at national level that is intended by policy makers to affect educational beliefs, practices, and ultimately, outcomes.

Leverage: "To use something that you already have in order to achieve something new or better." (Cambridge University Press, 2022). Therefore, in the context of this study, it meant to use teacher concerns, which are always present during a curriculum reform process, to achieve a successful reform.

Quality of implementation: This is the extent to which the instructional practices of teachers align with the stipulations of the LSC as detailed in the curriculum framework from the Uganda National Curriculum Development Centre. In this study, three indicators were utilised: utilisation of the new materials and technologies, adoption of

new teaching approaches, and evidence of transformation of professional beliefs and theories.

School administrator: Any individual that holds an officially-recognised leadership and/or management responsibility in the school and thus exercises day-to-day decision-making powers including regarding the implementation of the curriculum reform. These may include: head teachers, deputy head teachers, directors of study, heads of department, and teacher leaders. School board members, parent-teacher association representatives, other external stakeholders and staff like school bursars who are not directly involved in curricular activities are not included in this definition.

Teacher concerns: These are the composite representation of teachers' feelings, perceptions, thoughts, and consideration regarding the revised LSC.

Teacher professional development: all the activities involved in preparing and supporting teachers to appreciate, adopt, and implement an educational change. These include vision-casting, pre-service training, and in-service training.

Teacher: Any individual that is officially appointed by the school administration to conduct daily instruction of learners and execute other curricular duties. These may include those duly registered by the Ministry of Education as well as those who are not; those on Government payroll as well as those who are not; and both those who have undergone teacher training in recognised teacher training institutions and those who have not.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Curriculum reform does not happen in the office of the Minister of Education, but in the thousands of classrooms all around the country. This chapter highlights this fact through an exploration of the phenomenon of curriculum reform, a prime example of educational change, globally, regionally, and in Uganda. It is guided by the study objectives and explores the three study variables: curriculum reform strategies, teacher concerns, and quality of implementation. It begins with a description of the evolution of the secondary education curriculum in Uganda to contextualise the curriculum reform and also demonstrate the crucial role of the LSC in realising national and global developmental agendas. Focus is then turned to the competency-based curriculum: its origins, rationale, framework, promise and shortcomings as explicated in scholarship on the same. The focus thereafter turns to the evolution of policy implementation research and the top-down, bottom-up schools of thought in educational reform. The teacher's role in educational change; both ideal and real are then examined through the theoretical lenses of Fullan's educational change model and the CBAM. A discussion of teacher concerns and existing studies in the measurement of stages of concerns to support teacher implementation of curriculum reform are then presented. It is shown that the concerns of teachers implementing the LSC in Uganda are under-documented in literature. The relationships between curriculum reform strategies, teacher concerns, and quality of implementation are explored, revealing a knowledge gap for the Ugandan context. Finally, the pivotal role of the national and school-based change facilitators in ensuring effective curriculum reform is highlighted.

2.1.1 The Evolution of Uganda's Secondary School Curriculum

From pre-independence to date, Uganda's educational curriculum has been shaped by socio-political goals. Indigenously, youths were trained in the ways of the tribe by responsible adults following a curriculum that covered knowledge, skills, and values deemed important to the tribe. The community transmitted acceptable social, political, and economic behaviour to boys and girls through basic systems of education unique to each tribe. The Christian missionary schools that monopolised the education system from 1877, had a curriculum that was flexible to serve the needs of the missionaries at the time, and also to advance the missionary effort. Vocational skills including ironwork and carpentry were taught to the natives to support the construction of churches and schools, and reading and writing were taught to enable the natives to understand the Bible.

The first prominent missionary boarding schools including: Namilyango (1901), King's School, Budo (1906), and Gayaza (1905), developed an exclusively academic curriculum targeted at grooming future leaders from sons and daughters of prominent families and it included English grammar, geography, and mathematics with the later addition of a few technical subjects, including agriculture (Scanlon, 1964). From the 1950s, the protectorate government began to give much greater thought and investment to the education of Ugandans thereby exerting greater influence on the curriculum.

The initial educational curriculum framework of Uganda was in great part established by the de Bunsen Committee of 1952 (Evans & Kajubi, 1994; Scanlon, 1964). It established structure to the curriculum delineating 6 years for primary education, 2 for junior secondary school, 2 for lower secondary, and 2 years for a higher school certificate or vocational courses. It prescribed a subject menu that included

mathematics, English, social studies (geography, history and civics), and practical subjects to prepare learners to exit the school system, and facilitate the few who would go on to senior secondary school (Scanlon, 1964). The senior secondary school curriculum was much more examinations-oriented, to prepare students for work in government or industry (Scanlon, 1964). The orientation of the curriculum towards examinations has characterised the Ugandan secondary school curriculum until the recent introduction of the new LSC.

Post-independence, in 1962, the curricular focus of secondary school education was on the development of "high-level manpower needed to Africanize the government administration and meet the demands of a growing economy" (Evans & Kajubi, 1994, p.132). The establishment of the National Curriculum Development Centre (NCDC) in 1973 led to the installation of a new curriculum that emphasised science, mathematics, and practical subjects to equip the youth to contribute meaningfully to commerce and industry (Evans & Kajubi, 1994). Unfortunately, a long period of political instability ensued soon after this beginning with the Liberation Wars of 1979. The education system was severely affected and structurally damaged. After capturing power in 1985, the National Resistance Movement (NRM), which is in power to-date, initiated a path to restoration of the education system as encapsulated by the following philosophy statement:

> Our schools and colleges must play an important role in uniting our people. The curriculum and content of education and the various sporting and cultural activities in these institutions must be revitalized to reflect the national character and constitute the beginning of a genuine mutual respect and understanding. (1985 NRM in Evans & Kajubi, 1994, p. 141)

A new secondary school curriculum was instituted during this period, which incorporated more of what were seen as marketable skills including agriculture,

technical, and vocational courses (Evans & Kajubi, 1994). The goals of the curriculum in this period were unambiguous: to endeavour to "promote a sense of national unity, self-reliance, social justice and equity, scientific and technical knowledge, cultural values, literacy and a sense of mutual social responsibility to a degree that society would like to see" (p. 142).

These broad educational aims, as elaborated in the 1992 Government White Paper on Education (GWPE), were to: promote citizenship; inculcate moral, ethical and spiritual values; promote scientific, technical and cultural knowledge, skills and attitudes; eradicate illiteracy; and equip individuals with basic skills and knowledge and with the ability to contribute to the building of an integrated, self-sustaining and independent national economy" (Ministry of Education and Sports, 1992). These aspirations still guide the education system as the GWPE is the recognized macro-policy educational framework of Uganda (Museveni, 2020).

Despite these noble aspirations for the educational system, the curriculum continued to be largely knowledge-based and examinations-oriented, and thus failed to adequately prepare the youth to contribute meaningfully to the national economy (Clegg et al., 2007; Kwesiga et al., 2019; Ministry of Education and Sports, 2008). The Curriculum, Assessment and Examination (CURASSE) roadmap for reform, which was sponsored by the World Bank, highlighted seven areas in which the secondary school curriculum was falling short (Clegg et al., 2007). This report recommended significant reform to the secondary school curriculum which initiated a twelve-year long process spearheaded by the Ministry of Education and Sports (MoES), and culminating in the introduction of the LSC in January 2020. This revised lower secondary school curriculum, as stated in the Education Sector Strategic Plan (ESSP) 2007-2015, was

underpinned by the need to provide the youth with “a firm basis for the acquisition of productive and employable knowledge and skills that the country needs for creating a self-sustaining independent and integrated national economy” (Ministry of Education and Sports, 2008).

The LSC aims at providing “a holistic education for personal and national development” (Museveni, 2020, p. 21) and has the following objectives:

i. To promote effective learning and acquisition of skills by developing a curriculum that builds meta-cognitive abilities and skills so that individuals are better placed to adapt to their evolving roles in society and the dynamic workplace.
ii. To reduce subject and content overload.
iii. To address the needs of all students and lay the foundation for improved pedagogy and assessment procedures that allow learners to realise their full potential more effectively.
iv. To address the social and economic needs of the country by meeting the educational needs of the learners aspiring for higher academic learning as well as those that wish to transit to the labour market.
v. To allow flexibility to absorb emerging fields of knowledge in the areas of science and technology.
vi. To address the 21st century skills required in the world of work.
vii. To address issues of effectiveness and efficiency in utilization of resources (teachers, school facilities/space, instructional materials) to ensure that they are used optimally. (Museveni, 2020, pp. 13-14).

Thus, the LSC represents an ardent attempt to correct the perceived failures of the previous curriculum. Table 2.1 highlights the key differences between the old secondary school curriculum and the revised LSC.

Table 2.1: *Key differences between the old secondary school curriculum and the revised LSC*

CURRICULUM ASPECT	OLD	REVISED LSC
Curriculum design	Objectives/ knowledge-based	Competence-based
Subject menu	43	21
Subject content	Much obsolete content	Eliminates the obsolete, integrates generic skills, emergent, cross-cutting issues, values and attitudes, and vocational skills
Approach/methodology	Teacher-centered	Learner-centered: inquiry-based, collaborative problem-solving
Time table	Unregulated	5 hours classroom time
Assessment	Examinations driven/ emphasizes summative	Criterion-referenced/ emphasizes both formative and summative

Note: (Modified from NCDC, 2020)

A key feature of the revised LSC is its emphasis on the acquisition of competencies by learners through the integration of generic 21st century skills into every learning area (National Curriculum Development Centre, 2020). The 21st century skills, including critical thinking, communication, and collaboration are considered essential to a productive life in the 21st Century. The LSC also integrates six values that are deemed indispensable to the education of Uganda's youth: integrity and honesty, patriotism, positive attitude to work, respect for human rights, peace and harmony, and tolerance of differences (National Curriculum Development Centre, 2020). Therefore, looking at the evolution of Uganda's secondary curriculum from the pre-colonial era to post-

independence and current eras, it can be surmised that the curriculum has always been an expression of the prevailing national aspirations and societal goals.

However, historical evidence indicates that curricular goals have seldom translated to the achievement of socio-political and economic goals. This conclusion was captured in the preface to the report of the 1987 Education Policy Review Commission: "Education is failing to promote a sense of national unity, self-reliance, social justice and equity, scientific and technological knowledge, cultural values, literacy and a sense of mutual social responsibility to a degree that society would like to see" (Evans & Kajubi, 1994, p. 142). The State of the Youth Report of 2019 echoed these sentiments, indicting the education system as being more theoretical than practical thereby failing to produce graduates that were able to thrive in the labour market (Kwesiga et al., 2019).

The LSC is a renewed attempt to remedy this situation and to bring alignment between the Ugandan secondary school curriculum and local and global market needs. However, history has also shown that a successful alignment will only result from a successful curriculum reform at the school and classroom level; an agreement between the intended, taught, tested, experienced, and embodied curriculum. Moreover, there is scarcity of research into the extent to which the revised LSC is remedying the gaps in the old curriculum. This study filled this gap by presenting data on the progress of the LSC reform vis a vis its stated goals.

2.1.2 Competence Based Education: Trends, Promises, and Challenges

The competency-based education (CBE) movement has been traced back to teacher education in the United States of America in the 1960s, after which it was adopted in several European countries in the 1990s. Finland, Netherlands, and Sweden were the first of many European countries to reform their national curricula towards the

competency-based approach between 1993 and 1994 (Anderson-Levitt & Gardinier, 2021). This movement spread to other parts of the world including Asia (Japan, Sri Lanka, Republic of Korea, and China), Australia and New Zealand, South America (Guatemala), 41 states in the USA, Canada, and a significant number of African countries, led by Botswana (1994) and South Africa (1998) (Anderson-Levitt & Gardinier, 2021; Fleisch et al., 2019).

The adoption of CBE in many African countries was mainly a result of Western donor influence. For instance, Akkari et al. (2013) reported that the *Organisation International de la Francophonie* was a key influence in the adoption of CBE by countries in North and West Africa. International organisations like the World Bank, UNESCO, UNICEF, and OECD have also contributed greatly to the propagation of CBE approaches around the world, especially in Africa. Indeed, in 2018, the OECD, through its Programme for International Student Assessment (PISA), introduced a global competence metric to its assessment repertoire to support countries in assessing students for core competencies.

The United Nations 2030 Sustainable Development Goal number 4 has provided a major impetus for the adoption of the CBE approach, especially in African countries. The goal is to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” (United Nations Educational Scientific and Cultural Organization, 2016, par. 1). Specifically, target number 4 provides for the acquisition of a wide range of skills including: technical, vocational, cognitive, and transferable skills that will allow youth to thrive in the world of work (UNESCO, 2016). This has caused governments to evaluate their national curricula for quality and relevance in

light of local and global 21st Century needs, a result of which has been the reform towards competency-based approaches in many countries across the world.

In Africa per se, the push for a more competent generation of citizens has been advocated by: the Africa Union Agenda 2063; the Continental Education Strategy for Africa (CESA) 2016-2025; and the 2014 Harmonized Curriculum Framework for the East African Community. The East African harmonization of curricula advocated for competency-based approaches as a basis for socio-economic development (EAC Secretariat, 2014). Consequently, all five of the original East African Community member countries instituted CBE in their national curricula, with Uganda being the most recent entrant. Uganda, however, is unique in that while the other community members introduced CBE at the primary level, Uganda introduced it at the secondary level through the revised LSC. This bears unique and significant implications, especially in terms of the lack of a foundation for this pedagogical shift for both the teachers and the students.

Competency-based education has been identified through several designations, including: outcome-based learning, mastery-based learning, problem-based learning, and performance-based learning (Paek et al., 2021). It revolves around the concept of competence, which was defined by the European Key Competence Network on School Education as: “A complex combination of knowledge, skills, understanding, values, attitudes and desires which lead to effective, embodied human action in the world in a particular domain” (Gordon et al., 2012, p.5). This definition notwithstanding, the concept of competence is notoriously polysemous in the educational context; a key challenge for curriculum change facilitators and implementers alike (Anderson-Levitt & Gardinier, 2021).

The OECD, one of the key proponents of CBE, attempted to concretize the notion through its Defining and Selecting Key Competencies (DeSeCo) project of 1997-2003. DeSeCo delineated three key competences that were considered essential for successful living and for the making of a prosperous society: acting autonomously, interacting in socially heterogenous groups, and using tools interactively (Paek et al., 2021). Thus, the integration of these competences into curricula is widely considered the panacea for the high rate of youth unemployment globally. The high rate of youth unemployment in many countries has been traced to the disconnect between the educational emphasis and the priorities of the labour market (Anderson-Levitt & Gardinier, 2021; Fleisch et al., 2019; Kwesiga et al., 2019; National Curriculum Development Centre, 2020; Paek et al., 2021). Therefore, CBE is fundamentally tailored to market needs with the promise of preparing youth for the dynamic socio-economic demands of the 21st century; a period that has been tagged as the era of VUCA (volatility, uncertainty, complexity, and ambiguity).

CBE requires students to demonstrate mastery of both hard and soft skills by the end of a specified learning period. It utilises a wide variety of pedagogical and assessment techniques including projects and problem-based learning thereby moving away from the traditional teacher-centered, content-based, examinations-oriented pedagogies. A lot of scholarship on CBE lauds it for its potential to deliver a competent, well-rounded citizen. However, it must be noted that there is little empirical evidence of the effectiveness of CBE (Akkari et al., 2013; Anderson-Levitt & Gardinier, 2021; Fleisch et al., 2019). In fact, several countries that had implemented CBE oriented curriculum reforms have now reverted to traditional knowledge-based curricula. Notable examples include England (2014), Sweden (2011), and South Africa (2011) (Anderson-Levitt & Gardinier, 2021). This raises the question therefore of whether the implementation of

CBE reforms is based on empirical evidence about its effectiveness in delivering the stated student outcomes or whether it is based on aspirations and the strong urge to abandon a system that does not seem to be delivering on national goals.

Different scholars have pointed out conceptual flaws inherent in the increasingly popular CBE approach. Fleisch et al. (2019) pointed out that the original idea behind schooling is to provide learners with 'powerful knowledge': highly specialised knowledge that they cannot otherwise acquire at home. Such knowledge, Fleisch et al argued, equipped learners with not just new ways of acting in the world but more importantly, new ways of thinking about the world. CBE departs from this paradigm, attempting instead to provide 'useful knowledge' rather than the 'inert knowledge' synonymous with traditional educational approaches (Paek et al., 2021). Considering that a significant proportion of teachers were socialised in the traditional approaches, this paradigm shift presents a major challenge, with many teachers see-sawing between the old, tried and tested methods and the new competency-based pedagogies (Akkari et al., 2013; Kabombwe & Mulenga, 2019; Wiysahnyuy, 2021).

In the more established CBE curricula in Western countries, the challenges mainly stem from issues surrounding defining and specifying the competences to be acquired by learners and hence the best methods of assessing these competences (Gordon et al., 2012). In Africa, however, a number of studies have revealed that CBE curricula grapple with a different set of challenges altogether. Recurrent problems include: overcrowded classrooms; insufficient teaching-learning materials; poor infrastructure and financial resourcing for the curriculum; and unsupportive ignorant parents (Akkari et al., 2013; Isaboke et al., 2021; Kabombwe & Mulenga, 2019; Komba & Mwandaji, 2015; Mathayo Mkonongwa, 2018; Wiysahnyuy, 2021; Diffang, 2019).

Most glaring, however, are the challenges relating to the teachers who are the key implementers of the curriculum reforms across the continent. A review of numerous studies on the implementation of the CBC in African countries even up to 2022 revealed inadequate training of teachers in the principles and pedagogy of CBE as a key challenge. Indeed, Wiysahnyuy (2021) reported that in Cameroon, teachers were indifferent to the CBC and demonstrated poor mastery of the approach; a phenomenon that is common with imposed changes. Diffang (2019) revealed that teachers in southwest Cameroon were unclear about the CBE concept, particularly the assessment techniques. In a study of the implementation of the CBE in the countries of North and West Africa, Akkari et al. (2013) asserted that teachers' concerns about the reforms had not been catered to. This study maps Uganda's journey in the first years of implementing a competency-based curriculum, thereby filling the knowledge gap about strengths, challenges, and opportunities of CBE implementation within this context (D'Agostino, 2023; Tromp & Datzberger, 2021). The following section analyses the role of teachers in curriculum reform as well as the construct of teacher concerns as relates to the CBC reforms globally, regionally, and nationally.

2.1.3 The Complexity of Curriculum

The term curriculum can be understood as the composite of learning experiences that a child is exposed to in a school context. Schools and education systems do their best to curate these experiences to arrive at a predetermined result. Stabback (2016) defined curriculum as a selection of knowledge, skills, and values through which students are educated. However, it would be a mistake to take a simplistic view of curriculum and expect the plan to translate directly to the desired result.

The concept of curriculum comes packed with many complexities, the interplay of which must be acknowledged and understood by educational reformers. The most prominent conceptual view of the curriculum is the intended curriculum- a political and social declaration of the priorities of a society for the education of its youth. This is often in the form of policy, which determines educational discourse, national curriculum frameworks, subject syllabi, and instructional material (Fleisch et al., 2019; Kridel, 2010; McRory, 2013; Stabback, 2016). However, other conceptual types of curriculum must be acknowledged as they all contribute significantly to the end result of an educational system. Kridel (2010) enumerated ten variations of curriculum: the intended curriculum, taught curriculum, experienced curriculum, embodied curriculum, tested curriculum, hidden curriculum, null curriculum, outside curriculum, clandestine curriculum, and the in-between curriculum. A failure to understand and manage these variations may lead to a failure of curricular objectives.

For instance, while many educational systems judge the success of a curriculum using the tested curriculum, the abiding impact of a curriculum is rather judged authentically through the embodied curriculum: the learning experiences that remain in the learners. The taught curriculum, which represents different ways in which teachers interpret the curriculum and present it to the learners, also has a hand in the end results. The hidden curriculum is another important aspect of the curriculum which is influenced by aspects such as school culture and environment. Learners too bring their own influences into the curriculum through their personal experiences and how these interact with what they are learning and this constitutes the experienced curriculum.

On top of these variations of the curriculum, Schwab (1973, as cited in Kridel, 2010, p. 273) bade us consider the cumulative impact of what he termed as the four curricular

commonplaces: teachers, learners, subject matter, and milieu. Relatedly, other scholars have used the analogy of a spider web to demonstrate the interconnectedness of the effects of ten curriculum components: the rationale or vision of the curriculum, its aims and objectives, content, learning activities, teacher role, materials and resources, learner grouping, location, time, and assessment (Gouëdard et al., 2020; McRory et al., 2013). Stabback (2016) asserted that just as the tension needs to be equal in all the threads of a spider web for it to maintain its shape and balance, so overemphasis on any one component of the curriculum results in an unbalanced curriculum. Achieving this balance is no mean feat and requires a consistently circumspect view of the many influences over the curriculum and its realized impact on society. Hence this study focuses on the implementation of the Uganda LSC with respect to the enactment of the curriculum policy by teachers. The following section takes a closer look at the policy implementation scholarship, locating this study within the third generation of scholarship.

2.1.4 Implementation Scholarship

The field of educational change has attracted much attention from scholars the world over. Over the past five decades, greater understandings have been carved out regarding the processes and roles involved in successful change encapsulated in the concept of implementation (Fullan, 2015; Nilsen, 2015; Rogan & Grayson, 2003). Nilsen et al. (2013) described the evolution of implementation research, that is, the translation of policy into practice, in three generations of studies. The first generation emerged around the 1970's and was centred around the analysis of case studies on policy implementation in various settings (Pülzl & Treib, 2007). This group of studies more often than not, highlighted failures in policy implementation, thereby earning itself the monicker 'misery research' (Nilsen et al., 2013; Pülzl & Treib, 2007).

A second generation arose in the 1980's and this was dominated by debates about top-down versus bottom-up approaches to policy implementation (Nilsen et al., 2013; Pülzl & Treib, 2007). Theoretical frameworks on policy implementation emerged with top-down approaches taking the stance that implementation success depended on a centrally-defined, hierarchically- executed process (Pülzl & Treib, 2007; Souto-Otero, 2011). On the other hand, proponents of the bottom-up approach emphasized the role of the implementers, arguing that understanding of the implementation process should be based on the interpretations and actions of the key implementers or 'street-level bureaucrats' (Nilsen et al., 2013; Pülzl & Treib, 2007).

The third and ongoing generation of studies presents a synthesis between the opposing sides of the second-generation theorists. This current orientation to implementation research emphasizes the development of theoretical models that can be operationalized, tested and applied in policy implementation (Caves et al., 2021; Nilsen, 2015). This study was positioned within this third generation of implementation scholarship whereby the actions of both the change facilitators (MoES officials, NCDC personnel, and school administration), and the change implementers (teachers) were addressed. It filled a practical-knowledge gap by proposing a curriculum management framework through which bottom-up voices could be heard within the top-down educational change of the Uganda LSC.

Implementation research within educational contexts, just as in other policy contexts, often combines together the elements of organizational theory such as school effectiveness theories, public administration and management theories, political science theories (Pülzl & Treib, 2007) and theories of change. This is to establish theoretical basis for successful educational change and promote evidence-based practice (Nilsen,

2015). For example, in their analysis of the C2005 curriculum reform in South Africa, Rogan and Grayson (2003) proposed a theory of curriculum implementation relevant to the contexts of developing countries. In their theory, they hypothesized that curriculum implementation lies at the confluence of three important constructs: the profile of implementation, the capacity to support innovation, and support from outside agencies.

Similarly, using the case of the Mexican 2004 Bachillerato Tecnológico (BTe) reform, Souto-Otero (2011) developed a policy typology wherein the processes of knowledge-gathering and stakeholder involvement during policy design were used to develop four categorisations of policy. These categorisations: symbolic, technocratic, ambivalent, and administrative, were based on the levels of agreement regarding key aspects of the policy. According to the typology, the administrative policy designs represent high agreement among stakeholders on the goals and means of the policy, whereas the symbolic policy design represent low agreement on goals and means of the policy (Souto-Otero, 2011). The present study therefore utilized the case of the Uganda LSC reform to explicate the implementation processes involved and propose a process model to support it.

2.1.4.1 The Top-down, Bottom-up Debate in Execution of Educational Change

The process of curriculum reform is an endeavour at improving student learning outcomes by realigning teaching and learning. The need for realignment arises from the confluence of numerous change forces, both local and global that births an urgency to ensure that students are able to navigate through them (Gouëdard et al., 2020). Reform can be undertaken at various levels including at the classroom, school, national, and regional levels. In Uganda's national reform the revised LSC speaks to the country's

vision of future economic, cultural and political prosperity. At the same time, the LSC acknowledges contemporary cross-cutting global issues such as the 21st century skills, the fourth industrial revolution, and climate change. Globally, the prevailing impetus for curriculum reform in many countries is to prepare students to thrive in the workforce.

Curriculum reform generally follows one of two approaches: top down or bottom up, contemporarily referred to as 'hard' and 'soft' policy approaches respectively (Iskandar, 2020). The hard policy approach demands strict adherence while soft allows flexible interpretation and implementation. In decentralised educational systems like those in the United States (Schubert, 1993), a soft curriculum policy often prevails in which the requirement for curriculum implementers is implementation integrity. Penuel et al. (2014, p.2) defined implementation integrity as "the degree to which teachers' adaptations of materials are congruent with the curricular goals and principles undergirding the structures of curriculum". By contrast, a centralised curriculum reform like that of Uganda follows a hard policy stance demanding fidelity from curriculum implementers, specifically, the teacher. The idea is that with implementation fidelity, the taught and enacted curriculum can more closely mirror the intended curriculum.

Top-down reforms therefore measure success of implementation by the degree of fidelity and adherence by implementers to the reform principles as set out by curriculum experts and the policy makers. Here, the teacher's role is exclusively that of a consumer: receiving the curriculum, reading and internalising it, and attending periodic retooling sessions to ground him in the nuances of the curriculum (Iskandar, 2020). However, this stance overlooks the teacher's technical expertise in the education of learners. The

fidelity perspective assumes that curriculum objectives can only be achieved through a strict adherence to its principles and dictates (Cho, 1998).

The ‘teacher-proof’ quality of a fidelity-centered implementation model tends to silence the input of the teachers, who are the key curriculum implementers (Cho, 1998). However, this ignores the fact that in the classroom, the teacher is the ultimate authority upon whose interpretation and engagement with the curriculum document the achievement of curriculum goals lies. Moreover, it disempowers the teacher in their effort to achieve the curricular goals in spite of the reality of their specific context which may further widen the gap between the intended and the enacted curriculum (Cho, 1998; Iskandar, 2020). It is therefore crucial to understand and address the concerns of these teachers so as to support them to better implement the curriculum.

Contrastingly, bottom-up approaches can and do deliver successful educational change as demonstrated in an exposition on the success of the Finnish educational system by Pasi Sahlberg (Sahlberg, 2010). In a stark departure from top-down curriculum reform strategies, Sahlberg explained that Finland’s model educational system prioritises school-based and teacher-owned curriculum development supported by a clear but flexible national framework for school-based curriculum planning. Additionally, Sahlberg revealed that the Finnish educational system valued the technical expertise of teachers and principals in gauging student needs and making judgements about their learning progress.

Weighing in on the debate regarding top-down versus bottom-up change, Fullan (2015) contended that while top-down change often fails at the point of garnering ownership, commitment and clarity about the planned reform from the curriculum implementers, bottom-up change is even more handicapped in that it rarely ever produces success due

to its disjointed, uncoordinated nature. Fullan advocated for a strategy that combined both top-down and bottom-down approaches. This study explored how teacher concerns can be leveraged to enhance the bottom-up voices within this top-down change process. Ideally, this is best achieved at all stages of a change process as elaborated in Fullan's educational change model.

2.2 Teacher Concerns in Educational Change

Concerns have been defined as: "the mental activity composed of questioning, analysing, and re-analysing, considering alternative actions and reactions, and anticipating consequences" (Hall, George, & Rutherford, 1979 in Hall & Hord, 2015, p. 85). Concerns have also been described as the composite of feelings and perceptions about a change process (George et al., 2013). According to Hall and Hord (2015), whenever individuals are going through a change process, they are not just going through the motions but are continually reflecting on the change. These reflections, they argue, are coloured by an individual's personality, knowledge, and experiences. Thus, the resulting concerns may either advance the reform effort or hinder it since it they are based on the individual's perceptions of a change and not so much the reality of the change (Hall & Hord, 2015). It is for this reason that different teachers engage differently with curriculum reform, thus delivering different results at different paces.

The concerns of teachers are often perceived by change facilitators as problematic and symbolic of resistance to the reform effort. Thus, great efforts and resources are expended in training and capacity development sessions to ensure that the teachers are well grounded in the principles of the curriculum reform. Illustratively, the Ugandan MoES has planned continuous phased trainings for teachers at every school holiday to refresh them in the principles of the revised LSC (Museveni, 2020). Unless these professional development sessions are informed by the concerns of the Ugandan

secondary school teachers, who are the core curriculum implementers, the reform effort may not deliver the expected student outcomes. Thus, rather than assuming that the teachers understand the reform, are unanimously on board with it, possess the prerequisite knowledge and skills by virtue of the nationally curated continuous professional development, and have all the necessary resources at their disposal, curriculum change facilitators should engage with teachers' concerns for a more realistic strategy for the successful implementation of the change.

2.2.1 Fuller's Concerns Theory

The concept of teacher concerns was first developed by Frances Fuller in 1969. Fuller, an educational psychologist, launched a study into the concerns of student teachers after receiving overwhelmingly negative reviews about a course she had taught to a group of student teachers. 97% rated it as useless (Hall & Hord, 2015). She sought to investigate why the 3% thought otherwise and discovered that their rating was influenced by their previous hands-on experience with children. Through this, she postulated that the concerns of student teachers are influenced by their personal experiences. She conceptualised teacher concerns as expressions of felt need which influence their motivation for learning and therefore postulated that teacher training courses could only be effective if the concerns of the student teachers at the time when they had them, were considered (Fuller et al., 1974).

Fuller developed a two-stage model of teacher concerns, which was later modified into a three-stage model. This model postulated that the concerns of student teachers progressed with experience from self to task, and ultimately to impact concerns (Fuller et al., 1974). Researchers at the University of Texas Research and Development Center for Teacher Education adopted and modified this model to explain the evolution of

concerns of teachers involved in a curriculum change. They consequently developed the Concerns Based Adoption Model (CBAM) which expanded Fuller's three stages to 7 stages of concern that implementers may have about an innovation as shown in Table 2.3.

2.2.2 Stages of Concern and Curriculum Reform

Stages of concern is a quasi-developmental concept that represents the evolution of a change implementer's feelings and perceptions during the process of change (Hall & Hord, 2015). According to Hall and Hord, and in agreement with Fuller, any support mechanisms and strategies for teachers who are engaged with implementing reform must be aligned with the concerns that they present in real time. For instance, they postulate that in the first year of reform, teachers are preoccupied with concerns about how to manage the reform, therefore, interventions should be geared towards coaching them in technicalities such time management, organization of learning experiences, and assessment. However, as teachers gain more experience in implementing the curriculum, then impact concerns set in and change facilitators will need to present the more philosophical aspects of the reform, such as the vision and rationale (Hall & Hord, 2015).

Hall and Hord postulated that in the ideal conditions of curriculum reform, a teacher should be able to advance from self to task concerns within the first year, and from task to impact concerns within three to five years (Table 2. 2). Ideal conditions include: a curriculum innovation that is appropriate to the context, sufficient time provided to curriculum implementers to engage with the reform, leaders actively initiating the reform, and proper facilitation of the change process (Hall & Hord, 2015). This

underscores the fact that the curriculum reform must be handled as a process rather than an event (Fullan, 2015).

Table 2.2: *Typical expressions of concern about an innovation* (George et al., 2013, p. 4),

Stages of Concern		Expressions of Concern
Impact	6- refocusing	I have some ideas about something that would work even better.
	5- collaboration	I would like to coordinate my effort with others, to maximise the innovation's effect
	4- consequence	How is my use affecting my students?
Task	3- management	I seem to be spending all my time getting materials ready.
Self	2- personal	How will using it affect me?
	1-informational	I would like to know more about it.
Unconcerned	0-unconcerned	I am not concerned about it.

Teachers and schools must therefore be allowed ample time and space to engage with the reform at individual and collective levels before the change initiators can expect to realize tangible results in student outcomes.

The following section delves into an exploration of each stage of concern, how it might manifest for teachers engaged in the curriculum reform and how change facilitators at national and school level can leverage these concerns to support teachers in the effective implementation of the curriculum reform. Stages 1 and 2 are contained in the self stage of Fuller's categorisations, stage 3 in the task stage, and stages 4, 5, and 6 in the impact stage. The impact stage is the most ideal, towards which all change facilitators and implementers should work (Hall & Hord, 2015).

2.2.2.1 Stage 1 (Informational)

Teachers who express concerns at this stage manifest a desire to learn more about the curriculum reform. They may have questions such as: what is this reform all about? How is it different from the curriculum we used before? What will change about my teaching methodology? What teaching resources will I be using? The informational stage of concerns usually appears at the introduction of a curriculum. It is at this stage that change facilitators ought to get things right by presenting the curriculum to the teachers as comprehensively and simply as possible.

Studies in curriculum reform efforts in many African countries reveal that change facilitators may not have addressed this stage adequately. This is manifested in reports of inadequate in-service training for teachers (Isaboke et al., 2021; Wiysahnyuy, 2021), limited knowledge of the CBC (Kabombwe & Mulenga, 2019), and poor conceptual understanding of the CBC (Komba & Mwandaji, 2015). In Rwanda, Nsengimana (2021) reported that teachers encountered difficulties in implementing the CBC because only 20.5% of the teachers had received training. A Tanzanian head of school expressed this concern clearly:

> Teachers are eager to implement CBC, but the big challenge which the majority of teachers face is lack of knowledge…most of them do not understand clearly the competency-based approaches because they did not get any training. I am sure if teachers get orientation on CBC they would successfully implement it with confidence (Head of School, E). (Makunja, 2016, p. 32)

This concern can be addressed through in-service trainings at both school and national levels. However, change facilitators should continue to address any informational concerns the teachers may have all through the implementation process. McRory et al. (2013) recommended that Ugandan teachers be released to enrol in mixed mode

learning courses as well as phased re-training to support the implementation of the revised LSC.

2.2.2.2 Stage 2 (Personal)

At this stage, teachers have the requisite information about the curriculum reform. However, they now begin to evaluate the impact of the curriculum on themselves at a personal and professional level. George et al. (2006) explained that teachers at this stage grapple with questions about their competence to deliver the curriculum reform goals, their role in the reform, their agency, and potential rewards and personal constraints they may endure as a result of the reform. Issues of teacher self-efficacy take center stage here. High teacher self-efficacy has been shown to produce positive perceptions towards curriculum reform and hence increase chances of successful implementation (Fullan, 2015; Gouëdard et al., 2020).

Some teachers may feel threatened by the reform, for instance the phasing out or merging of some subjects may render teachers redundant or compel them to find new roles within the school. The Ugandan CBC has been associated with an increase in workload and so teachers may be concerned about whether they will be remunerated accordingly for this. It has also been shown to affect teacher mobility, a common phenomenon in Ugandan schools where teachers often teach in multiple schools at a time. With the demands of the reform, this freedom of mobility is curtailed and so it may impede the effective implementation of the curriculum.

Personal concerns closely border resistance to the reform effort and therefore should be identified and addressed prudently. For instance, in Cameroon, Wiysahnyuy (2021) reported that teachers in Cameroon exhibited indifference to the CBC reform, a response symptomatic of intense personal concerns. In Zambia, Kenya, Tanzania, and

Rwanda, studies revealed that teachers were mixing the traditional teaching methods with the CBC approach (Isaboke, Wambiri, et al., 2021; Kabombwe & Mulenga, 2019; Mkonongwa, 2018; Nsengimana, 2021). This could be traced back to a feeling of low confidence in the new pedagogy, being overwhelmed by the workload contained therein, or uncertainty about the new pedagogy to help them accomplish the syllabus. Whatever the case, change facilitators should interrogate these concerns and support teachers to resolve them.

2.2.2.3 Stage 3 (Management)

At the management stage, the teacher is preoccupied with how to make the reform work in the classroom and school context. It is the earliest stage of concern manifested by change implementers at initial introduction of the reform (Hall & Hord, 2015). Concerns at this stage usually revolve around management of resources, including time, information, and teaching materials. According to George et al. (2013) the concerns of foremost importance for the teacher at this stage include those of efficiency, organization, management, and scheduling. For instance, McRory et al. (2013) foresaw that in their implementation of the revised LSC, Ugandan secondary school teachers might have concerns about shortage of time, space, and equipment for practical sessions considering the large class sizes and lack of storage facilities for the learners' work which would be submitted for end-of-cycle assessment.

Teachers may be concerned about how to organize and manipulate the learning environment required for the CBC. Research has revealed a number of conditions in African educational contexts that may intensify this stage of concerns for teachers engaged in CBC reforms including: overcrowded classrooms, poor school infrastructure, insufficient teaching-learning materials, and inadequate teacher resource

(Akkari et al., 2013; Isaboke, Wambiri, et al., 2021; Nsengimana, 2021; Sajitha et al., 2018). This stage of concerns requires great collaboration between change facilitators at national and school level, and change implementers to work towards resolving these persistent but important challenges. Otherwise, change facilitators run the risk of teachers sliding back into stage 2 concerns (Hall & Hord, 2015).

2.2.2.4 Stage 4 (Consequence)

When a teacher transitions into stage 4 concerns, she is preoccupied with the impact that the curriculum reform is having on her students. The teacher evaluates the relevance of the reform to the students in her context, assessing preliminary outcomes of the students in terms of competencies acquired, and begins to envision changes that may be needed to improve these outcomes (George et al., 2013). While these types of concerns are ideal, they have been reported quite rarely in research on teacher concerns in curriculum reform (Hall & Hord, 2015).

This stage of concerns was found in a study by Sarfo et al. (2020) on the concerns of teachers about the integration of information communication and technology (ICT) in Ghana basic education nine years after it the policy was implemented. Sarfo et al found that teachers had their most intense concerns at the consequence stage, indicating that at that stage in implementation, the teachers were primarily concerned about how the use of ICT in basic education was impacting their students. The rarity of this stage of concerns could have a number of implications including that: the reform is still in its early years of implementation, or teachers are still at the self and task stages of concern. National change facilitators, heads of school, and supervisors need to be on the lookout for teachers at this stage of concerns to support them to continue the positive trend in

implementation. They also need to re-envision them on the rationale and objectives of the curriculum curriculum (Hall & Hord, 2015).

2.2.2.5 Stage 5 (Collaboration)

Teacher collaboration is a highly touted idea in education and educational research circles with good reason. Fullan (2015) asserted that the more teachers interact with one another during a process of educational change the greater the degree of change realized. Additionally, Thomas Harvey (cited in Ornstein & Hunkins, 2018, p. 268) highlighted that loneliness of teachers is one of the root causes of resistance to an educational change. When teachers are showing stage 5 concerns, it is usually a sign that there exists a culture of collaboration in the school and that the change facilitators are guiding the process effectively (Hall & Hord, 2015). It is primarily the role of the heads of school to create a collaborative culture (Fullan, 2015) to support implementation of curriculum reform in which teachers:

i. share commitment, responsibility, and goals geared towards improving the learning process,
ii. offer mutual support to one another to develop innovations and take appropriate risks,
iii. develop norms of engagement and share best practices, and
iv. engage in conversations around classroom instruction. (Gouëdard et al., 2020, p. 21)

Change facilitators at the school level can support teachers at this stage of concerns by establishing professional learning communities (PLCs). PLCs draw their strength from the empirically established fact that teachers often benefit most from a horizontal sharing of ideas and practices (Fullan, 2015). Another strategy to support teachers at

this stage could be the use of lead teachers; experienced teachers who act as mentors and coaches for their colleagues (Ornstein & Hunkins, 2018).

2.2.2.6 Stage 6 (Refocusing)

Stage 6 of teacher concerns in educational change is two-pronged. It may indicate that a teacher has engaged long and well with a curriculum reform and now has ideas about how to improve it for better student outcomes or it may indicate that a teacher is in outright resistance to the reform (George et al., 2013; Hall & Hord, 2015). An example of a study in which teachers had positively-oriented refocusing concerns was conducted by Apau (2021). Apau investigated the concerns of teachers about the implementation of the standards-based curriculum in Effutu Municipality, Ghana which was instituted in September 2020. He found that teachers exhibited the most intense concerns at stage 5 and the second highest at stage 6. In the interview, one participant said: "This curriculum is good. However, I think some elements could have been taken off to pave the way for new features that are adopted in advanced countries" (Apau, 2021, p. 207).

However, when these concerns manifest concurrently with intense stage 2 concerns, this is an indication of an inadequate understanding of the change and possible hostility towards it. According to Ornstein and Hunkins (2018) top-down curriculum reforms often engender behaviour like teacher reticence, complacency, marginal acceptance of a reform, and sometimes outright resistance which are likely expressions of stage 6 concerns. Such concerns are also symptomatic of a poorly managed curriculum reform effort as was seen in the initial stages of the implementation of the revised LSC in Uganda. The curriculum was received with great resistance and hostility by the teachers and other relevant stakeholders (Mubangizi, 2020; Olema et al., 2021). Stage 6 concerns

can be addressed with a great deal of mentoring and coaching, especially from lead teachers and by taking advantage of PLCs.

2.2.3 Measuring Teachers' Concerns

An important part of equipping school-based change facilitators to support the reform process is to equip them with knowledge and skills on how to monitor and address teacher concerns. Hall and Hord (2015) outlined three methods of measuring the concerns of teachers: one-legged interviews, open-ended concerns statements, and the stages of concerns questionnaire.

2.2.3.1 One-legged interviews

These are frequent, brief, and impromptu interviews conducted by school change facilitators with teachers regarding their current concerns as they implement the curriculum (Hall & Hord, 2015). The school change facilitator probingly enquires from the teacher in a non-threatening manner about their experience with the reform. He takes note of the teacher's response and also attempts to address the issues raised in one way or another.

It may be argued that most school administrators do this already, however, it needs to be focused and structured so as to yield results. Such encounters, Hall and Hord encourage, may be done face to face, as the administrator does his supervisory rounds, or on phone, or email. They highlight two major limitations to this method: first that it may not provide accurate judgements about teacher concerns, and second, that the teacher's response may be subject to different interpretations. None-the-less, it is a handy way to gather rough estimations about teacher concerns while they work.

2.2.3.2 Open-ended statements

These are somewhat more structured than one-legged interviews. Here, the change facilitator requests the teachers to write on a sheet of paper an open-ended statement about their current concerns regarding the curriculum reform. A sentence prompt may be given, for example: “What are your greatest concerns about the revised LSC currently?”. Thereafter, the change facilitator can identify the overall theme reflected in each teacher’s open-ended statement thereby make a judgement on the stage of concern being manifested by the teacher.

According to Hall and Hord (2015), this method is advantageous in that it allows the teachers to articulate their concerns in their own words, and also provides a record of the same. This, they propose, can be used to plan relevant interventions, including but not limited to staff in-service trainings. However, its main demerit is that while some teachers are loquacious, others tend to be taciturn thus making it difficult to determine their concerns. Additionally, this method lacks scientific reliability and can only provide an estimate of the teachers’ stages of concern. In this study, teachers’ open comments on their implementation of the LSC were elicited and triangulated with the findings from the questionnaire which is described below.

2.2.3.3 Stages of Concerns Questionnaire (SoCQ)

This is a scientifically rigorous method of determining the stages of concerns of teachers. It can be used at school level and also on larger geographical and contextual scales and also applies to any educational innovation (Hall & Hord, 2015). It contains 35 items which probe the teacher’s concerns as they implement a curriculum reform. The SoCQ allows the change facilitator to develop concerns profiles for each individual teacher and also for groups of teachers (George et al., 2013). A concerns profile is a graphical presentation of data gleaned from the SoCQ depicting the variation in

intensity of teacher concerns across the 7 stages (from unconcerned to refocusing). Figure 2.1 shows the ideal progression of teacher stages of concern over time as they engage with the curriculum reform.

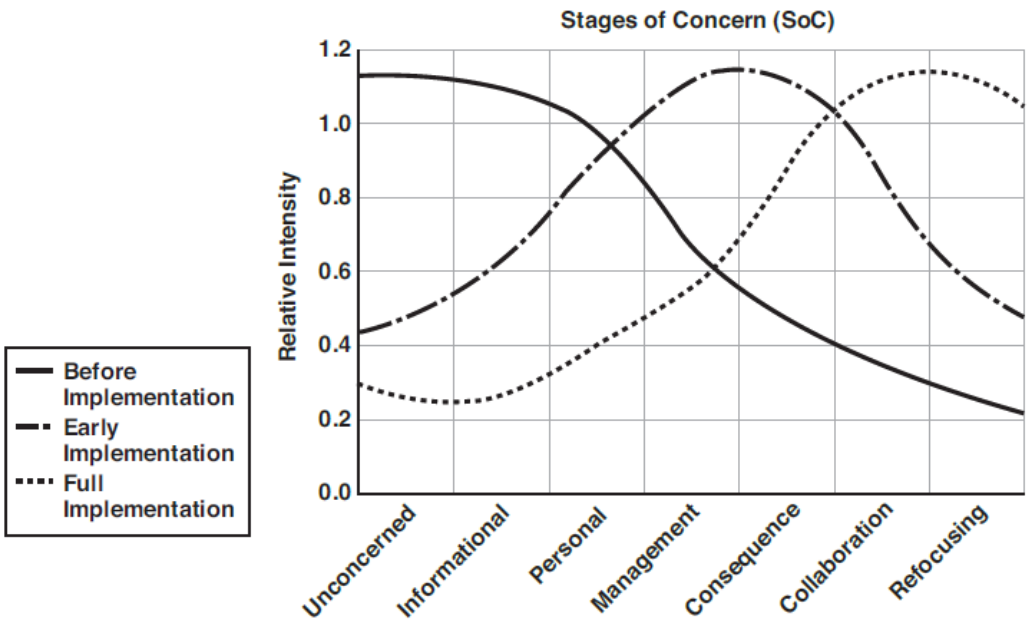


Figure 2.1: *Stages of concern ideal wave motion development over time (Hall & Hord, 2015, p. 89)*

Change facilitators can compare the concerns profiles of their team members with this ideal profile to gauge the general trend of progress of the individuals and teams in the implementation process. This allows for interpretation of implications and planning of strategic interventions across the system from individual to whole staff to the national education system.

Inferences from the SoCQ can also be used to determine progress in the implementation of the curriculum reform as well as key areas for review and improvement. The single disadvantage with using the SoCQ is that teachers may be disinclined to fill it out frequently, therefore it should be used periodically, for instance, annually (Hall & Hord, 2015). The SoCQ was employed in this study to measure the nature and intensity of the concerns of teachers who are engaged with implementing the revised LSC in central

sub-region Uganda. This filled the methodological gap of determining teacher concerns in the LSC reform by offering a quantitative assessment (CBAM SoCQ) alongside a qualitative one (open-ended statements). In the next section, an exploration is made of studies that employed the CBAM SoCQ to measure teacher concerns in diverse educational changes within sub-Saharan Africa.

2.2.3.3.1 The use of SoCQ in educational change studies. The SoCQ has been used with success across numerous contexts globally to measure a variety of issues surrounding the implementation of innovations, especially educational ones (George et al., 2013). In Africa, a few studies have been conducted using CBAM in west and southern Africa. Sarfo et al. (2020) used the SoCQ to assess the concerns of teachers about the integration of information and communication technology (ICT) into the basic education curriculum in Ghana. They found that teachers had their highest and second highest concerns at information and consequence stages respectively and the lowest concerns at awareness stage. They determined this to be a worrying outcome because at the time of the study, the innovation was nine years old so it was not expected that the greatest number of teachers would still have intense informational concerns. They thus made policy recommendations on this basis.

Another study by Apau (2021) investigating the concerns of primary school teachers towards the implementation of the standards-based curriculum in Effutu Municipality in Ghana found that teachers had the most intense concerns at the collaboration stage, followed by the refocusing stage. This finding was interesting because at the time of the study, the innovation was roughly one year into implementation, yet teachers already had high refocusing concerns. This was indication that many teachers felt that more could be done to make the innovation relevant or it could be replaced altogether. Gudyanga and Jita (2018) used the SoCQ to map the concerns profiles of teachers of

physical sciences during the implementation of the curriculum and assessment policy statement (CAPS) in South Africa. They found that from a sample of 81 teachers in 62 schools, the most prevalent concerns were self-concerns. This finding led them to conclude that five years into the implementation of the innovation, support programs had not delivered much impact on the teachers.

In Lesotho Tafai (2017) explored the concerns of primary school teachers regarding the adoption of an integrated curriculum in 2013. She found that teachers showed the most intense concerns at the collaboration, refocusing, and personal stages. Zindi (2018) used the SoCQ to examine how Zimbabwean primary and secondary school teachers perceived developments in curriculum reforms and to determine the support the teachers need to implement the reforms actively and effectively. From a sample of 70 teachers, the findings suggested that teachers generally harbored negative feelings about the curriculum reforms.

In East Africa, a number of studies have been conducted about teacher perceptions and experiences with curriculum reform (Akala, 2021; Altinyelken, 2010; Isaboke, Wambiri, et al., 2021; Komba & Mwandaji, 2015; Nsengimana, 2021; Olema et al., 2021). However, none of these studies used the CBAM thus presenting a methodological gap. Additionally, among all the studies reviewed both global and regional, none of the studies that used CBAM investigated the mediating effect of teacher concerns on the relationship between curriculum reform strategies and the quality of implementation of a curriculum reform. This therefore presents an empirical gap in literature. This study filled these gaps by measuring the teacher concerns in implementation of the Uganda LSC and examining the patterns therein. This provided key insights into the success of the reform strategies and the implementation quality. In

the next section, the relationships between curriculum reform strategies, teacher concerns, and implementation quality are explored.

2.3 Curriculum Reform Strategies, Teacher Concerns and Quality of Implementation

In his Educational Change Model Fullan opined that educational change, in the case of this study- curriculum reform, follows a three-phase cyclic model. This comprises: initiation, implementation, and institutionalization phases (Fullan, 2015). The initiation phase, also known as the phase of mobilization, or adoption involves all the events that lead up to the adoption of an educational innovation. In Uganda, this phase is represented by the past decade or so in which the weaknesses of the old curriculum were documented, benchmarking was done, and a new LSC was drafted, discussed with stakeholders in the political, economic, and social spheres, and finally passed for implementation in January of 2020 (Museveni, 2020).

The implementation phase includes the first two or three years of putting the educational reform into practice. In Uganda, this period began in January 2020 with the senior one class of all secondary schools in Uganda that subscribed to the national curriculum. It must be noted though that this phase may have been extended due to the unexpected school closures caused by the COVID-19 pandemic. Therefore, at the time of this study, the curriculum was considered to still be in its implementation phase. According to Fullan, this phase is critical because it is the means by which desired objectives are realised. He further identified factors that may affect this phase: i) characteristics of change, ii) local actors, and iii) external factors. That is why the focus of this study was on the implementation phase. Regardless of how well the initiation phase went the innovation stands or falls on how well it is implemented by the people

on the ground (Fullan, 2015). This study focused on this critical phase of implementation with a focus on the local actors: school administrators and teachers.

The final phase is the continuation, incorporation, routinization, or institutionalization phase (Fullan, 2015). It is at this phase that the educational change becomes established into the institutional or system culture. Fullan noted that in many cases educational innovations do not make it far into the institutionalization phase. Citing Huberman and Miles (1984), Fullan enumerated three main antecedents for institutionalization of an educational change: i) the change must be built into the structure of the educational system for instance through policy and budget, ii) there must be a critical mass of teachers and school administrators who are skilled in and committed to it, and iii) there must be procedures for continuing support for change implementers (Fullan, 2015). In the following sections, these antecedents are discussed in the form of strategies of curriculum reform.

2.3.1 Strategies of Curriculum Reform

Beyond the initiation phase, change facilitators are faced with the formidable task of getting the change underway in the implementation phase. For a large-scale change like the LSC reform in Uganda, this task must be approached with much care and diligence. Hall and Hord (2015) proposed six strategies that change facilitators must adopt in order to ensure that planned change is realised: developing and communicating a shared vision of the intended change, resource provision, investing in professional learning, checking progress, providing continuous assistance, and creating a context supportive of change. The Uganda MoES adopted a number of strategies to reform the LSC which fall into four of these strategies: change management, teacher professional

development, resource allocation, and monitoring and evaluation. These four strategies were examined in this study and are discussed below.

2.3.1.1 Change Management

Organizational change expert, John Kotter contended that if change was to succeed, change facilitators had to undertake initial actions to break the status quo including: creating a sense of urgency, creating a guiding coalition, developing a vision and strategy, and communicating the vision for change in a compelling way (Kotter, 2012). Hall and Hord (2015) echoed these convictions when they pointed out that change often fails when participants do not possess a mental picture of the potential outcomes it could deliver.

Therefore, change facilitators must be able to engage stakeholders at all levels to support them to understand the need for the change, what the it would look like in practice, and how it would impact the students and education system at large. The MoES undertook this task through consultations with and sensitization of stakeholders both within the education system and outside of it. Stakeholders included: members of the education and sports committee of the Uganda Parliament, text book publishers, UNATU, head teachers, university faculty of education representatives, national teacher colleges, and MoES departments like NCDC and UNEB (Museveni, 2020).

Change management actions also included development of critical policies including: curriculum implementation policy and the national curriculum, assessment and placement policy. A plan was set up to ensure that students received guidance and counselling as they engaged with the new curriculum. The communications unit of the MoES in collaboration with the DES and NCDC also planned to establish a website to provide up to date information on the LSC. In this study the means by which these

change management strategies shaped the development of teacher concerns were explored. The question regarding change management is therefore whether, from the teacher's perspective, the vision was communicated effectively and whether a shared meaning of the change had been developed (Fullan, 2015; Kotter, 2012).

2.3.1.2 Teacher professional development

Effective implementation of an educational innovation hinges as much on the transformation of professional theories and beliefs of teachers as on their adoption of new teaching practices and technologies, and use of new instructional materials (Fullan, 2015). Thus, professional development is an indispensable part of a curriculum reform effort. Professional development facilitates the learning processes that are prerequisite for change to take place (Hall & Hord, 2015).

Key issues that may arise from the teacher professional development process include: how relevant the scheduling of the training programs are for the needs of the teachers, whether information regarding the change was sufficient, whether teachers felt they had been equipped with sufficient skills to engage successfully with the curriculum, whether the process succeeded in developing positive attitudes within the teachers towards the change, whether the teachers were able to visualize the innovation in practice through a demonstration of it in use, and whether misconceptions about the innovation had been clarified.

The MoES undertook a number of actions in this strategy including: training of master trainers, trainers of trainees, and teachers. These training sessions were held both physically and online. The plan was to spread the trainings in such a way that teachers across the country received trainings at every school holiday (Museveni, 2020). Teachers were sensitized on the rationale behind the new curriculum and equipped with

skills in the various aspects of the curriculum including assessment and use of instructional materials. The challenge with teacher professional development is often in maintaining its momentum and relevance with time. Moreover, teachers often lose the urgency for progressive training as they perceive that they have grown in expertise. Thus, there is need to tailor teacher professional development programs to teacher concerns (Hall & Hord, 2015).

2.3.1.3 Resourcing the curriculum

The provision of resources for implementation of an educational change is a key function of change facilitators. Without relevant and adequate resources, a change effort is severely handicapped and may either fail to deliver on expected objectives or be discontinued prematurely. According to Hall and Hord (2015), resource allocation for an educational change must be stipulated in its accompanying policies. These policies, they contend, must make provision for a variety of resource requirements including instructional materials and equipment, human resource, and most importantly, the time resource. The time resource includes time on the school schedule for planning, delivery of instruction and meeting curricular demands, professional development, and for collaboration and peer consultation.

The MoES planned to execute this function through: production and distribution of learners' books and teachers' guides, coordination of publication of textbooks by the Instructional Materials Unit of the MoES, production of subject-specific assessment guidelines and teacher training manuals, and national teacher remapping. The teacher concerns surrounding this strategy are therefore whether teachers feel that they are sufficiently resourced within their particular contexts to implement the curriculum successfully.

2.3.1.4 Monitoring and evaluation

The function of monitoring and evaluation is crucial to the success of any change process. This is because it allows change facilitators to stay abreast of the progress of the change and any arising needs from the implementers. Monitoring and evaluation underscore the fact that change is not an event but a process, therefore, it must be checked continuously. It is also through monitoring and evaluation that change facilitators are able to mark important milestones for the implementation process thereby creating short term wins and consolidating gains as Kotter (2012) put it. This function must be undertaken at different levels of change facilitation including at the national, district, school, and department levels within the school. Hall and Hord (2015) emphasized that change facilitators risk losing gains made in a change effort when they are inconsistent with their monitoring efforts.

The MoES undertook to conduct this function primarily through the work of the DES in coordination with district inspectors of schools and heads of schools. These were to carry out inspection of the teaching/learning process at school level, make recommendations to heads of school, and report back to the MoES regarding progress in implementation of the LSC. From the teacher's perspective therefore, the concern may be whether this process of monitoring and evaluation is actually supporting them to implement the curriculum effectively in terms of the technical aspects of the change. Change facilitators must be careful to avoid the perception of fault-finding that is often associated with supervision and inspection visits. Such a perception fails the change effort in that it does not give an accurate picture of progress and does not reveal actual teacher needs.

2.3.2 Teacher Concerns and Quality of Implementation

Various scholars have contended for greater inclusion of teachers in the process of curriculum reform. They have based this on the understanding that teachers possess clinical expertise in the field of education. So, teachers understand best the technicalities of what goes on in the classroom and have the onus of translating curriculum intentions into real life experience for the students (Gouëdard et al., 2020; Ornstein & Hunkins, 2018) . Fullan (2015) quipped: “Educational change depends on what teachers do and think- it’s as simple and complex as that” (p 115). The Uganda National Teachers Policy (Ministry of Education and Sports, 2018) agreed with this assertion, stating that at the school level, teachers were the most significant determinant of quality of learning and hence achievement of curricular goals. However, many curriculum reform processes across the world continue to relegate the teacher to the role of consumer, merely receiving and acting upon the curriculum. This is highly characteristic of centralised fidelity-centered curricula which endeavour to teacher-proof the curriculum, expecting that teachers will implement the curriculum as has been handed to them by the ministry of education and curriculum experts (Cho, 1998; Gundy & Berger, 2016).

However, Cho (1998) argued that curriculum change facilitators should abandon the fidelity perspective altogether as teachers inevitably interpret and enact a curriculum innovation based on their specific contexts. Unsurprisingly therefore, contemporary curriculum implementation models are progressively moving away from the fidelity perspective to more teacher-interactive models following the adaptation and the enactment perspectives as shown in Table 2.3 (Cho, 1998; Gundy & Berger, 2016; Ornstein & Hunkins, 2018). Illustratively, the CBAM, upon which this study is based,

brings the teacher front and centre into the curriculum implementation process even when it follows the fidelity perspective.

Table 2.3: *Conventional models of curriculum implementation (Cho, 1998)*

Fidelity Perspective: (top-down strategies)	Adaptation Perspective: (multiple element strategies, middle-up strategies)	Enactment Perspective
Concerns Based Adoption Model (CBAM)	Rand Change Agent Model	The Denver Project
Linkage model	Innovation Profiles (IP)	The Eight Year Study
Research, Development, and Diffusion (RDD)	Organization Development Model (OD)	

While scholarship has demonstrated that decentralised educational systems allow the teacher a more extensive role and greater agency in the curriculum process, this study was limited to the centralised type of educational system under which Uganda operates. Under centralised systems, the teacher's primary role in the curriculum reform process is that of implementer. The Ugandan LSC envisioned the teacher exclusively as a facilitator of learning who guides students in their acquisition of competencies (National Curriculum Development Centre, 2020).

This role description is deceptively oversimplistic and calls for an expanded view of the Ugandan teacher's role based on the realities on the ground. Such a view allows change facilitators to effectively support teachers to embrace and implement the curriculum. Ornstein and Hunkins (2018) maintained that a teacher who is receptive to a curriculum reform process takes on several roles in addition to that of curriculum implementer: that of a spokesperson of educational change, a nurturer of creative and reflective students, and an innovator. Thus, despite being absent from the curriculum development table, they are still able to contribute meaningfully to the educational change process.

A different level of teacher involvement is thus called for in a top-down curriculum reform such as the Ugandan one. To begin with, the perception of teachers as passive recipients of the curriculum should give way to that of teachers as full participants in the curriculum process (Ornstein & Hunkins, 2018). Ornstein and Hunkins contended that if teachers' commitment to the reform process is to be engendered, then their involvement is prerequisite. Leithwood et al. (1994, p.42) defined teacher commitment to change as: "their identification with and desire to be involved in efforts to implement changes in school and classroom structures and processes". Leithwood et al. went on to draw a link between teacher commitment and successful implementation of curriculum reform by showing that commitment buffers teachers to expend the extra effort and shoulder the additional burdens of self and professional development required to sustain a curriculum reform.

Clearly, engendering teacher commitment to curriculum reform is a worthwhile pursuit for curriculum change facilitators, especially at the school level. The question then remains how to secure teacher involvement in order to assure their commitment, particularly in top-down, mandated reform efforts. Teacher involvement in the change means that the teachers first understand and accept the reform, and then become active participants in the curriculum process in their capacity as key curriculum implementers. Majority of curriculum change facilitators at national and school levels default to staff training and capacity development to attempt to achieve this. However, relying on staff training alone is insufficient; change facilitators must cater to the personal side of change for the individual teacher (Hall and Hord, 2015; Fullan, 2015). This is because all lasting change is first wrestled with at a personal level before it extends to the organisation (Ornstein & Hunkins, 2018).

A predetermined teacher training schedule can only go so far to address teachers' needs and concerns about a curriculum. It can only serve to provide a basic framework of knowledge and skills required by the teacher. However, the unique individual and school contexts cannot be anticipated by the training program. These must be addressed at school level. Scholars of educational change have shown that the concerns of change implementers present the most superior outlook of how the reform process is unfolding (Fullan, 2015; Hall & Hord, 2015; Leithwood et al., 1994). The individual teacher's personal journey through change is succinctly encapsulated in the concerns they express as they implement the curriculum. Thus, teachers' concerns in a curriculum reform effort present an excellent point of leverage for curriculum change facilitators to track the progress of individual teachers as well as groups in the implementation process, allowing them to guide and support teachers in a relevant and effective manner (Hall & Hord, 2015). This study offered an assessment of teacher concerns in the Uganda LSC thus providing valuable insights into the progress of the LSC reform.

2.3.3 Justification for a Mediation Study

According to Hayes (2013) a mediator is a variable that shows how a predictor variable transmits its influence on the outcome variable. Mediation does not necessarily prove causation but it does demonstrate correlation between different variables (Hayes, 2013). In implementing an educational change, policy makers and change facilitators put in place an arsenal of strategies to ensure its success. However, literature on educational change has revealed that these strategies more often than not fail to assure a successful implementation of the innovation (Fullan, 2015; Goodson, 2014; Leithwood et al., 1994). Literature has also revealed that the concerns of teachers are a significant factor in the implementation of any educational change (George et al., 2013; Hall & Hord, 2015). Hence there is a need to investigate how teacher concerns mediate the

relationship between curriculum reform strategies and the quality of curriculum implementation.

The foregoing literature has illustrated the centrality of teacher concerns in the implementation of educational change. George et al. (2006) provided an elaborate list of studies that had been conducted between 1987 and 2006 using the CBAM diagnostic tools. The purpose for which these studies assessed teacher concerns fell into one or more of three groups: i) to assess the implementation of an educational innovation by teachers, ii) to guide professional development, ii) to evaluate implementation support. More recent studies have mainly focused on assessing the trends in teacher concerns manifested during the implementation of educational change and how teacher personal characteristics affect the development of those concerns (Isbell, 2013; Kayaduman & Delialioglu, 2016; Lo, 2018; Oguoma et al., 2019; Paramasveran & Nasri, 2018; Roofe-Bowen, 2007; Sarfo et al., 2020; Yan & Deng, 2019; Zindi, 2018).

While all these studies locate teacher concerns within an educational change, few have concerned themselves with the educational change strategies that have been employed which may have shaped these concerns. Rather, the focus is usually on how teacher concerns are affecting the implementation of the educational change. The effect of the strategies employed is often hinted at in the recommendations section. This neglects the fact that change strategies are an important stimulus for the development and progression of teacher concerns. More importantly, while the other main drivers of teacher concerns: experience and personal disposition, cannot be controlled by change facilitators, educational changes strategies are well within their realms of influence and control. So, this study's investigation of the mediation relationship demonstrated the significance of teacher concerns to educational change efforts and may guide change

facilitators on how to design and implement effective change strategies for successful change implementation

2.4 The Role of School and National-level Change Facilitators

Regardless of how well a curriculum reform is introduced at national level, progressively, schools will begin to move at different paces, with unique successes and challenges. This calls for a concerted effort from all actors at every level of the change process. Terming this the policy-to-practice continuum, Hall and Hord (2015) emphasised that if an educational change was not actively supported by the leaders, the momentum would inevitably be lost. In their role as change facilitators, it is imperative that leaders are always conscious of the dynamics within the macro- and micro-contexts in which the reform is being implemented. According to Ball et al. (2011) school leaders play the critical role of policy interpretation wherein they facilitate the understandings of teachers about the reform, and guide on action to be taken depending on the school context. Seymour Sarason (cited in Ornstein & Hunkins, 2018 p. 257) concurred, asserting that educational reformers often handicap the process by neglecting the real-world and social instructional contexts in which a curriculum reform is being implemented. Thus, it was necessary to explore the perceptions and understandings of change facilitators in the LSC reform about the curriculum reform strategies, teacher concerns, and implementation quality.

At the school level, heads of school and departmental leaders should be provided with relevant capacity building to enable them support teachers through the implementation process. Fullan (2015), discussing the role of principals in educational change, pointed out that while their change management role is complex, they are often ill-equipped to handle it. He further revealed that from majority of research on innovation and school

effectiveness, it has been discovered that principals often do not take up their position as instructional and change leaders. An effective principal should be able to foster a collaborative school culture in which teachers are free to express their concerns with the confidence that they will be addressed. A heuristic framework through which school-based change facilitators may diagnose and address teacher concerns in curriculum reform is offered in this study.

Naturally national-level change facilitators cannot reach every school to address its contextual issues such as the individual teacher concerns, however, the school administration is in a prime position to do so effectively. Therefore, the most impactful measurement of teacher concerns, and hence support to the implementation of the curriculum reform, is that done routinely at the school level. So national change facilitators should direct a significant amount of effort to supporting school change facilitators to achieve reform objectives within their unique cultural and structural contexts.

The draft framework for the revised LSC of Uganda envisioned the involvement of national-level change facilitators in the reform process through a quality assurance system. This was to be led by the Department of Education Standards (DES). It positioned the DES as the ‘guardian’ of the reform process which could support curriculum management by providing competent curriculum expertise (McRory, 2013). The DES was to play two main roles. First, they were to conduct school inspections across the country, ensuring that teachers were implementing the LSC as expected, making recommendations to head teachers and then following up on how these recommendations had been acted upon (McRory, 2013). Secondly, the DES was to compile reports from these inspections and submit them to the office of the Permanent

secretary thus painting a picture of the progress in implementation of the curriculum reform.

However, this curriculum management and quality assurance process was uni-directional which is disadvantageous for the reform process. It did not seem to allow dialogue between the bottom-up and top-down change-forces. Thus, the teacher's technical expertise was neglected. Additionally, it did not track the evolution of teacher concerns about the curriculum reform in real time yet the voices from within the core educational context: the school, should be given as much gravitas as the voices of other stakeholders including the business community, private sector, and international bodies. The curriculum management framework offered in this study suggests a model through which school-level change facilitators and implementers can dialogue with regional and national-level change facilitators.

2.5 Chapter Summary

This chapter discussed four main issues: educational change in the form of curriculum reform in Uganda, in the African continent, and in a global context; teacher concerns and their measurement; the relationships between curriculum reform strategies, teacher concerns, and quality of implementation; and the role of school and national-level change facilitators in supporting a curriculum reform. It highlighted the fact that for a curriculum reform to succeed, the taught curriculum must closely mirror the intended curriculum. The unique challenges of the competency-based education movements and the demands it places upon teachers were discussed. It was found that despite the great promise and popularity of the CBC globally, for the most part, it has not delivered on expected student outcomes in Africa. Literature revealed that one of the major impediments to the success of the CBC in Africa was the teachers: their lack of knowledge and understanding, indifference or opposition to the CBC, and continued

use of traditional pedagogical and assessment methods. This study therefore filled the empirical gap in understanding of the teacher concerns and their curriculum implementation practices in the Ugandan competence-based LSC reform.

It was shown that for teachers to commit to the reform process, their involvement must be engendered. It was also found that change facilitators at the school level were ill-equipped to support the curriculum reform. This is a trend that was reported in numerous studies on implementation of educational change, specifically CBC across sub-Saharan Africa. The centrality of teacher concerns to the progress of the implementation process and their potential to support or hinder the curriculum reform came to the fore. Therefore, the monitoring and addressing of teacher concerns was shown to be a low-hanging fruit that can be leveraged to support the curriculum reform process beginning at the school level. However, no curriculum management frameworks tailored to the LSC reform or other similar reforms within the sub-Saharan Africa context were found in the literature.

A search of literature also revealed that in Uganda, very few studies had investigated the concerns of teachers in the curriculum reform process and of these none had measured them using the CBAM. It was also found that in all the studies on teacher concerns in curriculum reform, none had attempted to empirically determine the mediating effect of teacher concerns on the relationship between curriculum reform strategies and the quality of curriculum implementation. All the studies reviewed presented recommendations for policy makers and change facilitators to address teacher perspectives with staff trainings, however, none presented a teacher support framework that could be readily used by change facilitators to support the reform process. Table 2.4 presents a summary of the literature reviewed, key findings, and the gaps in

scholarship that was addressed in this study. In the next chapter, the study methodology that was adopted is explicated.

Table 2.4: *A summary of the literature reviewed, the main findings, and gaps revealed. (Author, 2022)*

THEME	LITERATURE	FINDINGS	GAP
Nature of teacher concerns in curriculum reform	i) CBE: Anderson-Levitt and Gardinier (2021); Paek et al (2021); Fleisch et al. (2019); Akkari et al (2013); Isaboke et al (2021); Kabombwe and Mulenga (2021) ii) Teacher factors: Akala (2021); Altinyelken (2010); Komba & Mwandaji (2015); Nsengimana (2021); Olema et al. (2021) iii) Nature of concerns: George et al (2013); Sarfo et al (2020); Tafai (2017); Zindi (2018); Gudyanga and Jita (2018); Apau (2021)	i) CBE is polysemous, unproven, challenged by teacher factors. ii) Negative teacher perceptions about the CBE and other teacher facts have hindered QI. iii) TC range from self to task to impact concerns. iv) The CBAM diagnostic tools have proven to be robust in assessing TC and QI of curriculum reforms.	Knowledge Gap: i) Implementation of the CBC in Uganda. ii) Assessment of TC in curriculum reform in East Africa. Methodological gap i) Use of mixed methods case study design. ii) Use of the CBAM.
Relationship between curriculum reform strategies, teacher concerns, and quality of curriculum implementation	i) Top-down (mandated curriculum reforms) and the teacher's role: Cho (1998); Fullan (2015); Leithwood et al (1994); Hall & Hord (2015) ii) Strategies of curriculum reform: Hall and Hord (2015); Fullan (2015); Museveni (2020) iii) Teacher concerns: Fuller et al (1974); Hord and Hord (2015); Goodson (2014); McRory (2013); Museveni (2020) iv) Curriculum implementation: George et al (2013); Sarfo et al (2020); Tafai (2017); Zindi (2018); Gudyanga and Jita (2018); Apau (2021)	i) Mandated reform is rarely successful. ii) Fidelity-centered models neglect teacher expertise and assume teacher commitment. iii) Change strategies need to be supported with other interventions. iv) Teacher personal and professional domains must be attended to. v) TC progress from self to task to impact. vi) Uganda LSC management plan neglects the role of TC and feedback. vii) TC affect QI.	Knowledge gap: i)Relationship between TC and QI in East African contexts Theoretical gap: i)Mediating effect of TC on the relationship between CRS and QI.

THEME	LITERATURE	FINDINGS	GAP
Leveraging teacher concerns in curriculum implementation	Katam et al. (2020), Hall and Hord (2015), Fullan (2015); Ornstein and Hunkins (2018)	i) The school is the most important institution for supporting curriculum reform. ii) Real world socio-instructional contexts are key to successful reform. iii) Principals are ill-equipped to support change.	Practical-knowledge gap: Contextually-relevant curriculum management framework for use by school administrators in the Uganda LSC reform.

Note: For abbreviations, refer to the List of Abbreviations

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter provides details on the approach taken in this study. It begins with a declaration of the researcher's positionality in conducting the study. The philosophical orientation of the study is then explained and justified. The details of the selected research design are provided. Methods of data collection and analysis are expounded upon for the three phases of study: qualitative, quantitative, and multiple case study. The section rounds off with an explanation of the ethical considerations that were maintained all through the study.

3.2 The Researcher's Positionality

As a Ugandan educator and former school administrator, I acknowledge the promise of the competency-based curriculum especially at the secondary level where learners are prepared to contribute profitably to the economy. The teaching fraternity, of which I am a part, has the unique opportunity to bring the aims of this curriculum to fruition. However, as happens with externally-mandated change, Ugandan school administrators and teachers alike are experiencing a 'crisis of positionality' as Goodson (2014) termed it. This is evidenced by the confusion, apprehension, and open hostility towards the curriculum when it was introduced (Mubangizi, 2020; Olema et al., 2021). Teachers are compelled to learn a new pedagogy and unlearn deeply ingrained pedagogical beliefs and practices all the while dealing with the inherent complexity of facilitating learning for students in their respective school contexts.

In conducting this study, I concurred with (Fullan, 2015) who argued that when teachers' concerns go unacknowledged and unresolved, any results realised from the curriculum reform may likely be superficial and short-lived, with a high chance of

teachers returning to old pedagogy. Additionally, I identify with the many school administrators who are expected to step up to the task of instructional leadership but are often at a loss as to how exactly to do so effectively. Therefore, I believe that the key to ensuring that the LSC is successful is in acknowledging the concerns of the teachers implementing it and equipping school administrators to support teachers by monitoring and addressing these concerns.

3.3 The Pragmatic Philosophy of the Study

This study was located in the pragmatic paradigm, which utilizes multiple approaches to answer a research question (Hesse-Biber & Johnson, 2015). In line with this philosophy therefore, a mixed methods approach was employed to discover how best teacher concerns can be leveraged to improve the implementation of the CBC. By adopting this philosophical paradigm, the researcher postulated that there was a generalizable pattern to the manifestation of teacher concerns as a result of curriculum reform strategies which may have resulted in a predictable pattern of curriculum implementation. However, the researcher also acknowledged the personal and contextual nature of teacher concerns hence the need to explore this phenomenon using an interpretive approach common to qualitative methodologies. Thus, the ontology of this study reflected both a singular truth and multiple realities; a universalist epistemology with an initial post-positivist outlook and consequent constructivist one. Hence, the methodology was mixed consisting of both qualitative and quantitative methods (Creswell & Plano Clark, 2018; DeCuir-Gunby & Schutz, 2017)

3.4 Research Design

A mixed methods case study design was employed whereby in-depth understanding of a phenomenon is achieved through the merging of qualitative and quantitative data and following it up with a case study. A few approaches to integrating mixed methods and

case study approaches have been proposed in literature. The mixed methods case study research design is one of four complex mixed methods designs identified by Creswell and Plano Clark, (2018). They advanced that the mixed methods case study design involves an initial core mixed methods phase that leads to the generation of one or more cases.

Guetterman and Fetters (2018) identified two general designs in integration of mixed methods and case study approaches: i) case study-mixed methods design (CS-MM), and ii) mixed methods-case study design (MM-CS). This dichotomy was expounded upon by Cook and Kamalodeen (2020) showing two varieties of mixed methods case study designs: the deductively driven approach, and the inductively driven approach as illustrated in Figure 3.1. They made the distinction that the deductively driven approach begins with a case study and then follows it up with a mixed methods study, while in the inductive approach, the researcher begins with a mixed methods study and then develops cases for deeper exploration from the analysis and results of the foregoing study.

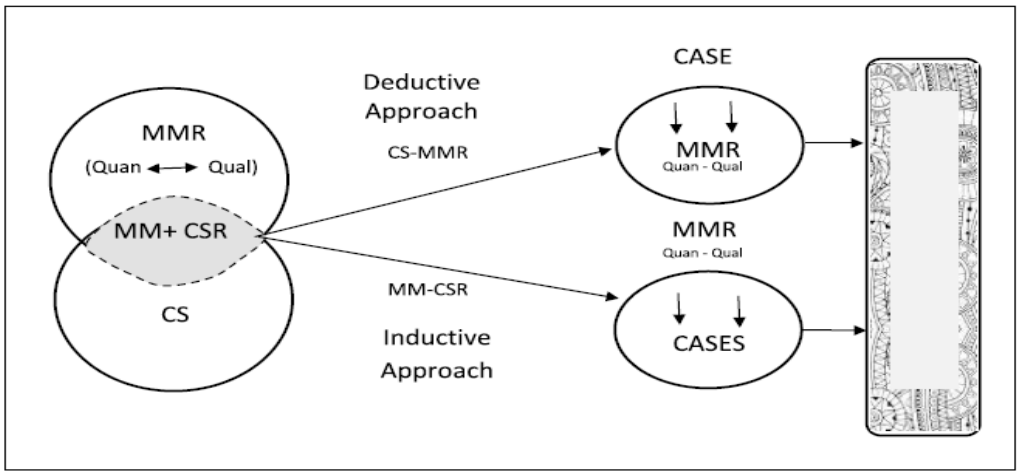


Figure 3. 1*: Two typologies of the mixed methods case study approach (Cook & Kamalodeen, 2020, p.58)*

The current study utilized an inductively driven approach, generating cases for qualitative exploration from the findings of a foregoing mixed methods study (Cook & Kamalodeen, 2020; Creswell & Plano Clark, 2018; Roofe-Bowen, 2007). First, a convergent parallel mixed methods core design was employed in which both quantitative and qualitative data were collected at the same time using a questionnaire. The two datasets were analysed separately and then integrated for the purpose of complementarity, that is, to elaborate upon and clarify the quantitative findings using the qualitative ones (Schoonenboom & Johnson, 2017). The insights from the integration of the quantitative and qualitative data were then used to develop two instrumental cases for comparison and in-depth analysis of the phenomenon of curriculum reform implementation in Uganda (Creswell & Plano Clark, 2018). The cases were explored qualitatively using lesson observations, post-lesson interviews with teachers, and school administrator semi-structured interviews. Figure 3.2 provides a summary of the research design adopted in this study.

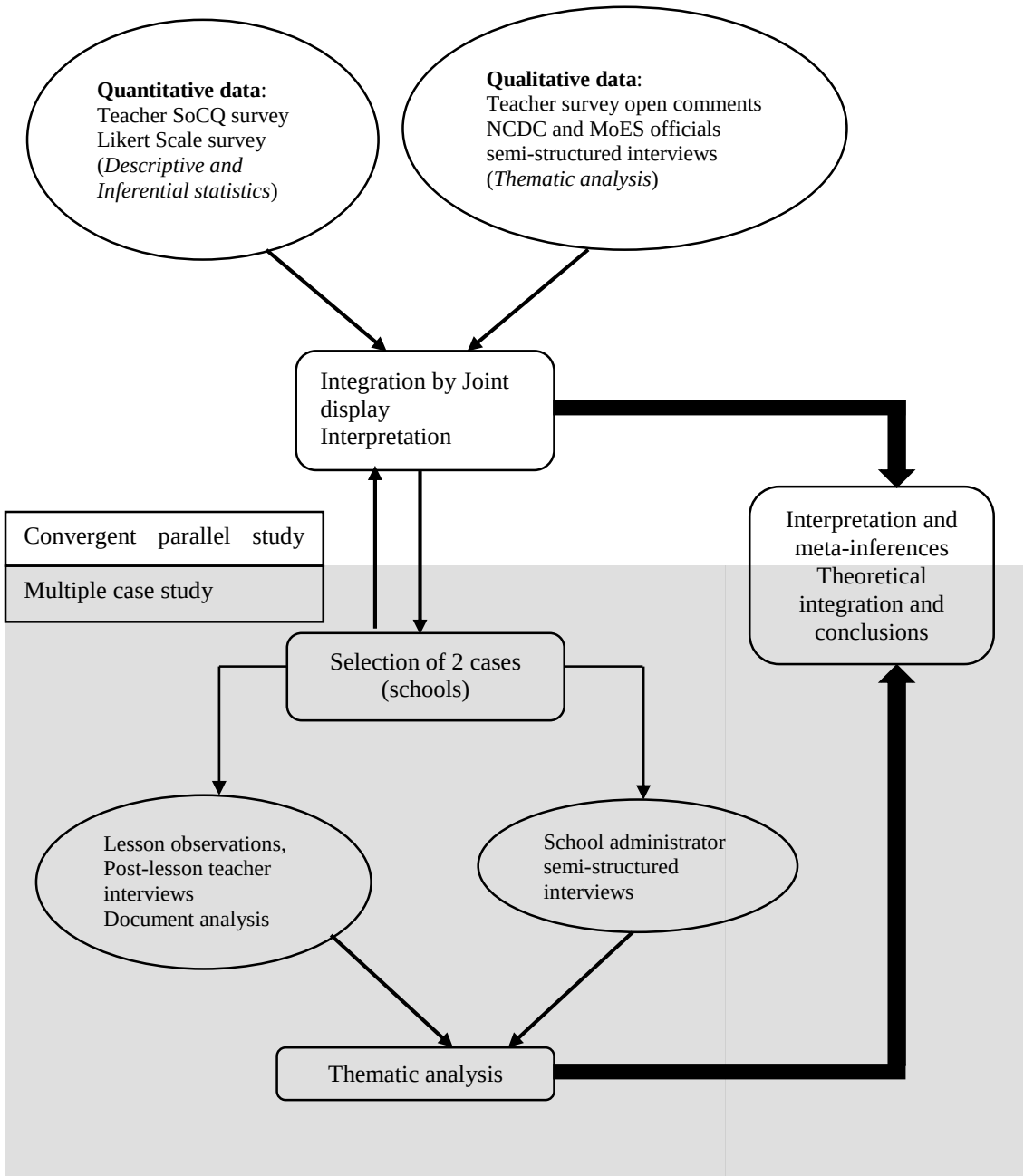


***Figure 3. 2**: The overall plan for this study (Author, 2023)*

3.5 Location of the Study

This study was conducted in the central sub-region of the Republic of Uganda in East Africa. Uganda is a fast-growing country with a population of over 42.8 million, of which at least 77.5% is 30 years old and below (Uganda Bureau of Statistics, 2022). It is therefore a country with a rich pool of human resource, which the government is keen to tap through its human capital development strategy as detailed in the third national

development plan (NDPIII) 2020/21-2024/25 and Uganda vision 2040 (National Planning Authority, 2020). Hence the LSC reform at the secondary level is a timely and strategic intervention to achieve the desired human capital development. The country is divided administratively into 146 districts with 10 sub-regions (Uganda Bureau of Statistics, 2022; UNHCR, 2020).

This study was conducted in selected government schools in the central sub-region of Uganda. This is the largest of the 10 sub-regions and is composed of 25 districts (see Appendix A: Map of Uganda showing sub-regions.). It comprises the highest population density and diversity in Uganda (Government of Uganda, 2022). Thus, this region was selected as an ideal study location as it is the most representative of the diversity of educational institutions and teachers in Uganda. This was important so as to minimize sampling errors (Cohen et al., 2018).

3.6 Target Population

As of 2019, Uganda had a total of 5,705 secondary schools, both government and private staffed with 114,859 teachers UBOS (2019) as cited in MoES Taskforce for COVID-19 (2020). The findings of this study targeted the secondary level teaching fraternity of Uganda. Uganda has two categories of secondary school teachers: grade V who are holders of a diploma in secondary education, and graduate teachers who have graduated with a Bachelor of education after a three-year university degree program (Hassan & Macha, 2020). The Education Service Commission of Uganda employs teachers to serve in government schools under the titles: “education officer” for graduate teachers, and “assistant education officer” for teachers with a grade V qualification. This study assumed that both education officers and assistant education

officers in Ugandan secondary schools were actively engaged in the curriculum reform process.

While the target population was teachers, the unit of analysis was the phenomenon of teacher concerns. Therefore, the units of observation, from whom data was collected to make conclusions about the unit of analysis (Anderson & Arsenault, 2005; Kumar, 2018) included: secondary school teachers, school administrators, master trainers of the NCDC, and officials of the MoES.

3.7 Quantitative Phase

This was the initial phase of this mixed methods case study. It comprised a survey of teachers in selected Government schools around the Central sub-region. The following section discusses the design of this phase in detail.

3.7.1 Sample Size

This mixed methods case study endeavoured to achieve statistical generalizability of findings in the quantitative phase by employing probability sampling (Onwuegbuzie & Collins, 2007). The population of 114,859 teachers was used to determine the sample size for the quantitative phase of the study.

Using a confidence level of 95% and providing for a 5% margin of error, the SurveyMonkey offered an ideal sample size of 383 (Momentive, 2022). This was in agreement with Krejcie and Morgan (1960) as cited in (Cohen et al., 2018, p. 205) who guided that the sample size often remains constant at around 384 cases as the population increases. A 95% confidence interval was selected because the nature of the phenomenon under study did not require a very high level of accuracy. This study produced categorical data, therefore a 5% margin of error was allowed (Bartlett et al, 2001, p. 45 as cited in Cohen et al., 2018).

3.7.2 Sampling Procedure

The teachers were selected using cluster sampling whereby the clusters were the schools in which they taught. Cluster random sampling was deemed ideal due to the wide geographical dispersion of government secondary schools within the central sub-region (Cohen et al., 2018). The MoES provided a list of government schools in alphabetical order of the districts in which they are located (see Appendix B). According to this list, the central sub-region has a total of 267 government secondary schools (Ministry of Education and Sports, 2019). The schools located in the central sub-region were selected and then randomized in a Microsoft excel spreadsheet to increase the probability of each school being randomly selected. 44 schools were thus randomly selected as clusters basing on the assumption that each school had at least 10 teachers on duty on any random school day. Thus, data was collected from a total of 401 secondary school teachers. A summary of the sampling procedure is illustrated in figure 3.3.

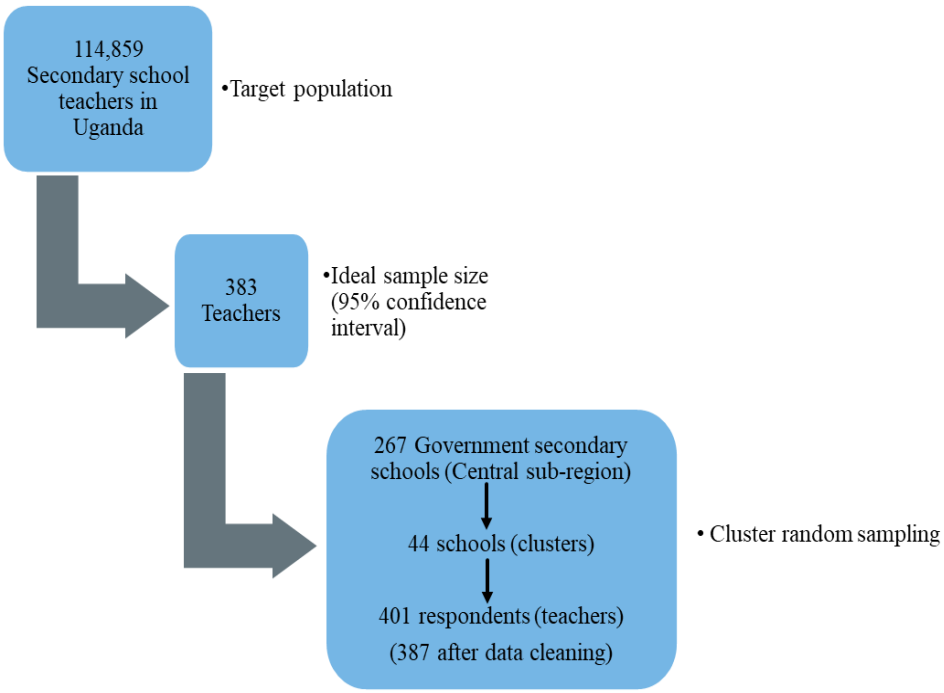


***Figure 3. 3**: A summary of the sampling procedure for this study. (Author, 2023)*

3.7.3 Research Instrument: Questionnaire

This phase of the study employed a questionnaire (Appendix E). The questionnaire comprised four sections: the demographic section, the Stages of Concerns, a four-point Likert scale, and a comment section. The demographics section, Likert scale, and comment section were designed by the researcher. Together, these provided both objective and subjective data (Leavy, 2017) that revealed the nature and intensity of teacher concerns regarding the curriculum reform process. The data was used to answer questions one and two which investigated the concerns of teachers, and their relationship with the curriculum reform strategies employed by the MoES and the quality of their implementation of the curriculum.

3.7.3.1 Demographic Section

This section interrogated five characteristics from the respondents: gender, qualification, teaching experience, subject group, and source of information about the LSC reform. Gender offered two options: male and female; qualification offered four: certificate, diploma, Bachelor's degree, and Master's degree; experience offered four: 0-5, 6-10, 11-15, and over 15 years; subject group offered three: humanities, arts, and languages; math and sciences; and business and vocational; while information source provided four options: NCDC training sessions, School administration, fellow teachers, and the internet.

3.7.3.2 Stages of Concerns Questionnaire (SoCQ)

This was adopted with permission from George et al. (2013) (see Appendix R). The current version outlines seven stages of concern about an innovation. The CBAM postulates that a user of an innovation graduates from one stage of concern to the other as the preceding concerns are dealt with (George et al., 2013). These stages are: 0-

awareness, 1- informational, 2- personal, 3-management, 4- consequence, 5- collaboration, and 6- refocusing. The SoCQ was tested for reliability, internal consistency, and validity (George et al., 2013). It was found to have strong test/retest reliability ranging from .65 to .86, and a high internal consistency with alpha ranging from .66 to .83 (Hall & Hord, 2015, p. 93). The wording of the questionnaire was not changed in order to uphold the reliability and validity of the instrument; however, the word innovation was replaced with CBC which the respondents were more likely to be familiar with (George et al, 2013).

It consisted of 35 items measured on a seven-number scale: the respondent was required to circle 0 if the item was irrelevant; 1 or 2 if the item was “not true of me now”; 3, 4, or 5 if it was “somewhat true of me now”; and 6 or 7 if it was “very true of me now”. A respondent had to circle only one number on the scale to represent his or her feeling about the CBC at the moment. The SoCQ comes with a pdf format scoring device in which each respondent’s scores on every stage of concern were recorded, totalled and percentile scores obtained (see Appendix D). The scoring device also provided for a plot of the percentile scores to present a profile of an individual or group stages of concerns. A graph was plotted to obtain the entire sample group’s stages of concerns profile.

3.7.3.3 Likert Scale

The researcher designed a 46-item Likert scale questionnaire to interrogate the seven variables under investigation as depicted in the conceptual framework (Figure 1.2). Under curriculum reform strategies the variables were: change management, teacher professional development, resourcing the curriculum, and monitoring and evaluation. Under quality of curriculum implementation, the variables were: utilisation of

instructional materials and technologies, adoption of new teaching approaches, and transformation of pedagogical assumptions and theories. The respondents scored the items on a four-point scale with 1 representing “strongly disagree”, 2 “disagree”, 3 “agree”, and 4 “strongly agree”.

The Likert scale items in the questionnaire were assessed for their reliability using IBM SPSS version 29 software. This assessed the extent to which these items provided consistent measures of the study constructs (Mohajan, 2017). Cronbach’s alpha for all 46 Likert scale items was found to be 0.924 which showed the questionnaire to be highly reliable (Cohen et al., 2018; Taber, 2018).

The relevance and clarity of the questionnaire items was established by calculating a content validity index with the help of two of the researcher’s doctoral supervisors who are experts in the field of curriculum and instruction (Appendix J). This was done to ensure that every item included in the questionnaire was sufficiently coherent and representative of the construct it was intended to measure (Rubio et al., 2003; Yusoff, 2019). Since the validity of the SoCQ, which was used to measure the domain of teacher concerns, was already established and no alterations were made to it, only section C of the questionnaire was assessed for content validity.

This part of the questionnaire comprised two main domains: curriculum reform strategies (CRS) and quality of curriculum implementation (QI). CRS measured four constructs: change management (CM), teacher professional development (TPD), resourcing the curriculum (RC), and monitoring and evaluation (ME). The domain of QI measured three constructs: utilization of materials and technologies, adoption of new teaching approaches, and transformation of pedagogical assumptions and theories. The

three experts were invited to rate the questionnaire items on two criteria: relevance and clarity as well as provide comments on each item.

The initial content validity analysis revealed a low scale-level content validity index (S-CVI) based on universal agreement of 0.6 for CRS domain and 0.56 for QI domain (Table 3.1). The questionnaire was then revised and resubmitted to the experts. The S-CVI based on proportion relevance and universal agreement were subsequently found to be at a satisfactory level of 0.9 for both domains. Thus, the questionnaire was deemed to have sufficient content validity since the S-CVI average based on proportion relevance for both domains was above the threshold of 0.8 (Polit et al., 2007; Rubio et al., 2003; Yusoff, 2019).

Table 3.1: *Summary of content validity index analysis before and after revision*

CV ANALYSIS	DOMAIN	S-CVI Average	Universal Agreement
INITIAL	CRS	0.87	0.6
	QI	0.86	0.56
AFTER REVISION	CRS	0.96	0.93
	QI	0.98	0.95

3.7.4 Pilot Study

The questionnaire was administered to a purposively selected group of Ugandan teachers from one conveniently-selected government secondary school within the study location. This school was omitted from the final study sample. These teachers were assumed to be actively implementing the LSC. On the day of the study visit, 13 teachers were found on location. Of these, 11 responded to the questionnaire and two declined, giving a response rate of 85%. This gave an indication of the possible response rate during the main study. The researcher took note of important aspects such as the length of time it took for participants to complete the survey, apparent difficulty with

understanding the wording or organization of the questionnaire, and participant perceptions about the relevance and clarity of the questionnaire.

On average, participants took between 10 to 15 minutes to complete the questionnaire, except for one or two who took about half an hour and an outlier case who took an hour. A number of participants seemed to skip over number 13 which was on the flip page; so, the format of the questionnaire was reorganized to ensure that participants clearly saw this question and easily connected it to the rest of the questionnaire. Majority of the participants perceived the language to be fairly simple and the questions relevant, but complained that the questionnaire was lengthy.

The responses of the pilot study participants were analysed to determine the reliability of the questionnaire. IBM SPSS statistics version 29 was used. Cronbach's Alpha was obtained for the 46 items in section C of the questionnaire, yielding an α value of 0.759 which was deemed good (Taber, 2018). On this strength, the questionnaire was considered ready for administration to the study sample. The comments of the pilot study participants were used to further refine the instrument. Considering the possibility of participant fatigue, the researcher resolved to personally be on hand to support and encourage participants as they filled in the questionnaire and also to clarify any issues arising.

3.7.5 Data Collection

The data in the quantitative phase was collected using a questionnaire administered to a total of 401 teachers from 44 sample schools. This data was collected between November 2022 and March 2023. Printed questionnaires were delivered, administered, and collected physically to each school by the researcher and research assistant. They were on hand to support the respondents in order to minimize errors due to

miscomprehension of scale items and also to improve the questionnaire response rate. Specifically, the researcher was on the lookout for three types of miscomprehensions as enumerated by Saunders et al. (2019) which may affect the reliability of a survey tool: instructional wherein respondents do not follow the instructions, sentinel wherein the respondents misinterpret the syntax of a question, and lexical wherein respondents ascribe a different meaning to a word than that which was intended.

The survey was administered to the teachers that were present at the selected school on the day the researchers visited. At every study visit, the researcher would meet the senior-most school administrator and present an introduction letter from Moi University (Appendix Q) along with ethical clearance documents from Uganda National Council for Science and Technology (Appendix T). In most cases, this would be the head teacher. However, in the higher socioeconomic status schools, the researcher was often directed to meet with the deputy head teacher or a lower-cadre administrator who would proceed to grant permission on behalf of the head teacher. The school administrator was asked to sign an informed consent form and append the school stamp to signal full authorisation. The school administrator would then escort the researcher to the staff room (usually around the 10 a.m. tea break or 1 p.m. lunch break) and make introductions. In some cases, the researcher was handed over to another administrator or teacher leader.

Typically, any given sample school would have on average 10 teachers present. School administrators attributed this to rotational work schedules common in Ugandan Government schools where teachers often reported to their work stations on the day they were assigned lessons to teach. Only those who had special responsibilities or duties, including the head teacher, deputy head teachers, directors of study, and

boarding school masters were present all through the week. Every sample school was visited only once.

Filling of the questionnaire was done on a voluntary basis with the researchers directly requesting teachers' participation to minimize perceptions of coercion from seniors. However, in majority of the sample schools, the researcher gained access to the staff via introduction by a school administrator ranging from head teachers and deputy head teachers to directors of study to heads of department, to teacher leaders. Once participants finished filling out the questionnaires, they were collected and labelled with a code indicating the district, school number, and participant number. This was to facilitate categorization of data during analysis.

Challenges encountered in this phase included the low numbers of teachers at some schools, with some having as few as three teachers on duty. Moreover, during cleaning of the data from the questionnaires, a large proportion was found to have substantial missing data and in one case, no data at all so they had to be omitted from the dataset. This necessitated a second field visit to fill up the deficit. Thus, the number of sample schools had to be increased from 40 to 44 to meet the required sample size of teachers. In addition, though majority of the schools allowed administration and collection of the questionnaires within the same visit, about a quarter of the schools requested that the questionnaires be collected at a later date. This was not ideal as it resulted in instances of loss of the questionnaire booklet by some teachers, fewer teachers responding, and also it was difficult to address any challenges encountered during response. It was noted that in schools that deferred collection, very few teachers responded to the open comments section at the end. The researcher navigated through these challenges by working closely with a designated school administrator.

3.7.6 Data Cleaning

Data analysis was preceded by data screening and cleaning which involved the identification and handling of errors, discrepancies, and out-of-range values in the dataset. The data from the questionnaires was first entered into an excel spreadsheet for sorting, cleaning, and coding. Range checks were done for every variable with corrections for erroneous entries. One questionnaire was found to have 100% missing data and was deleted from the dataset. 14 cases had over 10% missing values and were deleted from the dataset lest they affect the validity of the study findings (Madley-Dowd et al., 2019; Van Den Broeck et al., 2005). The rest of the missing data was determined to be missing at random and imputed using the mean values for the corresponding variable. This reduced the sample size from 401 to 387 (figure 3.3) which was above the value prescribed by SurveyMonkey and within the range prescribed by Krejcie and Morgan.

The data was then imported into IBM Statistical Packages for Social Sciences version 29 software for further analysis. It was analysed descriptively for frequencies, means, and standard deviations to reveal patterns in teacher concerns. The standard deviations of all the items in the dataset ranged from 0.680 to 1.031suggesting sufficient variance in response.

3.7.7 Data Analysis

Quantitative data analysis proceeded in three phases. First data from the SoCQ was analysed and thereafter regressed against the demographic data to assess relationships therein as theorised in the conceptual framework. Analysis of Likert scale data followed to determine the patterns of teacher concerns through their perceptions about the LSC reform process. The last step comprised in the quantitative phase involved a mediation

analysis in which the hypothesized mediating effect of teacher concerns on the relationship between curriculum reform strategies and the quality of implementation of the curriculum by the teachers was assessed.

3.7.7.1 Analysis of SoCQ and demographic data

Data from every respondent's Stages of Concerns Questionnaire was computed by summing up the raw scores for each stage using the SoC quick scoring device provided by the SEDL (George et al., 2013) (Appendix D). Wherever an item was not scored by the respondent, a score of 0 was assigned to that item. The total score for each stage of concern then calculated and the corresponding percentile score obtained from the quick scoring device. The highest stage of concern for each respondent was determined by recording the stage with the highest score. For example, if an individual scored 80%, 43%, 76%, 73%, 60%, 88%, and 84% on the stages of concern from Stage 0 to stage 6 respectively, stage 5 would be recorded as the individual's highest stage of concern since it is the highest value (88%). George et al (2013) referred to this as peak stage score interpretation of the stages of concern. Both raw scores and percentile scores for every stage were transferred to Microsoft Excel for all respondents.

Thus, the Microsoft Excel datasheet comprised: respondent number, demographic data, respondent's raw scores at each stage of concern; respondents' highest stage of concern, Likert scale scores, and the respondent's open-ended statement of concerns. As guided by George et al. (2013), only the raw scores were used in inferential analyses while percentile scores were used in descriptive analyses.

3.7.7.2 Analysis of Likert scale data

Likert scale data was analysed by obtaining means for each item as well as the overall weighted mean, percentage frequencies, and Skewness and Kurtosis. The data was

checked for common method bias, which is the likelihood of inflation or deflation of relationships between variables as a result of measuring several different variables using one method (Jordan & Troth, 2020; Min et al., 2016) as was done in this study. Using Harman's single factor test, the percentage variance was found to be 23.45% which is below the threshold of 50% (Aguirre-Urreta & Hu, 2019), hence it was determined that common method bias was not a danger in this dataset. The weighted mean was used to make decisions about the direction of teacher perceptions in the four domains: change management, teacher professional development, resourcing of the curriculum, monitoring and evaluation, and the quality of curriculum implementation. This is because there was no expectation of normality in distribution for this data, hence the decision not to use the absolute mean.

3.7.7.3 Mediation analysis

The second study objective was to investigate the mediating effect of teacher concerns on the relationship between curriculum reform strategies and the quality of implementation of the CBC. Partial least squares structural equation modelling was employed to test the mediation hypotheses. Partial least squares structural equation modelling allows the specification of relationships among latent constructs in order to attempt to make causal inferences (Hair et al., 2010, 2021). The SmartPLS version 4.0.8.5 software was employed to assess the measurement and structural models, and hence to develop a structural equation model.

The conceptual framework of this study (Figure 1.2) depicted two higher-order constructs: curriculum reform strategies (CRS) and the quality of implementation (QI). It theorized the variable of CRS as being reflected in four latent constructs (lower order constructs) hence forming a reflective-reflective model. It also theorized that the

variable QI was reflected by three lower order constructs hence also forming a reflective-reflective model. A reflective-reflective model is one in which the direction of causality is assumed to be from the latent construct to the indicators (Hair et al., 2021). Thus, the various indicators are assumed to be correlated (Sarstedt et al., 2021) and are interchangeable. On the other hand, in a formative model the direction of causality is towards the latent construct.

The measurement model was therefore assessed by first determining the reliability, construct validity, and discriminant validity of all the lower order constructs followed by the higher order constructs of CRS and QI. This was achieved using the SmartPLS version 4 software. Convergent validity can be understood as an indicator of construct validity that measures the extent to which the various items represent their respective latent constructs (Alarcón & Sánchez, 2015). The Average Variance Extracted (AVE) was assessed and for those variables whose AVE was below 0.5, factor loadings for individual items were checked and any items with loadings below 0.5 were deleted.

On the other hand, discriminant validity measures the extent to which the variables in the study are distinct from one another (Henseler et al., 2015). Three criteria were used to assess the divergent validity of the study variables: Fornell and Larcker criterion, cross loadings, and heterotrait monotrait (HTMT) ratios. The variables were considered to have satisfied the Fornell and Larcker criterion once the square root of AVE for each construct was greater than the values of its correlation with all other constructs (Alarcón & Sánchez, 2015; Henseler et al., 2015). The researcher also checked to ensure that no item loaded higher on other variables than on its parent variable. Any items that measured high on other variables apart from their parent constructs with a difference of

0.1 or less were flagged for possible deletion. Finally, any items with HTMT ratios above 0.85 were considered for deletion (Henseler et al., 2015).

The process was repeated for the higher-order constructs CRS and QI since they followed a reflective-reflective model. The results of these assessments are reported in chapter four. Finally, the structural model was assessed to test the hypothesis that TC mediated the relationship between CRS and QI. The inner model was assessed by evaluating the path coefficients, total, direct, and specific indirect effects. Hence the structural model was proposed. This is also reported in chapter 4.

3.8 Qualitative Phase

Two sets of qualitative data were gathered; the first concurrently with quantitative data within the questionnaire in a convergent parallel design (Fetters et al., 2013) and the second dataset was gathered shortly after the survey phase with selected trainers from the NCDC and officials from the MoES. This data was gathered to offer deeper insights on the quantitative findings through comparison, elaboration, and triangulation. The details of how this was achieved are expounded in the following sections.

3.8.1 Sample

The first set of qualitative data was obtained from the teachers in the survey group. All 387 respondents were given the opportunity to offer an open comment at the end of the questionnaire, expressing their concerns regarding the implementation of the LSC reform (Cohen et al., 2018; Saunders et al., 2019). Complementary qualitative data was also gathered from two categories of change facilitators to inform the aspect of curriculum reform strategies: NCDC master trainers and MoES officials. Due to their proximity to both the policy development and implementation processes, these participants were considered key informants.

NCDC master trainers were those individuals, typically secondary school teachers themselves, tasked by the NCDC to train Ugandan teachers in the implementation of the LSC. According to Museveni (2020) 1600 of these master trainers were trained and commissioned to prepare teachers for the LSC implementation starting January 2020. These individuals were deemed key informants due to their direct interaction with secondary school teachers countrywide over the past three years. They were selected purposively according to their availability and willingness to participate in their interviews. Every trainer was approached purposively on a reputational basis and the sample size of five was settled once the researcher perceived that data salience had been achieved. Data salience is achieved when the researcher perceives that the most important themes and concepts have been established, typically through in-depth interviews with small samples as was done in this study (Hanson-Easey & Augoustinos, 2017; Weller et al., 2018)

All participants from the MoES were also selected on reputational basis. These were high-level officials at the level of commissioner or assistant commissioner of secondary education. They were all domiciled at the Ministry of Education and Sports headquarters in Kampala and hence all interviews were conducted there. Interviews were conducted with those officials who were directly involved with the LSC reform and held responsibility over some aspect of secondary education and hence had interacted with various stakeholders. A sample size of five was planned but after four interviews, data salience was perceived to be achieved.

3.8.2 Data Gathering

An open-ended comment section was included at the tail end of the questionnaire used for the survey. This final section was included to allow the respondents to express their

perceptions of the LSC implementation process (Cohen et al., 2018; Saunders et al., 2019). It was based on the second of three techniques for assessing concerns proposed by Hall and Hord (2015) wherein they suggested that change implementers should be invited to write a brief description of their concerns about the innovation in question. Respondents were presented with the question: "In the space below, please make a comment on your experience with implementing the CBC so far OR comment on any of the issues mentioned above". A space was provided for free pose with the liberty to use extra paper. This section thus allowed a concurrent collection of qualitative data from the respondents.

The five purposively-selected NCDC master trainers and four MoES officials were taken through semi-structured interviews. The interview tool shown in Appendix H.

3.8.3 Data Analysis

The teachers' open-ended statements were analysed using reflective thematic analysis. Reflexive thematic analysis is a method which allows for a theory-driven analysis of qualitative data in six basic steps: familiarisation; coding; generation of initial themes; review and development of themes; refining, definition and naming of themes; and finally, write-up (Braun & Clarke, 2021). Therefore, analysis of the data was driven by the CBAM stages of concern and how the expressed concerns of the teacher fit into these seven stages. The stages of concern were consequently used as ultimate themes into which the various codes and categories derived from the data were fitted; hence the approach to thematic analysis was deductive (Byrne, 2022). The choice of reflexive thematic analysis was guided by the need to analyse and interpret the teachers' expressed perceptions and experiences of the implementation process while cautiously

taking into the account how the researcher's own experience and understandings as a teacher and school administrator influenced her interpretation of the data (Byrne, 2022).

The coding and development of themes was done within the QDA Miner Lite v. 3.0 then exported to Microsoft Excel for generation of tables and figures. Analysis and interpretation were focused on the various expressions of concern in the seven stages as delineated by the CBAM. This provided insight into how various curriculum reform strategies influenced the development of teacher concerns and ultimately affected the teachers' implementation of the curriculum.

Data gathered from the school administrators, NCDC master trainers, and MoES officials was also analysed using Braun and Clarke's six phases of thematic analysis (Braun & Clarke, 2022). However, this time an open-coding approach was adopted such that themes were developed inductively (Byrne, 2022). This was approach was taken for two reasons: first, it was important to understand the perspective of these curriculum reform leaders outside of a theoretical fit hence it would be used to enrich the data already collected from teachers. Secondly, this group of participants was not limited to expression of concerns but were allowed to respond to a wide variety of issues that did not necessarily fit into the CBAM SoC framework.

3.9 Multiple Case Study

Contextual factors are a key ingredient in understanding and leveraging of teacher concerns in curriculum reforms (Fullan, 2015; Hall & Hord, 2015). Thus, a multiple case study was deemed necessary to further explore the implementation of the curriculum within two different resource systems. Responses from teachers and change facilitators in the qualitative portion of this study revealed differences in

implementation conditions between two school categories: universal secondary education (USE) and non-USE schools.

The Universal Secondary Education (USE) policy was instituted in 2007 to expand access to secondary school education for the Ugandans of the lower socioeconomic echelons (Ministry of Education and Sports, 2008a). This followed the successful implementation of the Universal Primary Education (UPE) policy in 1997 that saw the primary school gross enrolment rate grow to 111% by 2017 (World Bank Group, 2019). The Education Act Uganda (2008) thus outlined four categories of Government aided secondary schools: USE schools, non-USE schools, seed secondary schools, and community schools. The Uganda 2017 Education abstract published that, of the 1,019 Government schools in Uganda, 89.9% were USE schools while 10.1% were non-USE schools (Ministry of Education and Sports, 2017). Thus, government USE schools vastly outnumber government non-USE schools nationally. In this study, the seed secondary schools and community schools were considered as USE schools since they operate under the same principles and funding structures as the latter.

Whereas both USE and non-USE schools are categorised as government schools, USE schools cooperate with the Government to implement the Universal Secondary Education Program hence do not charge school fees and fully rely on the Government for capitation, instructional resources, and teacher allocation. Non-USE schools on the other hand charge school fees and are fully autonomous in a financial sense (Huylebroeck & Kristof, 2014; Initiative for Social and Economic Rights, 2022; Masuda & Yamauchi, 2018).

In all school types, the government is responsible for key functions including: capitation, provision of instructional resources, and deployment of school

administrators and teachers. However, USE schools cooperate with the Government to implement the Universal Secondary Education program. This means that, in order to facilitate access by learners from lower socio-economic backgrounds, they can only charge a maximum school fee of Ush. 75,000 (USD 19.93 based on the exchange rate: 1USD at Ush. 3,753) per child per term (Masuda & Yamauchi, 2018). Moreover, they are obligated to implement the automatic promotion policy to curb drop-out rates among learners (Akyeampong et al., 2018; Muhangi, 2019). Non-USE schools, on the other hand, charge relatively higher school fees and are more autonomous in a financial sense (Huylebroeck & Kristof, 2014; Initiative for Social and Economic Rights, 2022; Masuda & Yamauchi, 2018).

In agreement with Masuda and Yamauchi (2018), the Uganda Right to Education 2022 factsheet (Initiative for Social and Economic Rights, 2022) highlighted that the introduction of the USE program has adversely affected quality of education in implementing secondary schools in terms of learning environments and human resource. USE has also been associated with increased moonlighting among teachers and hence poor service delivery (Huylebroeck & Kristof, 2014; Molyneaux, 2011), factors which have potential to greatly undermine the LSC reform.

Armed with this scholarship which was buttressed by field observations, the researcher sought to expand the inquiry by exploring the implementation conditions and practices in these two different contexts which are typical of majority of the secondary schools in Uganda. The researcher therefore selected two instrumental cases: one USE and one non-USE school. This was with the end-goal of gaining insights about the LSC implementation process in other USE and non-USE schools with similar contexts

(Cohen et al., 2018; Johnson & Christensen, 2020; Yin, 2016) and hence advance a practical model for the implementation process.

3.9.1 Sample

The units of analysis in this phase of the study were two schools within the two socio-economic categories represented by USE and non-USE schools. Thus, each school was purposively selected from the study clusters. The units of observation within each case study school were: teachers, school administrators, learners, and the school itself. The first school, a USE school was given the pseudo name M Secondary School (MSS) and the second, a non-USE school was pseudo-named N Secondary School (NSS). MSS and NSS share a few characteristics including: they are both Moslem-founded Government schools located within the Central sub-region of Uganda. Both schools have been in existence for well over four decades; NSS since 1954 and MSS since 1982.

MSS is a rural school that is patronised by children of peasant farmers and traditional artisans within the area. Its student population ranges from 700 to 800, 450 of whom are funded by the government in terms of school fees and instructional materials. The government offers USh 55,000 (USD 14.62) and Ushs 85,000 (USD 22.59) per child for ‘O’ and ‘A’ level learners respectively on a termly basis. In 2023, its teacher enrolment was 42 with 27 on government payroll and 15 private teachers paid through contributions from the parents. As a USE school, MSS relies on the government for termly capitation, instructional materials, and teacher allocation. It cooperates with parents to offer meals for learners. As such, MSS charges a termly fee of Ushs 120,000 (USD 31.90) for day scholars and 450,000 (USD 119.61) for learners on the boarding section to cater for their meals and other needs.

Apart from the Advanced ('A') level classes which typically have less than 30 learners per class, the Ordinary ('O') level classes often comprise two streams each with 70 to 100 learners in each stream. The school's infrastructure is minimal with few classrooms, small laboratories and a minimally-stocked library. The school has a handful of desktop computers for use by the entire school (Figure 3.3: The ICT lab at MSS showing all the working computers that serve the entire school population (both O and A-level learners and their teachers). (Field, 2023)), and as a result, Information, Communication and Technology (ICT) lessons are only offered to students in 'A' level. There is one smart television, however which is shared by the teachers for audio-visual lessons. According to the director of studies, only three staff members owned laptop computers. At the time of the study visit, the school had been connected to the national electric grid only the previous term and had been using a generator for its electric needs.

Figure 3. 4*: The ICT lab at MSS showing all the working computers that serve the entire school population (both O and A-level learners and their teachers). (Field, 2023)*

NSS is located in an urban area within Kampala, the capital city. Its student patronage consists of children from the middle and upper socio-economic class as well as children who are on scholarship from corporate entities. Its student population is about 1,700 so

each class in ‘O’ level is split into four or five streams with 70 to 90 learners each. Its teacher enrolment is 105, all on government payroll. On top of the government salary, teachers at NSS enjoy a monthly payment from the Parents-Teachers Association (PTA) along with other duty allowances. Many of them also enjoy accommodation on the school grounds.

Students at NSS pay termly fees ranging between USh. two to three million (USD 532 to 797 at an exchange rate of USD 3,762 to 1Ush). The school boasts good infrastructure including storeyed classroom blocks, sufficient computers, spacious laboratories, and a two-storey well-stocked library (Figure 3.6). The school has wi-fi connection to allow teachers and learners access the internet on the school grounds. NSS also has a policy allowing students to bring their personal laptop computers to school so there is a computer for every five students in addition to the school computers (Figure 4.8). Teachers are also supported to own a computer on hire-purchase basis so nearly every teacher has a computer. The classrooms, too are well fitted with electrical sockets to allow plugging in of technological devices (Figure 3.4).

Figure 3. 5: *A classroom at NSS showing a conducive learning environment for LSC with whiteboards, safe sockets for electric connections, good illumination and aeration, and multiple softboards for display of learners' work. (Field, 2023)*

Figure 3. 6: *A classroom at MSS designated for use by the incoming Senior 1 class showing good lighting and aeration but little facilitation for implementation including electrical connections and space for displaying learners' work.*

Figure 3. 7: *A section of the library at NSS showing conducive space for learners to conduct their research from. (Field, 2023)*

3.9.2 Data Gathering

Data gathering in each school proceeded in three stages: semi-structured interviews with two school administrators, observation of five lessons in different subjects, post-lesson semi-structured interviews with the teachers. Lessons were observed in the Senior two class which was in their second year of the LSC hence both learners and teachers were assumed to be familiar with the dynamics of the curriculum. A lesson was selected to represent each subject group. For example, in NSS, the German lesson was selected to represent the languages group, Math for the sciences, Geography for the humanities, and physical education (PE) for the vocational subjects. This was done to provide as holistic a picture as possible of the implementation process. It must be noted, however, that lessons for observation were selected at the convenience of both teacher and researcher as long as they represented a subject group. All lessons were eighty minutes long and were observed from the beginning to the end.

A brief unstructured interview was conducted with the teacher immediately after the lesson. This probed their assessment of the lesson, matters of concern, and the kind of support they would have desired from their supervisors. These teachers were then requested to share a sample of their lesson plans and schemes of work for analysis. At each case school, two school administrators were requested for interviews. Thus, at MSS, the deputy head teacher in charge of academics and the director of studies were interviewed, while at NSS, the dean of lower school (in charge of senior one, two, and three) and the head of science department were interviewed. Administrators were also requested for the following documents: learner assessment records and teacher supervision records.

3.9.3 Data Analysis

Since data in the multiple case study phase was primarily qualitative in nature, in the form of text, and audio, it was analysed using Braun and Clarke's six steps of reflexive thematic analysis. First, the researcher transcribed all the audio data and familiarized herself thoroughly with it. Then codes were extracted from the transcribed data after which themes were generated, reviewed, and refined from the codes. Finally, a write-up was developed which brought together the themes to reveal meaning behind the data and connect this to literature (Braun & Clarke, 2022).

During lesson observations, a checklist was used (Appendix F) in which particular aspects of the implementation were scored on a scale of 0 (not evident), 1 (fairly evident), to 2 (evident). Analysis then proceeded with an inference statement regarding the overall execution of that aspect of the curriculum by the teachers in each school. The aspects under observation were drawn from the LSC implementation guidelines published by the NCDC. Finally, lesson plans and schemes of work from the teachers

were assessed for clarity, alignment with the NCDC recommended template, and completeness.

3.10 Credibility and Transferability in the Qualitative and Multiple Case Study Phases

Yin (2016) sustained that a qualitative researcher ought to be preoccupied with the credibility of their studies, whereby data is collected in such a manner that the findings and conclusion thereof must be a genuine representation of the participants' reality. The concept of validity in qualitative studies emerges and is associated with criteria such as trustworthiness, authenticity, and reflexivity (Collins, 2015). Therefore, validity in the qualitative phase was maintained in line with Maxwell's three categories of validity (Collins, 2015): descriptive during reporting and transcription, interpretive during coding and theme development, and theoretical during interpretation of themes as explained below.

First, member checking was conducted during the interviews to ensure the authenticity of data gathered. Rigorous audit trails were maintained all though data collection. The use of multiple cases also allowed the researcher to unearth discrepant evidence and to compare results across the different socio-economic groups and settings. Additionally, the augmentation of interview data with classroom observations and document analysis allowed for triangulation of evidence so as to provide convincing conclusions. The researcher also exercised reflexivity by engaging in debriefing with her supervisors and also doing continuous self-reflection to minimize researcher bias. Finally, transferability of the study findings was enhanced by offering a thick description of the research design and the contexts of the two cases as well as ensuring that the

participants involved in the study were truly representative of the theoretical population (Given, 2008).

3.11 Integration of Quantitative and Qualitative Data

The quantitative and qualitative data from the two phases of this study (the convergent parallel mixed methods and the multiple case study) were integrated through both narrative description and joint display analysis. Integration was conducted at both the interpretation and reporting levels (Fetters et al., 2013; Skamagki et al., 2022). A joint display was used following the contiguous presentation of both datasets and findings. Joint display involves the juxtaposition of quantitative and qualitative data in forms such as tables and figures to facilitate the development of meta-inferences (Fetters & Tajima, 2022; Guetterman et al., 2021). Specifically, the areas of convergence of the data: where there was agreement between quantitative and qualitative data; and divergence: where there was no agreement between the two datasets were highlighted (Skamagki et al., 2022). Areas where the qualitative data expanded upon the quantitative data were also highlighted. Finally, the meta-inferences from integration of all the datasets were made.

3.12 Ethical Considerations

Since this study dealt exclusively with human subjects, several ethical considerations were taken especially in the data collection phases of the study. Before venturing into the field, all prerequisite permissions were sought from the Department of Educational Management and Policy Studies of Moi University. Secondly, approval for the research study was obtained from the Uganda Christian University Research Ethics Committee (see Appendix S).

Finally, a permit to conduct research in Uganda was acquired from the Uganda National Council for Science and Technology (UNCST). The study was thus licensed under the reference number SS1541ES (see Appendix T). At the various study sites, permission to access the site and the study participants, as well as to conduct the various aspects of the study was obtained from the heads of school.

Every participant was requested to provide documented informed consent to participate in the study (Appendix U). Additionally, before any audio or video recordings were made, permission was sought from the participants. Confidentiality and anonymity of all research participants was maintained at all times during the study. Any identifiable faces in photographs were blurred and names on documents blotted out to enhance anonymity of participants. Where it was necessary to identify participants for purposes of data analysis, codes were used in lieu of school and individual names. The researcher laboured to explain the purpose, context, and bounds of the research before each interaction with study participants to ensure that they were fully knowledgeable. Finally, participants were given the liberty to withdraw from the study or opt out at any point.

3.13 Chapter Summary

The foregoing chapter laid out the research design and methodology that was adopted in this study. The researcher's positionality as a Ugandan education practitioner and educational researcher was explained. The pragmatic worldview of the study was also explicated, showing how the study embraced both a post-positivist and a constructivist worldview of the concerns of teachers in their implementation of the Uganda LSC reform. The study adopted a mixed methods case study research design in which an initial convergent parallel study was followed up by a multiple case study to

contextualize and enhance understanding of both the quantitative results and the qualitative findings. Steps taken to ensure scientific rigor in both study phases were also discussed. Finally, the ethical considerations that were undertaken throughout the study were explained. In the following chapter, the datasets from all study phases are presented and interpreted then discussed.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, INTERPRETATION, AND DISCUSSION OF FINDINGS

4.1 Introduction

The purpose of this study was to determine the role of teacher concerns in the Uganda LSC reform process by investigating the relationships between the strategies of curriculum reform, the concerns of teachers implementing the reform, and the quality of curriculum implementation, and hence to explore ways in which change facilitators can leverage teacher concerns for successful reform. In this chapter therefore, the findings are presented in order of the study objectives. First, an analysis of the teachers' concerns is presented; both quantitative and qualitative. Then the results of the mediation study which examined the relationships between curriculum reform strategies, teacher concerns, and implementation quality are presented. Next, the perceptions of the national and school-level change facilitators are explored. The foregoing quantitative and qualitative findings are further elaborated through a contextual analysis of implementation through a multiple case study. Finally, all the results are integrated through a joint display analysis. The chapter concludes with a discussion of these findings guided by the four research questions.

4.2 Analysis of Teacher Concerns

This phase of the study addressed the research questions:

RQ1a: What are the patterns of concern of Ugandan secondary school teachers in the implementation of the LSC reform?

RQ1b: What are the expressed concerns of teachers implementing the Uganda lower secondary curriculum reform?

4.2.1 Patterns of teacher concerns

Data was collected using a questionnaire consisting of a demographic section, the CBAM Stages of Concerns Questionnaire, and a Likert scale. A total of 401 secondary school teachers from 44 randomly-selected schools within the Central sub-region of Uganda responded to the questionnaire (Appendix E). After data entry and cleaning, 387 cases remained for analysis. Below is their demographic profile.

Table 4. 1*: Demographic characteristics of respondents.*

		Count	%
Gender	Male	232	59.95%
	Female	155	40.05%
Qual	Certificate	3	0.78%
	Diploma	43	11.11%
	Bachelors	281	72.61%
	Masters	60	15.50%
Exp	0 to 5 years	76	19.64%
	6 to 10 years	93	24.03%
	11 to 15 years	112	28.94%
	Over 15 years	106	27.39%
Subject Group	Humanities, Business, and Languages	157	40.57%
	Math and Science	141	36.43%
	Vocational and Arts	89	23.00%
Information source	NCDC trainings	303	78.29%
	School Administrators	30	7.75%
	Fellow teachers	49	12.66%
	Internet	5	1.29%

Source: Primary Data, 2023

This demographic profile is typical of the Ugandan secondary school teaching fraternity, as well as many sub-Saharan countries, whereby males often outnumber females in the teaching profession (Ministry of Education and Sports, 2017; Sajitha et al., 2018) . The number of teachers with a certificate was very small at 0.8% (n=3) as the minimum qualification for a secondary school teacher in Uganda is a Diploma in Secondary Education (Uganda Bureau of Statistics, 2017). The years of experience in

the teaching profession as well as the subject groups taught were fairly evenly distributed as shown in Table 4.1 This was important for obtaining a representative interpretation and conclusion from the findings. 78.3% (n=303) of teachers revealed that the NCDC training was their major source of information about the LSC, implying that majority of the teachers got their information directly from the NCDC.

4.2.1.1 Results from the Stages of Concerns Questionnaire

The patterns of teacher concern were analysed using the CBAM SoCQ. The raw scores were calculated for each stage of concern and percentile scores were obtained as shown in the sample in Figure 4.1.

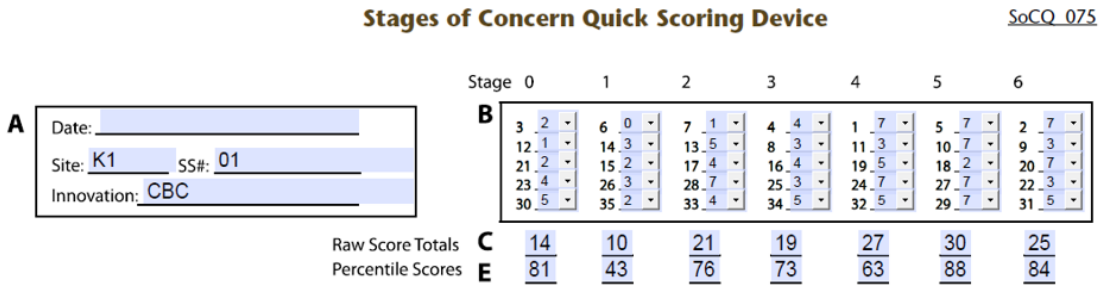


Figure 4. 1: *A sample score sheet for a participant showing SoCQ item scores, raw score totals, and percentile scores for every stage of concern. (Source: Primary Data, 2023)*

The raw scores per stage of concern for the whole sample group were then averaged to obtain the mean raw scores. The percentile scores for the mean raw score totals at every stage of concern are shown in Table 4.2.

Table 4. 2*: The mean raw scores and corresponding percentile score of the group stages of concern.*

	MEAN RAW SCORE	PERCENTILE SCORE (%)
Unconcerned	14	81
Informational	22	80
Personal	24	83
Management	20	77
Consequences	26	59
Collaboration	25	68
Refocusing	22	73

(Source: Primary Data, 2023)

This produced the group profile shown in the line graph in Figure 4.2.

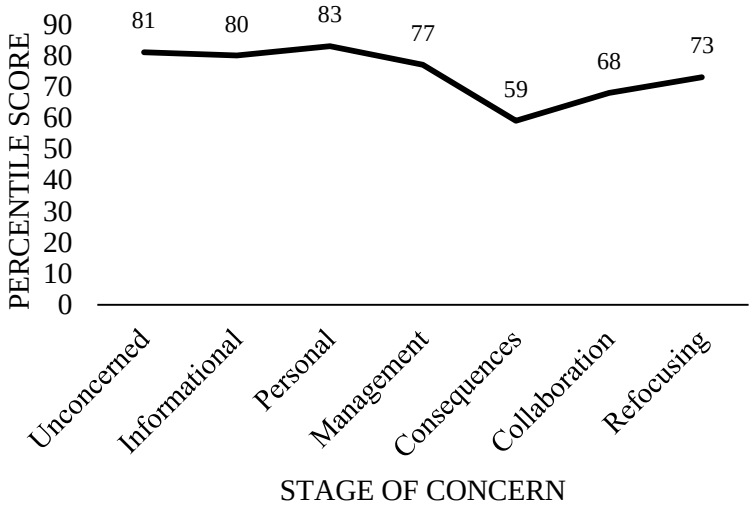


Figure 4. 2: *Group concerns profile showing the trend of teacher concerns as per the SoCQ (Source: Primary Data, 2023)*

This graph (Figure 4.2) depicts a typical non-user group profile with the highest concerns at the personal (83%), unconcerned (81%), and informational (80%) stages. According to Hall & Hord (2015), these are the Self stage concerns at which the change implementer, in this case, the teacher, shows low levels of interest in or engagement with the innovation. The results show that the teachers were most concerned about how the LSC might impact them individually for instance in terms of workload, remuneration, or even career progression. The teachers also seemed more interested in other matters besides the LSC reform as indicated by the high score on the unconcerned stage. The third highest score at the informational stage of concern was an indication that a good number still felt the need to learn more about the curriculum despite numerous trainings that had been conducted by the NCDC since its inception.

The results revealed that task concerns were the next highest group of concerns for the study participants at 77%. The task concerns are housed in the management stage, where teachers are intensely concerned about how to manage the curriculum in terms of physical resources, time management, coordination of tasks, and general knowledge

and skills demanded by the LSC. The participants scored relatively low at the consequence, collaboration, and refocusing stages of concern at 59%, 68%, and 73% respectively. Theoretically, these are the highest group of concerns that a teacher can manifest and are hence named impact concerns. This means that participants had little preoccupation with the impact of the curriculum on the learners. They also had little concern about working with colleagues to navigate the implementation of the curriculum. The tailing up of the refocusing concerns was an issue because, coupled with the high personal concerns of this sample group, this was an indication of a level of resistance towards the LSC reform.

4.2.1.2 Interaction of teacher demographic characteristics and teacher concerns

The conceptual framework of this study postulated that teacher concerns may be influenced to an extent by their demographic characteristics, specifically: gender; length of teaching experience; qualification level; and subject group taught. Analysis of correlations between the demographic variables and the highest stage of concern for each respondent (as determined by the highest percentile score on the SoCQ questionnaire) revealed that overall, teacher qualification and subject group were significantly correlated to their highest concerns as shown in Table 4.3.

Table 4. 3: *Correlation between teacher's highest concern and their demographic characteristics.*

	Gender		Qual		Experience		Subject Group	
	Pearson Correlation	Sig.	Pearson Correlation	Sig.	Pearson Correlation	Sig.	Pearson Correlation	Sig.
Highest teacher concern (HC)	-0.037	0.466	-.131**	0.010	0.000	0.993	-.117*	0.022

Note: ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

Gender and experience level were not significantly correlated to the highest concerns. This implied that both male and female teachers responded to the curriculum in a similar pattern. It also indicated that all teachers had similar responses to the LSC regardless of the length of their tenure in the teaching profession. Therefore, qualification level and subject group were the two most important demographic factors in understanding variations in teacher concerns in their implementation of the LSC.

The mean raw score for the group at every stage of concern was compared across different demographic groups using analysis of variance (ANOVA) in IBM SPSS version 29. It was found that with qualification level, differences in teacher concerns were significant at the unconcerned ($p< .001$), informational ($p= .009$), personal ($p= .005$), consequence ($p= .003$), and collaboration ($p= .002$) stages. Teachers with Bachelors and Masters qualifications had more intense concerns at the unconcerned stage compared to diploma and certificate teachers. This was an indication of disinterest in or preoccupation with other issues besides the curriculum by the two former groups. Teachers with diploma were found to have the most intense informational ($M=4.89$), personal ($M=5.01$), consequence ($M=5.49$), and collaboration ($M=5.54$) concerns, in each case followed by Bachelors' degree holders. This revealed that diploma-level teachers seemed to have the highest and most positive involvement with the new curriculum while teachers who had Masters' level training had the least involvement with the curriculum. Teachers with a certificate qualification were not considered in this comparison as they were very few ($n=3$).

Within the three subject groups, differences in teacher concerns were significant at the unconcerned ($p<.001$), consequence ($p=.01$), and collaboration ($p<.001$) stages. Specifically, teachers of the vocational and art subjects had the most intense concerns

at the unconcerned stage (M=3.36), followed by the math and science subject teachers (M=3.04), and then the humanities, business, and languages teachers (M=2.50). This was an indication that the teachers of humanities, business, and languages were the most devoted to the LSC.

At the consequence stage, which is in the impact category of concerns, the teachers of humanities, business, and languages (M=5.41) had the most intense concerns, followed by those of math and science (M=5.17), and the least concerned here were the vocational and arts teachers (M=4.95). This implied that, in comparison to their colleagues, the teachers of the vocational and arts subjects were the least interested in the impact of the curriculum on the learning of their students.

This pattern was repeated at the collaboration stage with humanities, business, and languages (M=5.28) showing the most intense collaboration concerns, followed by the math and sciences (M=5.07), and finally, the vocational and arts (M=4.61). So, teachers of humanities, business, and languages were most interested in working with other teachers to improve their implementation of the LSC. Overall, the pattern showed that teachers of vocational and arts subjects had more intense lower-level (self) concerns while teachers of humanities, business, and languages had more intense higher-level (impact) concerns, an indication of greater readiness on the part of the latter to implement the LSC. Table 4.4 shows descriptive statistics of the teachers' stages of concern with reference to the selected demographic variables.

Table 4. 4: *Descriptive statistics for the teacher concerns in the four demographic groups.*

	Stages of Concerns													
	Unconcerned		Informational		Personal		Management		Consequence		Collaboration		Refocusing	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender														
Male (n=232)	2.76	1.52	4.31	1.31	4.62	1.46	3.87	1.40	5.16	1.17	5.00	1.38	4.36	1.24
Female (n=155)	3.10	1.79	4.57	1.47	4.86	1.38	4.08	1.49	5.30	1.17	5.12	1.26	4.62	1.24
Qualification														
Certificate (n=3)	2.47	2.19	3.20	2.75	3.00	2.51	3.00	2.75	3.07	2.34	3.53	2.89	3.13	2.54
Diploma (n=43)	1.89	1.30	4.89	1.07	5.01	1.40	4.06	1.50	5.49	1.13	5.54	1.08	4.40	1.07
Bachelors (n=281)	2.96	1.63	4.43	1.36	4.79	1.41	3.94	1.44	5.23	1.17	5.07	1.28	4.49	1.28
Masters (n=60)	3.35	1.60	4.06	1.53	4.27	1.39	4.00	1.36	5.03	1.06	4.66	1.53	4.46	1.10
Experience														
0 to 5 years (n=76)	2.29	1.43	4.58	1.40	4.98	1.47	3.66	1.53	5.13	1.32	5.25	1.37	4.44	1.39
6 to 10 years (n=93)	3.22	1.58	4.12	1.32	4.52	1.34	4.05	1.24	5.15	1.14	4.90	1.32	4.44	1.05
11 to 15 years (n=112)	3.35	1.71	4.51	1.38	4.89	1.32	4.19	1.42	5.33	1.12	4.95	1.34	4.59	1.26
Over 15 years (n=106)	2.57	1.56	4.46	1.42	4.52	1.56	3.85	1.52	5.22	1.16	5.13	1.30	4.36	1.28
Subject Group														
Humanities, Business, and Languages (n=157)	2.50	1.67	4.51	1.37	4.81	1.46	3.86	1.52	5.41	1.19	5.28	1.24	4.41	1.32
Math and Science (n=141)	3.04	1.60	4.37	1.46	4.74	1.46	4.05	1.43	5.17	1.19	5.07	1.41	4.57	1.20
Vocational and Arts (n=89)	3.36	1.50	4.32	1.28	4.53	1.32	3.98	1.31	4.95	1.07	4.61	1.27	4.39	1.16

Note: N=387. Mean values were obtained by dividing the total raw score at every stage of concern by five which is the number of statements assigned to each stage of concern in the SoCQ.

Finally, multiple linear regression was conducted to test the hypothesis that the gender, qualification level, length of teaching experience, and teaching subject group have predictive power over their highest stage of concern in implementation of the LSC as measured by the CBAM SoCQ. Since the demographic variables were nominal and categorical, they were first converted into dummy variables to facilitate regression analysis in IBM SPSS v. 29. A summary of the regression analysis is shown in Table 4.5.

Results showed that the effect of the demographic variables on teacher concerns was significant. However, only 5.0% of the variance in a teacher's highest concerns was explained by the four demographic characteristics collectively (F (9,377) =3.278, p<.001). This implied that the demographic profile of a teacher only explained a small portion of their concerns in the implementation of the LSC. Thus, other factors including curriculum reform strategies could have more predictive power over teacher concerns and hence impact the quality of their implementation of the LSC.

Table 4. 5: *Results of multiple linear regression analysis for the predictors: gender, qualification level, experience, and subject group on the outcome variable: highest teacher concerns.*

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change statistics				
					R^2 change	F change	df1	df2	Sig. F change
1	.269	0.073	0.050	2.076	0.073	3.278	9	377	<.001

Note: p < .05; Predictors: (Constant), Gender=Female, SubjGp=Math and Science, SubjGp=Humanities, Business, and Languages, Exp=11 to 15 years, Exp=0 to 5 years, Exp=6 to 10 years, Qual=Diploma, Qual=Certificate, Qual=Bachelors.

4.2.1.3 Results from the Likert Scale

An exploratory factor analysis (EFA) was performed on the Likert scale data to determine the underlying factors in the data and hence reduce dimensionality before

descriptive and inferential analysis (Cohen et al., 2018; Finch, 2013). The 46 study indicators were analysed through principal components analysis with Varimax rotation and Kaiser normalization for orthogonal factors. Eigen values greater than or equal to 1 were extracted, suppressing items with factor loadings less than 0.50.

The component matrix showed five items that did not load significantly onto their parent factors: CM4 (I agree with the rationale behind the CBC with its different teaching and assessment methods); CM5 (In my opinion, there has been sufficient consultation with the relevant stakeholders concerning the CBC); CM6 (The learners have received adequate guidance and counselling about the CBC); and TPD7 (At least once a month, I have opportunity to participate in continuous professional development sessions geared towards my implementation of the CBC). These were deleted and the EFA repeated. All remaining items were found to load well onto their parent constructs and were named. Analysis of Cronbach's Alpha of the remaining items revealed that all items had alpha values above 0.6. Thus, all items on the scale were internally consistent (Cohen et al., 2018; Taber, 2018).

The second EFA showed a Kaiser-Meyer-Olkin measure of sampling adequacy of 0.872 which was meritorious and a significant Bartlett's test of sphericity, x^2(n=861) =7144.633 (p <.001), an indication that the data was suitable for factor analysis (Gie Yong & Pearce, 2013). The process yielded ten factors accounting for 62.71% of the cumulative variance. These factors were named and their loadings are shown in Appendix M.

The teachers' perceptions about six domains of their implementation of the Uganda LSC: change management, teacher professional development, resourcing of the curriculum, monitoring and evaluation, individualized teacher support, and the quality

of their implementation were determined using a Likert scale. The results for each domain showing only the factors that were retained after EFA are presented and discussed below. The five sub-domains of quality of implementation are presented together.

Change Management. Change management was the first of curriculum reform strategies that interrogated teachers' perceptions of how well the change facilitators of the LSC had handled the reform process. The findings are shown in Table 4.6.

Table 4. 6: *Teacher perceptions about the change management actions of LSC change facilitators*

	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Std. Deviation	Decision
	Count: F(%)	Count: F(%)	Count: F(%)	Count: F(%)			
There has been sufficient communication about the CBC since implementation began.	78: 20.16	120: 31.01	127: 32.82	62: 16.02	2.45	0.987	Negative perception
The available policy documents about the CBC provide adequate information.	47: 12.14	157: 40.57	132: 34.11	51: 13.18	2.48	0.871	Negative perception
I understand the philosophy behind the change from the previous curriculum to the CBC.	32: 8.27	93: 24.03	175: 45.22	87: 22.48	2.82	0.875	Positive perception

Note: N=387. Decision made against weighted mean: 7.75/3= 2.58

Source: Primary Data, 2023

The data shows that teachers' general perception of the change management process by the Ministry of Education, National Curriculum Development Centre, and other key change facilitators was negative. Teachers perceived that the communication about the competency-based LSC had been insufficient. This situation was made worse by the

inadequate circulation of policy documents regarding the LSC and insufficiency of information therein. Teachers also felt that they as key stakeholders, as well as other stakeholders had not been sufficiently consulted before and during the rollout of the curriculum. However, on a positive note, teachers expressed comprehension of, and agreement with the underlying rationale of the competency-based curriculum.

Teacher Professional Development. Teachers were also queried about their perceptions regarding professional development that they had undergone to equip them for implementation of the LSC. The results are reported in Table 4. 7. Teachers were prepared for the implementation of the LSC using a cascaded model in which a few representative teachers received initial training and were tasked with passing the knowledge and skills on to their colleagues at the school level. The findings reveal that this model seems to have been effective as teachers expressed confidence in the training that they received both directly from the NCDC and fellow teachers. They also perceived that they were equipped to support other teachers in their implementation of the LSC. This, they perceived, was also a result of the support they received from school administrators to work in groups as they implemented the curriculum. However, teachers acknowledge a gap in the training they had received: assessment methods and use of ICT. Teachers perceived that they had not received adequate professional facilitation in this area.

Table 4. 7: *Teachers' perceptions about teacher professional development in the LSC reform.*

	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Std. Deviation	Decision
	Count: F(%)	Count: F(%)	Count: F(%)	Count: F(%)			
I am confident to implement the CBC with the NCDC support training I have received.	60 : 15.5	70 : 18.09	161 : 41.6	96 : 24.81	2.76	0.996	Positive perception
I am confident to implement the CBC with the training I received from fellow teachers.	27 : 6.98	85 : 21.96	191 : 49.35	84 : 21.71	2.86	0.835	Positive perception
I have been adequately equipped to conduct the different forms of assessment in the CBC.	45 : 11.63	149 : 38.5	129 : 33.33	64 : 16.54	2.55	0.902	Negative perception
I am being supported to grow my skill in using ICT for teaching.	62 : 16.02	120 : 31.01	143 : 36.95	62 : 16.02	2.53	0.945	Negative perception
I am confident to support my fellow teachers to implement the CBC.	34 : 8.79	81 : 20.93	175 : 45.22	97 : 25.06	2.87	0.892	Positive perception
My school administration has supported us teachers to work together in groups as we implement the curriculum.	56 : 14.47	68 : 17.57	175 : 45.22	88 : 22.74	2.76	0.963	Positive perception

Note: N=387. Decision made against weighted mean: 16.33/6= 2.72 for this variable.

Source: Primary Data, 2023

Resourcing of the Curriculum. The perceptions of the teachers about how well the curriculum was resourced prior to and during implementation were investigated. From the results, it is evident that teachers are ambivalent about the way the curriculum has been resourced by the MoES. On the one hand, teachers perceived that the distribution of teachers' guides and learners' books had been done efficiently. They felt

that they had most of the instructional materials they required to implement the curriculum.

Human resource was also perceived as sufficient as teachers showed satisfaction with the teaching workload which allowed them enough time to plan and prepare for lessons. Additionally, they believed that the learner-teacher ratio allowed them to provide sufficient support to every learner. It must be noted, however, that on the points of learner-teacher ratio and availability of instructional materials including ICT resources, the means were only slightly higher than the weighted mean so only a slight majority had positive perceptions on these points.

On the negative side, teachers perceived that learners' books were inadequate, forcing learners to share; a situation that was not ideal. Also, the lack of stable internet connection and inadequate technological devices for lesson planning and delivery in most schools was perceived to impede to the implementation of the LSC. Table 4. 8 reports the findings of the same.

Table 4. 8: *Teacher perceptions about the resourcing of the curriculum in the LSC reform.*

Resourcing of the Curriculum	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Std. Deviation	Decision
	Count: F(%)	Count: F(%)	Count: F(%)	Count: F(%)			
The distribution of teachers' guides and learner's books has been done effectively.	69 : 17.83	107 : 27.65	140 : 36.18	71 : 18.35	2.55	0.987	Positive perception
Each of my learners has a copy of the learner's book for each of the subjects I teach	114 : 29.46	139 : 35.92	81 : 20.93	53 : 13.7	2.19	1.009	Negative perception
There are enough technological devices to support lesson planning and delivery at my school.	122 : 31.52	130 : 33.59	85 : 21.96	50 : 12.92	2.16	1.014	Negative perception
A stable internet connection is available at my school to support my implementation of the CBC.	150 : 38.76	117 : 30.23	78 : 20.16	42 : 10.85	2.03	1.012	Negative perception
The learners at my school have access to ICT resources to support their learning.	102 : 26.36	105 : 27.13	139 : 35.92	41 : 10.59	2.31	0.977	Positive perception
Most of the instructional materials I require to implement the CBC have been availed to me.	82 : 21.19	133 : 34.37	128 : 33.07	44 : 11.37	2.35	0.938	Positive perception
The learner-teacher ratio at my school allows me to provide sufficient support to each learner.	99 : 25.58	108 : 27.91	126 : 32.56	54 : 13.95	2.35	1.01	Positive perception

Note: N=387. Decision made against weighted mean: 15.94/7= 2.28 for this variable.
Source: Primary Data, 2023

Monitoring and Evaluation. The perceptions of teachers about the monitoring and evaluation processes of for the LSC reform by change facilitators at school and national levels were interrogated and the results are presented in Table 4. 9.

Table 4. 9: *Teacher perceptions about monitoring and evaluation of the LSC reform*

	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Std. Deviation	Decision
	Count: F(%)	Count: F(%)	Count: F(%)	Count: F(%)			
Every week, I receive supportive supervision from my school administrators as I implement the CBC.	86: 22.22	129: 33.33	135: 34.88	37: 9.56	2.32	0.924	Negative perception
My lesson plans and schemes of work are checked by my supervisors weekly.	57: 14.73	122 : 31.52	153 : 39.53	55 : 14.21	2.53	0.911	Positive perception
Progress in implementation of the CBC is often an agenda item during staff/ departmental meetings.	43 : 11.11	99 : 25.58	184 : 47.55	61 : 15.76	2.68	0.87	Positive perception

Note: N=387. Decision made against weighted mean: 7.53/3= 2.51 for this variable**.**

Source: Primary Data, 2023

The findings revealed that teachers' perceptions about monitoring and evaluation of the implementation of the curriculum at the school level were primarily positive. A slight majority (n=208) acknowledged that their lesson plans and schemes of work were checked weekly and that the competency-based LSC was a frequent item for team discussion. However, teachers perceived a gap in supportive supervision from school administrators in their implementation of the curriculum.

Individualised Teacher Support. Teachers also expressed their perceptions about the kind of support they received from their school administrators in their implementation of the LSC.

Table 4. 10: *Teachers' perceptions about support received from school administration*

	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Std. Deviation	Decision
	Count: F(%)	Count: F(%)	Count: F(%)	Count: F(%)			
I have received guidance in my implementation of CBC from my school administrators.	75: 19.38	67 : 17.31	187 : 48.32	58: 14.99	2.59	0.965	Neutral
The guidance I have received from my school administrators has supported me to improve my implementation of the CBC.	80: 20.67	70 : 18.09	168 : 43.41	69: 17.83	2.58	1.008	Negative perception

Note: N=387. Decision made against weighted mean: 5.17/2= 2.59 for this variable.

Source: Primary Data, 2023

From Table 4.10, it is clear that teachers were neutral about the kind of guidance they had received. However, majority (n= 237) perceived that whatever guidance they had received had been beneficial to their implementation of the LSC.

Quality of Implementation of the Curriculum. Teachers were queried to reveal their perceptions about their implementation of their LSC. The findings as shown in Table 4.11: Teacher perceptions about their implementation of the competency-based LSC. revealed that overall, teachers had adapted well to the competency-based LSC. All perceptions regarding the ICT component of the curriculum, which is core, were negative. The majority of the teachers (n=227) indicated that they did not make use of technological devices in their implementation of the curriculum, neither did they supplement their instruction with ICT-based resources, nor during the preparation of learners' reports. Their perceptions about the usefulness of the teachers' guides and learners' books were positive. Nonetheless the teachers were neutral about the comprehensiveness of the syllabus books for their subjects.

Regarding the adoption of the new teaching approaches, findings revealed positive perceptions about the nuances of instruction introduced by the LSC. Teachers indicated that they often supplemented the learners' book with other materials, which is an indication that their pedagogy had evolved from older 'chalk and talk' methods. They had positive perceptions about their ability to: set activities of integration beyond those suggested in the teachers' guides, employ a variety of assessment methods as prescribed by the curriculum, and utilize criterion-referenced assessment in every assessment given to learners.

The transformation of pedagogical beliefs and theories revealed that teachers seemed to have aligned their professional belief systems with the LSC to a larger extent. Majority (n=257) acknowledged continued reliance on the traditional 'chalk and talk' instructional methods; an indication that they were yet to fully adopt the more interactive pedagogy proposed by the LSC reform. The majority (n=308) agreed with the LSC's greater focus on acquisition of skills compared to knowledge. They also had strongly positive perceptions about their new role as facilitators of learning as opposed to being the sole fountain of knowledge.

However, findings revealed negative perceptions about the academic achievement of learners when faced with fewer tests and exams as in the model adopted by the LSC. Teachers also indicated dissatisfaction with the 20:80 ratio of formative to summative assessment that was established in the LSC. Lastly, teachers expressed negative perceptions of their capacity to cater to the needs and interests of each learner under the LSC a contradiction with the previous perception on teacher-learner ratios. It should be noted that this positive perception was only 0.03 points below the weighted mean of

2.89, indicating that teachers were not overly concerned about teacher-learner ratios in their delivery of the LSC.

Table 4. 11: *Teacher perceptions about their implementation of the competency-based LSC.*

Quality of Implementation of the Curriculum	Strongly disagree Count: F(%)	Disagree Count: F(%)	Agree Count: F(%)	Strongly agree Count: F(%)	Mean	Std. Deviation	Decision
QITECH1: I make use of technological devices like TVs, DVDs, and desktop monitors during my lessons.	117: 30.23	110: 28.42	102: 26.36	58: 14.99	2.26	1.049	Negative perception
QITECH2: I have been able to supplement my teaching with ICT in at least 50% of my lessons since I began implementing the CBC.	77: 19.9	140: 36.18	115: 29.72	55: 14.21	2.38	0.96	Negative perception
QITECH3: I make use of ICT in preparing learner reports.	63: 16.28	88: 22.74	151: 39.02	85 : 21.96	2.67	0.995	Negative perception
QIMAT1: I think the new syllabus for my subject(s) is (are) comprehensive.	21 : 5.43	100 : 25.84	168 : 43.41	98 : 25.32	2.89	0.847	Neutral
QIMAT2: I use the teacher's guide during all my lessons.	9 : 2.33	43 : 11.11	182 : 47.03	153 : 39.53	3.24	0.738	Positive perception
QIMAT3: The teacher's guide is effective in supporting learning.	17 : 4.39	54 : 13.95	188 : 48.58	128 : 33.07	3.10	0.798	Positive perception
QIMAT4: I direct the learners to refer to their guides during my lessons.	21 : 5.43	41 : 10.59	189 : 48.84	136 : 35.14	3.14	0.811	Positive perception
QITA1: I often have to supplement the learner's book with other materials.	18 : 4.65	29 : 7.49	168 : 43.41	172 : 44.44	3.28	0.794	Positive perception
QITA2: I often set my own Activities of Integration to supplement those suggested in the teacher's guide.	23 : 5.94	46 : 11.89	188 : 48.58	130 : 33.59	3.10	0.827	Positive perception
QITA3: I have utilized a variety of assessment methods in addition to projects and activities of integration.	19 : 4.91	61 : 15.76	202 : 52.2	105 : 27.13	3.02	0.792	Positive perception

Quality of Implementation of the Curriculum	Strongly disagree	Disagree	Agree	Strongly agree	Mean	Std. Deviation	Decision
	Count: F(%)	Count: F(%)	Count: F(%)	Count: F(%)			
QITA4: I use the criterion-referenced grading system for every assessment I give to my learners.	22 : 5.68	61 : 15.76	199 : 51.42	105 : 27.13	3.00	0.811	Positive perception
QIPT1: I sometimes need to use the traditional 'chalk and talk' method during my lessons.	41: 10.59	89 : 23.00	175 : 45.22	82 : 21.19	2.77	0.738	Negative perception
QIWM1: I find it easy to prepare reports for learners as required by the new curriculum.	37: 9.56	110: 28.42	166: 42.89	74: 19.12	2.72	0.883	Negative perception
QIWM2: The new teaching methods are effective even in my large classes.	66: 17.05	108: 27.91	135: 34.88	78: 20.16	2.58	0.995	Negative perception
QIWM3: I can facilitate the CBC effectively as a part-time teacher.	44: 11.37	48: 12.40	269: 69.51	26: 6.72	2.72	0.753	Negative perception
QIWM4: My teaching workload allows me time for effective lesson planning, lesson delivery, and learner assessment.	9: 2.33	43: 11.11	182: 47.03	153: 39.53	3.24	0.738	Positive perception
QIPT2: Teaching should focus more on acquisition of skills than knowledge.	23 : 5.94	56 : 14.47	168 : 43.41	140 : 36.18	3.10	0.858	Positive perception
QIPT3: Learners achieve more academically when they are faced with fewer tests and exams.	51 : 13.18	114 : 29.46	148 : 38.24	74 : 19.12	2.63	0.938	Negative perception
QIPT4: I am satisfied with the 20:80 ratio of formative to summative assessment.	45 : 11.63	100 : 25.84	186 : 48.06	56 : 14.47	2.65	0.866	Negative perception
QIPT5: CBC implementation helps me to cater for the needs and interests of each learner.	36 : 9.3	74 : 19.12	186 : 48.06	91 : 23.51	2.86	0.883	Negative perception
QIPT6: I am comfortable with my new role as a facilitator of learning as opposed to being the sole fountain of knowledge.	32 : 8.27	55 : 14.21	170 : 43.93	130 : 33.59	3.03	0.9	Positive perception

Note: N=387. Decision made against weighted mean: 60.38/21= 2.875 for this variable.
Source: Primary Data, 2023

The summary of analysis of teacher responses in the Likert scale in Table 4. 12: Summary of analysis of teacher responses in the Likert scale portion of the survey shows that overall, teachers had negative perceptions regarding both CRS and QI in the implementation of the LSC.

Table 4. 12: *Summary of analysis of teacher responses in the Likert scale portion of the survey.*

DOMAIN	VARIABLE	ITEMS	ITEMS GRAND MEAN SCORE (RANGE)	ITEMS ABOVE GRAND MEAN	CONCLUSION
CRS	Change management	3	2.58 (2.45-2.82)	1	Negative perception
	Teacher professional development	6	2.72 (2.53-2.87)	2	Negative perception
	Resourcing of the curriculum	7	2.28 (2.03-2.55)	4	Positive perception
	Monitoring and evaluation	3	2.51 (2.32-2.68)	2	Positive perception
	Individualised Teacher Support	2	2.59 (2.58-2.59)	0	Negative perception
QI	Technology use	3	2.44 (2.26-2.67)	1	Negative perception
	Use of new materials	4	3.09 (2.89-3.24)	3	Positive perception
	Adoption of teaching approaches	4	3.10 (3.00-3.28)	1	Negative perception
	Workload management	4	2.82 (2.58-3.24)	1	Negative perception
	Transformation of professional theories	6	2.84 (2.63-3.10)	3	Neutral

4.2.2 Expressed Concerns of Teachers

Teachers who answered the questionnaire also had the opportunity to express their concerns in the form of open comments. This was to respond to the question:

RQ1b: What are the expressed concerns of teachers implementing the Uganda LSC reform?

Out of the 387 respondents, 283 provided an open-ended response at the end of the questionnaire which gave a reasonable 73% response rate. Table 4.13 shows the demographic distribution of the participants that provided a qualitative response. Only

the two demographic variables: qualification level and subject group, that were found to be significant in the quantitative analysis were considered here.

Table 4. 13: *Demographic characteristics of participants who gave a qualitative response to the questionnaire*

Demographic Variable	Group	Count (N=283)	%
School category	(missing)	56	20%
	NON-USE	70	25%
	USE	157	55%
Subject Group	(missing)	1	0%
	Humanities, Business and Languages	128	45%
	Math and Sciences	98	35%
	Vocational and Arts	56	20%
Qualification level	(missing)	3	1%
	Bachelors	204	72%
	Certificate	1	0%
	Diploma	39	14%
	Masters	36	13%

The variable of school category was also included as it described the resource system of the school to which the respondent belonged and was theorised to have significantly affected their experiences and perceptions of the implementation process. These were two categories: Universal Secondary Education (USE) and non-USE. They are described in detail in section 3.8.

From the demographic distribution of the participants, the majority of the participants served in USE schools (n= 157) as compared to non-USE schools (n=70). Even considering those who did not declare their school category, it is clear that among the Government schools, USE outnumber non-USE, thereby reflecting the reality on the ground. The majority of participants were from the Humanities, Business, and Languages group (n= 128), followed by the Math and Sciences (n=98), and the smallest group being the Vocational and Arts teachers (n=56). Teachers with a Bachelor's

degree qualification also made up the biggest demographic (n=204), followed by those with a diploma (n=39), and Masters (n=36).

The codes and themes generated from teacher responses were analysed thematically and fitted deductively into the seven CBAM stages of concerns: unconcerned, informational, personal, management, consequence, collaboration, and refocusing. Considerations for placing a code into a specific stage of concern were discussed in section 2.8. A descriptive analysis of the codes revealed that the stage of concern with the highest frequency was that of Management, followed by Consequence, Information, Refocusing, Personal, and Collaboration respectively. This is illustrated in Figure 4.3. Therefore, this group of teachers had their most intense concerns at the Task level (management), followed by the Impact level (consequence, collaboration, and refocusing), and the least intense concerns at the self level (informational and personal).'

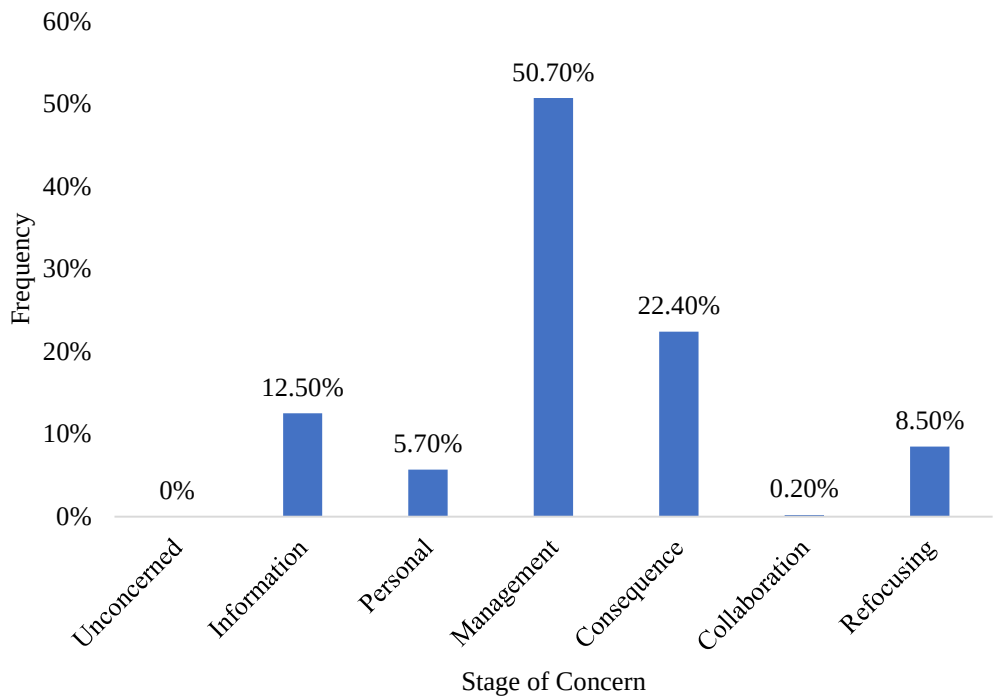


Figure 4. 3: *The frequency of Stages of Concern within the teachers' open comments responses.*

The key issues emerging from each stage of concern are analysed and interpreted in the following section:

4.2.2.1 Stage 0 (Unconcerned):

None of the teacher responses were coded into this theme. This is because all 283 responses reflected some degree of interest or involvement in the LSC. It can be deduced that only those teachers who had a greater interest in the LSC volunteered to leave a comment in this section. Also, during data collection, teachers who were not directly involved with the LSC for instance, those who taught exclusively at the Advanced secondary level, tended to decline the questionnaire. Therefore, teachers who might have had this concern self-selected out of the participant group.

4.2.2.2 Stage 1 (Informational)

The informational stage reflected intense concerns about the teacher's need to learn more about the curriculum even though they were actively implementing it at the time. 12.5% of the teachers expressed concerns within this stage with two categories of codes: a need for further training, and the low competence of school administrators in supporting teachers with implementation. Teachers expressed significant inadequacies in their knowledge and skills regarding various aspects of the implementation process. The aspects of conducting assessments and projects were most frequently mentioned. This was reflected in comments such as the following: "Project work has not yet been implemented well so there is need for more facilitation" (T66); "I have always found it hard to successfully conduct lessons given … and limited knowledge about some aspects to do with the CBC." (T34); and "We still have a challenge of how to set the end of year assessment items as may be required by UNEB when the first group reaches S.4." (T139).

Calls for more training sessions were highly frequent among the teachers. Specifically, teachers indicated that the training they had received so far was inadequate hence the need for training to be scheduled every holiday, for example, participant T40 stated: “I would urge the NCDC to conduct more training sessions for the teachers especially in the holidays. This will make the teachers get well versed with the curriculum and ICT.” Participant T153 stated: “It would do us better the schools in rural areas, to access government support in the form of teacher training”, thereby implying an inequitable distribution of training opportunities between rural and urban schools.

The need for more training was also extended to concern for the school administrators who, teachers felt, were grossly under-equipped to supervise the curriculum in terms of knowledge and skills. This was expressed by Participant T18: “The administrators have had less training compared to the teachers so they are still incompetent in supervising CBC. This is limiting the implementation.” Thus, teachers recognised that it was also important for school administrators to have information about the curriculum.

4.2.2.3 Stage 2 (Personal)

Only 5.7% of the teacher’s concerns reflected this stage, an indication that the participants in this phase had less preoccupation with the perceived impact of the reform on their person and profession. Teacher comments that were coded under this theme revealed first, a preoccupation with an increase in remuneration that was deemed commensurate with the task presented by the new curriculum. This especially came at the backdrop of the gross disparity in salaries between teachers of science subjects and those of arts with the latter earning far less than the former. Teachers made comments similar to these by two teachers from the humanities, business, and languages (HBL) group: “Additionally, the disparities in salaries between Arts and Science teachers is a

great hindrance to learners teaching and learning process" (T118); and "There's need to revisit remuneration of all teachers as the CBC is tasking/time demanding" (T14).

This inward-focused concern was also reflected in comments about the magnitude of the workload that came with the new curriculum. While T202, a teacher in the HBL subject group, opined: "I strongly like the CBC because it is not tiresome like the old curriculum", more teachers felt that the CBC was much more taxing than the old curriculum had been. For instance, participant T192 reflected: "CBC is a bit demanding and mentally taxing when it comes to developing scenarios, marking and notes checking for the learners". Thus, there were numerous calls for more teachers to be recruited to supplement the implementation workforce, for example: "The number of teachers should be increased per class and per subject to reduce the workload which helps the effective implementation of CBC" (T150).

4.2.2.4 Stage 3 (Management)

This stage of concerns represents a transition from inward-focused self concerns to outward-focused impact concerns and represents the Task stage of concerns. The majority of expressed teacher concerns fell under this category at 50.70%. While coding for this theme, the researcher reflected on her struggles as a school administrator in supporting teachers to reconcile the demands of the new curriculum with the resources at the school's disposal. Therefore, the categories of codes under this theme included: the sufficiency of instructional materials, availability of technological facilities, adequacy of school infrastructure, appropriateness of the student-teacher ratio, time allocation, and financial implications of the curriculum.

On a positive note, a few teachers commended the Government for equipping their schools with infrastructure and materials like computer laboratories. This is represented

by comments like this one by participants T136: “The support teaching/learning materials in place are good, adequate and are aiding the implementation of the CBC in our school”; and T242: “I thank the government for facilitating my school with the ICT lab, learning materials, tools and equipment”. A few teachers also acknowledged that their school administration had provided numerous useful trainings, for example T127: “The implementation of CBC was a little tricky at first but after many sessions of training by the school administration, it has proven to be the best curriculum.”

Unfortunately, these voices were seemingly drowned out by those of discontent with the adequacy of various resource-types in their schools. Participant T50 lamented: “CBC could be so great for our current generation but a lot of facilities are still wanting in our schools particularly land/space in some schools for project activities”. The lack of supportive infrastructure of Information, Communication, and Technology (ICT) which is a core component of the new curriculum was a pain point for many teachers: “The CBC is quite good, practical and generic skills are obtained but ICT integration is not engaged since schools lack equipment, no internet, power and energy resources. Learning materials are inadequate that is books, and practical materials for sciences and humanities.”

Importantly too, the issue of student-teacher ratios raised a lot of dust with several teachers making laments like: “student-teacher ratio makes the process very cumbersome” (T8), and “Teacher-student ratio remains a big challenge especially with the USE program in many secondary schools”. Teachers cited ratios like 1:130 (T148), “120 learners in a classroom of 40 learners” (T203), referring to congestion of the classroom. Closely linked to this was the issue of time management, which, several teachers expressed, was troublesome given the large number of learners per class, the

layout of the lesson in the curriculum and the new pedagogical approaches. For instance, T89 pointed out: “Too much work was scheduled within one lesson. Whereas group activities are okay, but they take a lot of time so progress is slow.” T99 echoed this by saying: “The fact that learners make their own notes and we teachers we are facilitators, it requires a lot of time to cover the required work in the term.”

The financial aspect of the curriculum was a key observation by teachers. Since this sample group was exclusively drawn from Government schools, who are ideally supported fully by the Government, it was insightful to learn of teachers’ comments in this regard. Moreover, the researchers’ work experience was confined to the private school sector but she had experience being a student in a USE and a non-USE Government school. This lent a clearer understanding of teachers’ concerns in this issue. Participant T41 reflected: “The new curriculum is too costly yet the government is not effective in provision of the teaching/learning aids. The school administration has been economically strained to spend yet it had not budgeted and the national is too impoverished to cater for the expenses.”

Teachers expressed cognizance of the strain that the resource-intensiveness of the curriculum had put on school budgets. For instance, participant T255, a teacher in the Math and Sciences group, opined: “Facilitation of required materials more so Biology lacking. Head teachers are fed up with requisitions from science teachers. They don't want to pay for requirements; on a weekly basis.” Therefore, management concerns were myriad in their expression by teachers.

4.2.2.5 Stage 4 (Consequence)

At 22.40%, this was the second most frequent stage of concern as revealed by the teachers’ coded responses. Aptly grouped into the Task level of concerns, therein,

teachers expressed their preoccupation with how the new curriculum would impact their learners, beyond their own management of it as implementers. Categories of codes here included: the effectiveness of the prescribed instructional materials in the learning process, expressions of optimism about the LSC, expressions of pessimism about the LSC, the positive impact of the LSC on learners, learner competence, and learner response to the curriculum.

To begin with, many of the teachers prefixed their comments with the phrase, “the CBC is good …”. While it was often followed with a “but” clause, those who expounded on it revealed a positive predisposition to the CBC on the basis of their perception of the perceived positive benefits of the curriculum on student learning. For example: “CBC is a good method because it helps learners to actively participate in the learning and teaching process not instead the facilitator dominating the class” (T101); and “Generally, the CBC is good since it applies both the cognitive and psychomotor skills of the learner which in turn paves way for advancement in a given field the learner is identified as working best” (T217).

Several teachers hailed the LSC, considering that it was better than the old one, always with reference with how it improved learning. T131 reflected: “The competent based curriculum is likely to be the best curriculum when compared to the old theory curriculum that was not encouraging creative thinking amongst the learners”. T283, a teacher in the vocational and arts group declared: “I salute the curriculum for focusing on skills as opposed to rote learning”, as did T193: “It really does what the previous curriculum didn't cater for.” Teachers also applauded the curriculum for its perceived positive impact on learners, including: its learner-centered focus, its consideration of the lived experiences of learners in the learning process, and the perceived increase in

motivation towards learning. For instance, T6 stated: “The use of the CBC new curriculum has changed the learners’ motives towards education providing them with a variety of learning aids hence widening their understanding” and T70: “I commend the CBC as it has helped teachers to exploit learners’ abilities, talents and creativity potentials towards skills development”.

On the flip side, a few teachers expressed pessimism about the new curriculum. Echoing sentiments shared on some public media forums, T58 stated: “With this CBC globally our education standard is likely to deteriorate more and more as many professional lecturers have been advising”. T88 pondered: “The CBC seems to require very shallow knowledge from the students”. Reflecting on the learners’ response to the curriculum, T30 wrote: “CBC favours learners who like to study but those who do not want are left out, they don't work, no reading”. Moreover, teachers recognised that learners required prerequisite competences which many seemed to lack, as observed by T136: “Learners' abilities in research and personal note-taking are still inadequate”. Evidently, teachers were intensely concerned about the impact of the curriculum on their learners.

4.2.2.6 Stage 5 (Collaboration)

This stage of concern had to do with the teachers’ need to work with their colleagues in the implementation of the curriculum. Again, this is an outward-focused concern in that teacher expressing this concern were preoccupied with maximising the impact of the curriculum on their learners through mutual support from other implementers. This stage of concern ranked as the second-lowest at 0.20%, indicating that teachers had little expectation or experience of collaborating with their colleagues in the implementation of the LSC. Among the sample group, only one teacher was considered to have expressed this concern. Participant T229 reported: “Know I feel like am in the

system I always form groups of teachers to explain to them. Supporting them on grading, AOI, and criterion referencing". This reference to the formation of teacher groups to support them in curriculum implementation revealed an appreciation of the need for peer support. However, the distinct absence of this concern from the teachers' responses belied a generally individualistic approach to curriculum implementation.

4.2.2.7 Stage 6 (Refocusing)

The sixth stage of concerns that was coded in this study was that of refocusing; the highest stage of the impact concerns. Here, teachers expressed intense concerns about the approach taken by the curriculum reform leaders in the development and communication of the curriculum, as well as specific elements of the curriculum. This ranked as the third-least concern expressed by the participants, at 8.50%. Categories of codes here included: stakeholder involvement, the poor implementation of curriculum reform strategy, and assessment and reporting. Several teachers opined that stakeholder engagement had been insufficient both prior to implementation and even during. Stakeholders most frequently mentioned were parents, teachers, school administrators, and learners. For instance, participant T52 asserted: "The implementation of the CBC was given short time for research as most of the stakeholders in education were not consulted like parents, teachers, head teachers, and even learners were not prepared enough to adjust to the demands of CBC".

The approach to the planning and execution of the LSC was severally critiqued by teachers. Participant T68 said: "For the CBC, truth is that the ship was placed on an ocean before testing its mechanical conditions. Revision is done as the ship is sailing. We all pray that it becomes a success. It wasn't well finances, no books, no internet, no libraries". This was re-echoed in comments such as: "it was hurriedly implemented

without involving the stakeholders (teachers); not given ample time". Several teachers expressed discontent with the approach to assessment in the new curriculum, asserting that it was not much different from the old examinations-driven curriculum. For example, participant T45 insisted: "20:80 ratio of formative to summative assessment is not satisfactory. I believe we do a lot in formative which should be increased to 40:60 ratio" and T91 questioned: "Why still maintain the 80% if UNEB marks when actually we want to promote skills?". Participant T29 also pointed out the apparent commercialization and misinformation regarding assessment: "There are many software developers coming up with inadequate information on report writing and schools choose who is cheaper hence ending up with assessment disparities".

As is typical of the refocusing stage of concerns, several teachers had recommendations for how the curriculum could be re-directed for maximal results. Some considered that the curriculum should have started at the primary level before it ascended to the secondary level: "This system MUST have started in primary level because they are the feeders to secondary schools" (T134). Others felt that it would have been better to simply integrate the approach of the CBC to the old curriculum in specific aspects: "CBC should be integrated with the old curriculum in assessment and make vocational subjects compulsory like metal works, technical drawing, food and nutrition" (T235). Others pointed out the policy gap regarding learners possessing ICT gadgets in schools: "It also requires learners to have gadgets like phones, iPads, laptops, and so on. Are we going to allow smart phones in schools? What about the learners who can't access these gadgets?" (T91). Thus, it was clear that despite being in the early phases of implementation, teachers were actually re-imagining the implementation process for greater effectiveness.

4.3 Results from the Mediation Analysis

The theory in the literature reviewed pointed strongly to the influence of teacher concerns on curriculum reform. However, no study was found that empirically demonstrated the relationships between curriculum reform strategies, teacher concerns, and the quality of curriculum implementation by teachers. Therefore, the following hypotheses were tested to answer the question:

RQ2: To what extent have teacher concerns mediated the relationship between curriculum reform strategies and the quality of implementation?

H_1: There is a statistically significant effect of curriculum reform strategies on the quality of implementation of the Uganda LSC reform.

H_2: There is a statistically significant effect of curriculum reform strategies on the concerns of Ugandan secondary school teachers in the LSC reform.

H_3: There is a statistically significant effect of the concerns of Ugandan secondary school teachers on their quality of implementation of the LSC.

H_4: There is a statistically significant mediating effect of teacher concerns on the relationship between curriculum reform strategies and the quality of implementation of the Uganda LSC.

Data analysis thus proceeded with testing the measurement model first followed by the structural model. The following section details the procedures taken and results obtained in the assessment of the measurement and structural models as hypothesised in this study.

4.3.1 Validation of the Lower Order Constructs

A disjoint two-stage approach in SMARTPLS 4 was used to validate the lower and higher-order constructs in the measurement model. The two-stage approach was preferred over the repeated indicators approach for the assessment of the hierarchical

models in this study as the former facilitates parsimony in the assessment of the structural model (Becker et al., 2012). Additionally, the two-stage approach was more appropriate because for both of the higher-order constructs (HOCs), the lower-order constructs (LOCs) had unequal numbers of indicators so using a repeated indicators approach ran the risk of biasing the relationships between LOCs and HOCs (Becker et al., 2012; Hair et al., 2014). The two-stage approach employs the repeated indicators approach to generate latent variables for each of the LOCs and then uses those latent variables as indicators of the HOCs (Hair et al., 2014).

Since the LOCs were all specified as reflective, it was necessary to validate them to ascertain their reliability and validity. Two rounds of LOC validation were conducted since the first one revealed convergent validity issues with two latent constructs: TC and QIPT. Two factors were found to be loading very poorly on their parent constructs: unconcerned in TC and QIPT1 in QIPT and were removed. The construct QIWM was found to have very low values of Cronbach's alpha (0.523), composite reliability (0.153), and Average Variance Extracted (0.223) given the thresholds of 0.7 and 0.5 for reliability and convergent validity respectively (Hair et al., 2014). Hence it had very low construct and convergent validity and was also deleted. The path analysis was then run again.

4.3.1.1 Factor Loadings

Factor loadings indicate the extent to which the latent construct explains the variance in each of its indicators and hence how reliable the indicators are in measuring that construct (Hair et al., 2021; Sarstedt et al., 2021). Items loading at 0.60 and above on their parent constructs are considered to have high reliability (Hair et al., 2021). All remaining items loaded satisfactorily on their parent constructs as shown in Table 4.14.

Only the Management concern in TC loaded at 0.478, which was below the 0.5 threshold. However, its effect on content validity of TC was checked and it was found not to have an adverse effect hence it was retained (Hair et al., 2021). Moreover, no item loaded more highly on another construct than on its parent construct; an initial condition for discriminant validity (Hair et al., 2014; Henseler et al., 2015).

Table 4. 14: *Factor loadings*

	TC	CM	ME	QIMAT	QIPT	QITA	QITECH	RC	TPD	TS
Informational	0.701	0.011	0.111	-0.033	0.224	-0.027	-0.075	-0.208	0.023	0.276
Personal	0.756	0.079	0.106	-0.022	0.256	0.064	-0.020	-0.165	0.128	0.264
Management	0.478	-0.028	-0.002	-0.121	0.071	-0.041	0.044	-0.015	-0.025	0.064
Consequences	0.822	0.218	0.166	0.159	0.373	0.156	0.144	-0.107	0.297	0.401
Collaboration	0.855	0.276	0.222	0.156	0.381	0.254	0.044	-0.206	0.396	0.432
Refocusing	0.633	0.114	0.042	-0.001	0.176	0.060	0.061	-0.007	0.088	0.124
CM1	0.238	0.798	0.204	0.215	0.297	0.256	0.247	0.188	0.418	0.323
CM2	0.081	0.751	0.213	0.256	0.251	0.229	0.277	0.318	0.339	0.185
CM3	0.192	0.800	0.232	0.360	0.364	0.359	0.177	0.192	0.458	0.321
ME1	0.108	0.259	0.796	0.240	0.237	0.182	0.258	0.250	0.299	0.308
ME2	0.102	0.209	0.833	0.273	0.252	0.240	0.217	0.165	0.307	0.348
ME3	0.244	0.218	0.825	0.362	0.344	0.276	0.159	0.070	0.354	0.500
QIMAT1	0.004	0.278	0.319	0.753	0.321	0.264	0.460	0.364	0.346	0.203
QIMAT2	0.065	0.293	0.260	0.809	0.298	0.336	0.317	0.207	0.345	0.222
QIMAT3	0.109	0.299	0.336	0.818	0.305	0.426	0.309	0.267	0.335	0.251
QIMAT4	0.178	0.251	0.205	0.740	0.351	0.475	0.231	0.107	0.301	0.256
QIPT2	0.274	0.223	0.234	0.299	0.697	0.279	0.139	-0.010	0.334	0.264
QIPT3	0.171	0.221	0.125	0.233	0.513	0.180	0.181	0.192	0.180	0.084
QIPT4	0.202	0.182	0.285	0.207	0.632	0.168	0.120	0.172	0.272	0.201
QIPT5	0.296	0.329	0.259	0.358	0.811	0.322	0.221	0.164	0.421	0.352
QIPT6	0.394	0.374	0.281	0.303	0.789	0.384	0.144	0.029	0.398	0.444
QITA1	0.145	0.199	0.204	0.444	0.293	0.680	0.195	0.069	0.218	0.235
QITA2	0.143	0.213	0.214	0.342	0.288	0.776	0.199	0.095	0.271	0.267
QITA3	0.121	0.343	0.298	0.345	0.347	0.843	0.239	0.230	0.324	0.289
QITA4	0.143	0.346	0.173	0.366	0.309	0.787	0.228	0.158	0.372	0.292
QITECH1	0.106	0.294	0.191	0.310	0.182	0.235	0.872	0.341	0.302	0.146
QITECH2	0.036	0.202	0.197	0.307	0.187	0.224	0.873	0.346	0.242	0.053
QITECH3	0.012	0.242	0.252	0.470	0.208	0.254	0.817	0.329	0.338	0.171

	TC	CM	ME	QIMAT	QIPT	QITA	QITECH	RC	TPD	TS
RC1	0.060	0.347	0.211	0.309	0.309	0.283	0.167	0.601	0.343	0.225
RC2	-0.137	0.203	0.058	0.215	0.059	0.126	0.267	0.754	0.162	-0.040
RC3	-0.237	0.186	0.124	0.201	0.071	0.112	0.315	0.818	0.168	-0.085
RC4	-0.227	0.142	0.071	0.184	0.013	0.078	0.361	0.798	0.133	-0.101
RC5	-0.250	0.163	0.104	0.154	0.039	0.041	0.336	0.744	0.152	-0.041
RC6	-0.076	0.242	0.212	0.281	0.160	0.165	0.353	0.792	0.243	0.018
RC7	-0.131	0.215	0.165	0.269	0.054	0.172	0.235	0.649	0.195	0.046
TPD1	0.314	0.433	0.244	0.286	0.403	0.286	0.129	0.061	0.763	0.457
TPD2	0.237	0.392	0.253	0.343	0.384	0.319	0.207	0.135	0.785	0.376
TPD3	0.126	0.397	0.265	0.308	0.257	0.230	0.308	0.318	0.723	0.229
TPD4	0.032	0.251	0.276	0.270	0.156	0.145	0.396	0.385	0.579	0.097
TPD5	0.314	0.432	0.324	0.342	0.416	0.347	0.260	0.164	0.785	0.320
TPD6	0.246	0.353	0.357	0.309	0.403	0.326	0.283	0.211	0.710	0.415
TS1	0.412	0.341	0.466	0.294	0.421	0.353	0.149	0.024	0.456	0.957
TS2	0.420	0.345	0.458	0.272	0.383	0.318	0.136	-0.019	0.404	0.952

Source: Primary Data, 2023

4.3.1.2 Indicator Multicollinearity

Next, the indicators were checked for multicollinearity, that is, the amount of correlation between indicator variables. Hair et al. (2014) guided that those indicators with a variance inflation factor (VIF) of 5 or higher show high collinearity and are hence problematic. All the indicators were below this threshold hence the multicollinearity was not an issue in this dataset as shown in Table 4.15.

Table 4. 15: *Indicator Variance Inflation Factors*

	VIF
CM1	1.442
CM2	1.371
CM3	1.263
ME1	1.634
ME2	1.742
ME3	1.373
RC1	1.431
RC2	1.898
RC3	2.355
RC4	2.453
RC5	1.929
RC6	1.887
RC7	1.427
TPD1	1.910
TPD2	1.937
TPD3	1.637
TPD4	1.341
TPD5	1.728
TPD6	1.468
TS1	3.091
TS2	3.091
QIMAT1	1.446
QIMAT2	1.748
QIMAT3	1.693
QIMAT4	1.625
QIPT2	1.381
QIPT3	1.226
QIPT4	1.293
QIPT5	1.662
QIPT6	1.563

	VIF
QITA1	1.367
QITA2	1.607
QITA3	1.745
QITA4	1.506
QITECH1	2.167
QITECH2	2.313
QITECH3	1.499
Collaboration	1.768
Consequences	1.753
Informational	2.020
Management	1.458
Personal	2.165
Refocusing	1.542

Source: Primary Data, 2023

4.3.1.3 Reliability Analysis

The next step in the validation of the LOCs was to assess their reliability, that is, the extent to which the indicators delivered consistent measures of their latent constructs. Two measures were used in this regard: Cronbach's alpha and composite reliability, both being checked for a threshold of 0.7 (Sarstedt et al., 2021). Sarsedt et al explained that Cronbach's alpha provides a lower limit of reliability while composite reliability offers the upper limit. For all the latent constructs in this study, Cronbach's alpha was above the threshold of 0.6 and composite reliability values were above 0.8. Hence it was confirmed that all constructs had sufficient construct reliability as shown in Table 4.16.

Table 4. 16: *Composite reliability of the latent constructs*

Latent Construct	Cronbach's alpha	Composite reliability (rho_c)
CM	0.688	0.826
ME	0.757	0.859
QIMAT	0.787	0.862
QIPT	0.735	0.822
QITA	0.777	0.856
QITECH	0.815	0.890
RC	0.860	0.894
TC	0.835	0.861
TPD	0.821	0.870
TS	0.903	0.954

Source: Primary Data, 2023

4.3.1.4 Convergent Validity

The data was also assessed to check the convergent validity of each construct. Convergent validity measures the extent to which the indicators of a particular construct are related to one another (Cohen et al., 2018). This was achieved by checking to ensure that the Average Variance Extracted (AVE) of every construct was at least 0.5 or higher (Hair et al., 2021). All except one of the AVE values were above 0.50 (Table 4.17). The AVE of the construct QIPT was 0.486, however, since both its Cronbach's alpha and

composite reliability were within the satisfactory range, it was therefore maintained. Convergent validity was thus established.

***Table 4. 17**: Average Variance Extracted*

Latent construct	Average variance extracted (AVE)
CM	0.613
ME	0.670
QIMAT	0.610
QIPT	0.486
QITA	0.598
QITECH	0.730
RC	0.548
TC	0.517
TPD	0.529
TS	0.911

Source: Primary Data, 2023

4.3.1.5 Discriminant Validity

It was important to assess the discriminant validity of every latent construct to ensure that it was unique from others and that every indicator distinctly represented its own parent construct (Hair et al., 2021; Sarstedt et al., 2021). Two methods were used here. First was the Fornell and Larcker criterion in which the AVE of every construct should be higher than its squared correlations with other constructs (Henseler et al., 2015). However, the Fornell and Larcker criterion is insufficient in measuring discriminant validity, therefore, the heterotrait-monotrait (HTMT) ratios of the constructs were also examined. HTMT is the ratio of the mean of indicator correlations across different constructs to the mean of indicator correlations within the same construct (Henseler et al., 2015). For discriminant validity to be established, HTMT should not be high and values above 0.9 are considered problematic (Hair et al., 2021; Henseler et al., 2015). Both the conditions for Fornell and Larcker criterions and HTMT ratios were satisfied by the data as shown in Table 4.18 and Table 4.19 hence discriminant validity was established.

Table 4. 18: *Fornell and Larcker criterion*

	CM	ME	QIMAT	QIPT	QITA	QITECH	RC	TC	TPD	TS
CM	0.783									
ME	0.277	0.818								
QIMAT	0.360	0.364	0.781							
QIPT	0.395	0.347	0.406	0.697						
QITA	0.367	0.289	0.474	0.401	0.774					
QITECH	0.291	0.251	0.429	0.226	0.280	0.855				
RC	0.290	0.186	0.313	0.138	0.189	0.397	0.740			
TC	0.222	0.195	0.108	0.401	0.175	0.061	-0.192	0.719		
TPD	0.523	0.395	0.427	0.479	0.391	0.348	0.271	0.309	0.727	
TS	0.359	0.484	0.297	0.422	0.352	0.149	0.003	0.436	0.452	0.955

Source: Primary Data, 2023

Table 4. 19: *Heterotrait-Monotrait ratios*

	CM	ME	QIMAT	QIPT	QITA	QITECH	RC	TC	TPD	TS
CM										
ME	0.386									
QIMAT	0.477	0.452								
QIPT	0.528	0.446	0.531							
QITA	0.474	0.366	0.627	0.504						
QITECH	0.394	0.326	0.520	0.297	0.347					
RC	0.386	0.248	0.368	0.262	0.222	0.470				
TC	0.231	0.179	0.165	0.414	0.169	0.117	0.222			
TPD	0.681	0.496	0.528	0.575	0.466	0.439	0.355	0.274		
TS	0.447	0.568	0.354	0.473	0.418	0.168	0.123	0.405	0.504	

Source: Primary Data, 2023

4.3.2 Validating of Higher Order Constructs

This study comprised two higher-order constructs: Curriculum Reform Strategies (CRS) and Quality of Implementation (QI). Both CRS and QI were specified theoretically as reflective models as indicated in the conceptual model (Figure 1.2). This means that their measurement models were specified as effect models in which the indicators were a consequence of the latent construct (Bollen & Ting, 2000; Mikulić & Ryan, 2018) . Confirmatory tetrad analysis (CTA) was conducted in SMARTPLS 4 to confirm whether the manifest measures were indeed reflections of the latent constructs rather than independent determinants of the same (Gudergan et al., 2008). Since both CRS and QI had at least four indicators each, CTA was possible.

Based on the principle of vanishing tetrads in which a tetrad is the "difference between the product of a pair of covariances and the product of another pair among four random variables" (Bollen & Ting, 2000, p.5), a reflective model was specified when the null hypothesis: H_0: $\tau=0$ was supported. CTA produced two tetrads for QI, both of which were non-significant, hence QI was specified as reflective-reflective. Of the nine tetrads that were produced for CRS, three were non-significant meaning that only 67% were significant. Therefore, this model was specified as reflective since for it to be specified as formative, at least 80% of the tetrads should be significant (Hair et al., 2014).

Validation of CRS and QI as reflective-reflective models therefore proceeded with the assessment of indicator reliability, then the internal consistency of the construct, followed by convergent validity and finally discriminant validity. Thereafter, the structural model was assessed as shown in the flow diagram in Figure 4. 4.

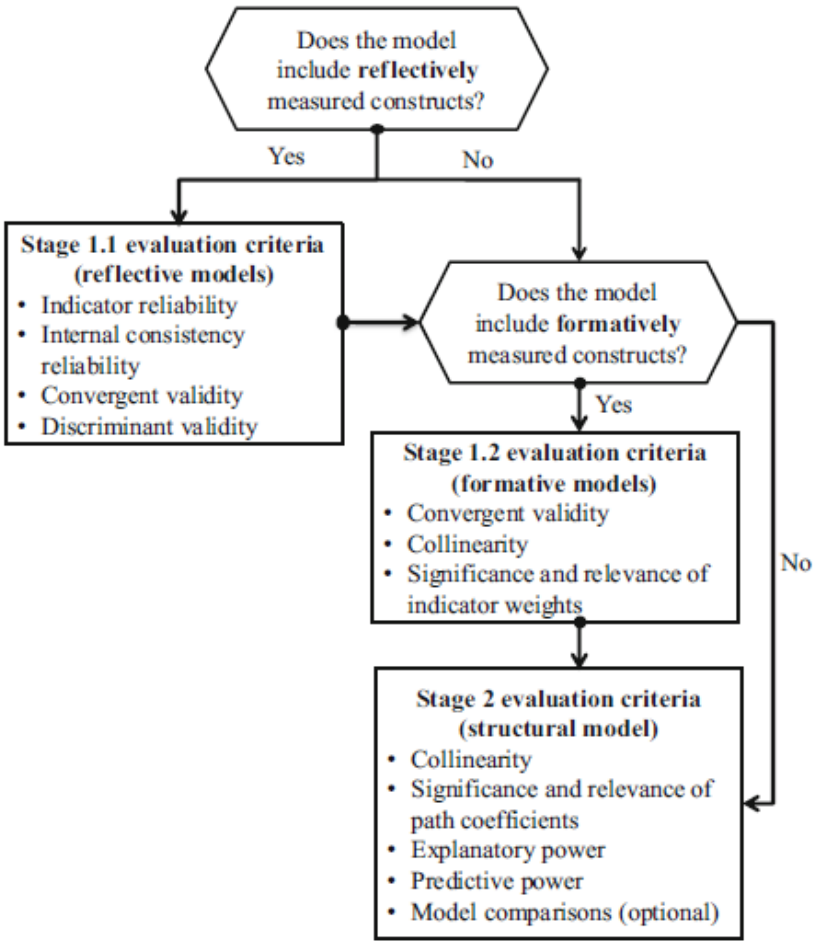


Figure 4. 4*: Plan for validation of higher order constructs and the structural model. Adapted from* Sarstedt et al. (2021, p. 16).

The reliability of CRS was established with the value of Cronbach's alpha at 0.705 and composite reliability at 0.807 (Table 4.20) which were both above the threshold of 0.70 (Hair et al., 2014, 2021) despite the AVE being 0.469 which was slightly lower than the 0.50 threshold (Hair et al., 2021). For QI, reliability was established with Cronbach's alpha of 0.701, composite reliability of 0.816, and AVE of 0.528. Discriminant validity was assessed using the cross-loadings as shown in Table 4.21 and Fornell and Larcker criterion as shown in Source: Primary Data, 2023 Table 4.22. All indicators of CRS and QI loaded satisfactorily onto them as compared to other constructs. The square root of AVE for CRS and QI was also shown to be higher than their correlation with other constructs. Thus, CRS and QI were fully validated.

Table 4. 20: *The reliability and validity of the exogenous and endogenous variables.*

	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
CRS	0.705	0.807	0.469
QI	0.701	0.816	0.528
TC	0.835	0.852	0.500

Table 4. 21: *Factor loadings for the higher order constructs in the study as well as the construct TC*

	CRS	QI	TC
CM	0.728	0.490	0.241
ME	0.683	0.435	0.200
RC	0.353	0.338	-0.186
TPD	0.819	0.572	0.332
TS	0.743	0.435	0.443
QIMAT	0.502	0.796	0.126
QIPT	0.549	0.745	0.409
QITA	0.475	0.745	0.192
QITECH	0.381	0.607	0.074
Refocusing	0.120	0.108	0.632
Management	0.001	-0.016	0.442
Personal	0.170	0.112	0.718
Collaboration	0.413	0.307	0.871
Consequences	0.344	0.299	0.844
Informational	0.111	0.049	0.648

Source: Primary Data, 2023

Table 4. 22: *Higher order construct discriminant validity using Fornell and Larcker criterion*

	CRS	QI	TC
CRS	0.685		
QI	0.664	0.727	
TC	0.379	0.295	0.707

Source: Primary Data, 2023

4.3.3 Goodness of Fit

Finally, the measurement model was assessed for its explanatory power using the coefficient of determination, R^2 and effect size, f^2; and for its predictive power, Q^2. Hair et al. (2014) and Sarstedt et al. (2021) suggested that for R^2, values of 0.75, 0.50, and 0.25 represented substantial, moderate, and weak predictive power respectively of the

exogenous variable on the endogenous one. They also indicated that f^2 of 0.02, 0.15, and 0.35 represented a small, medium, and large effect respectively of the exogenous variable on the endogenous. For Q^2, they indicated that exogenous variables with values of 0.02, 0.15, and 0.35 had small, medium, and large predictive relevance respectively for the exogenous variable.

In the model, the R^2 of CRS on QI was 0.443 and on TC it was 0.143. This means that CRS explained 44.3% of the variance in QI and 14.3% of the variance in TC which were moderate and low respectively (Sarstedt et al., 2021) but substantial nonetheless. Since there were two endogenous variables in this study, TC and QI, with TC being exogenous for QI, it was necessary to report the effect size, f^2 should a variable be removed. It was found that the effect size of CRS on QI was large (0.637), on TC it was medium (0.167) and the effect of TC on QI was small (0.004). Analysis of the predictive power of the model showed that CRS had high predictive power on QI (0.432), and medium predictive power on TC (0.133). Since both of these values are above 0, the model was judged to have acceptable predictive power for the relationships between CRS, TC, and QI (Latan & Noonan, 2017; Sarstedt et al., 2021). Table 4. 23 summarises these measures of assessments of the model.

Table 4. 23: *Coefficients of determination, effect sizes, and predictive power of the model.*

PREDICTOR	OUTCOME	R SQUARE	f SQUARE	Q SQUARE
CRS	QI	0.443	0.637	0.408
TC	QI		0.004	
CRS	TC	0.143	0.167	0.149

Source: Primary Data, 2023

Using the thresholds of 0.02, 0.15, and 0.35 for small, medium, and large effects (Sarstedt et al., 2021), the results show that the effect of CRS on QI is large, CRS on TC is medium, and the effect of TC on QI is small.

Finally, the predictive power of the model (Q^2), was assessed using the PLS$_{PREDICT}$ function in SMARTPLS 4. Including the control variables (gender, qualification level, experience, and subject group) in the model, Q^2 was found to be 0.408 for QI which was the main endogenous construct and 0.149 for TC. Since both of these values are above 0, the model was judged to have acceptable predictive power for the relationships between CRS, TC, and QI (Sarstedt et al., 2021).

4.3.4 Structural Model Evaluation

Once the measurement model was validated by ensuring the reliability and validity of all the constructs, the structural model was evaluated. The control variables were included in the model as specified in the conceptual framework. First, the collinearity of the constructs was assessed. All VIF values were below 5 (Table 4.24), which indicated that collinearity was not a concern.

Table 4. 24: *Collinearity of constructs in the structural model*

	VIF
CRS -> QI	1.186
CRS -> TC	1.000
TC -> QI	1.186

Source: Primary Data, 2023

Four hypotheses were tested using the structural model. The results are reported in the following section and summarised in Table 4. 25.

H_1: Curriculum reform strategies have a statistically significant effect of on the quality of implementation of the Uganda LSC reform.

H_1 assessed whether CRS had a significant impact on QI. The findings revealed that CRS had a significant effect on QI (β= 0.644, t=18.576, p< .001). Hence, H_1 was supported.

H_2: Curriculum reform strategies have a statistically significant effect on the concerns of Ugandan secondary school teachers in the LSC reform.

H_2 assessed whether there was a significant impact of CRS on TC. Results showed that CRS had a statistically significant impact on TC (β= 0.379, t= 8.947, *p*< .001). Thus, H_2 was supported.

H_3: The concerns of Ugandan secondary school teachers have a statistically significant effect on their quality of implementation of the LSC.

H_3 assessed whether there was a significant impact of TC on QI. Results showed that TC had no statistically significant impact on TC (β= 0.051, t= 0.973, *p*> .1). Thus, H_3 was not supported.

Table 4. 25: *Results of the analysis of direct relationships*

	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
CRS -> QI	0.644	0.035	18.576	0.000
CRS -> TC	0.379	0.042	8.947	0.000
TC -> QI	0.051	0.053	0.973	0.330

Source: Primary Data, 2023

H_4: Teacher concerns have a statistically significant mediating effect on the relationship between curriculum reform strategies and the quality of implementation of the Uganda LSC.

H_4 assessed whether TC had a significant mediating effect on the relationship between CRS and QI. The results showed the total effect, that is, the effect of CRS on QI to be significant (β= 0.664, t= 23.053, *p*<.001) and the direct effect, that is the effect of CRS on QI in the presence of the mediator to also be significant (β= 0.644, t=18.576, *p*< .001). TC had no statistically significant mediating effect on QI (β= 0.019, t=0.959, *p*= .337) as shown in Table 4.26.

Table 4. 26: *Mediation results*

Total effects (CRS->QI)	Coefficient	0.664
	p-value	0.000
Direct effect (CRS->QI)	Coefficient	0.644
	p-value	0.000
Indirect effect of CRS on QI (H4: CRS->TC->QI)	Coefficient	0.019
	SD	0.020
	T-value(bootstrap)	0.959
	p-value	0.337

Source: Primary Data, 2023

Since the direct effect was significant and positive while the indirect effect was not significant, this was a direct-only non-mediation (Carrión et al., 2017; Hair et al., 2021).

The structural model is shown in Figure 4.3.

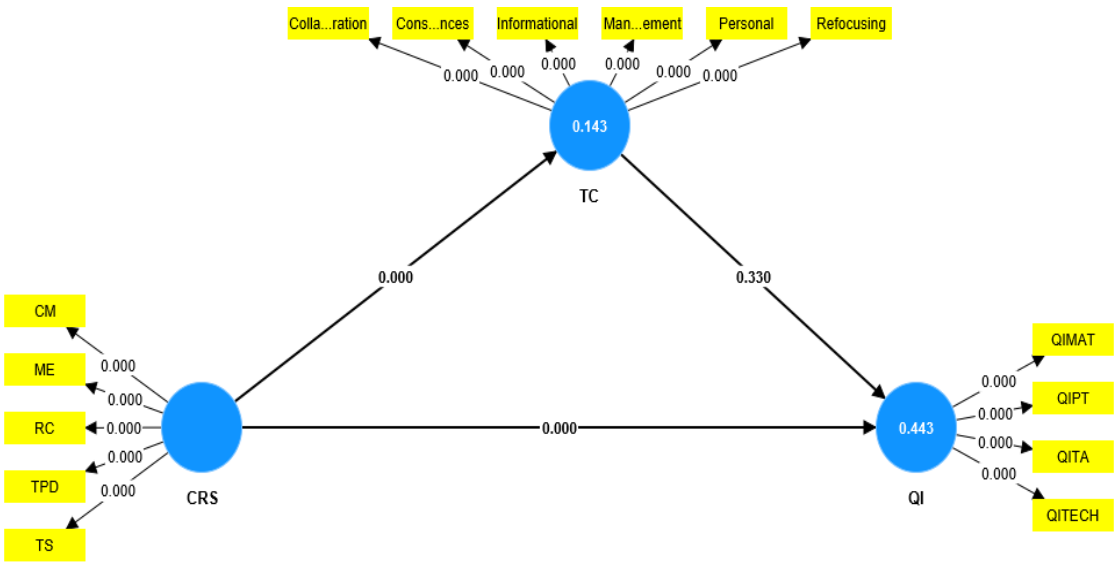


Figure 4. 5*: The structural model of the study showing relationships between CRS (IV), TC (MV), and QI (DV).*

Note: Values shown on both inner and outer models are the *p*-values. R^2 values are indicated within the endogenous constructs.
Source: Primary Data, 2023

This finding carried two implications: one that the conceptual framework upon which this study was based was indeed sound; and two, that there was another mediator, not considered in this study, that could have greater influence on the relationship between CRS and QI in the Uganda LSC reform process.

4.4 Perceptions of Selected Change Facilitators

The study then went on to probe the perceptions of key change facilitators regarding the three constructs under scrutiny: curriculum reform strategies, teacher concerns, and the quality of implementation of the curriculum by the teachers. This qualitative phase was conducted to answer the question:

> RQ3: How do selected change facilitators perceive the curriculum reform strategies, teacher concerns, and implementation quality of the LSC?

Participants comprised five master trainers from the National Curriculum Development Centre (NCDC), and four officials from various arms of the Ministry of Education and Sports (MoES). Since this was a high-level group in which it would be easy to trace a response back to a participant, no demographic data is provided and participants are identified only using code names to protect their anonymity. The codes comprise the prefix NCDC or MoES followed by a number, for example NCDC1 and MoES1.

Through open coding, six themes were carved from their responses to the semi-structured interview: physical and financial resources, human resource, change management, assessment of learners, the curriculum framework, and the learner. The frequency count displayed in Figure 4.6 shows that change facilitators perceived the availability of physical and financial resources as the most important issue affecting implementation of the LSC. This was followed very closely in importance by matters to do with human resource. Concerns about the learner seemed to be the least important issue for these change facilitators. The themes are expounded in the following section.

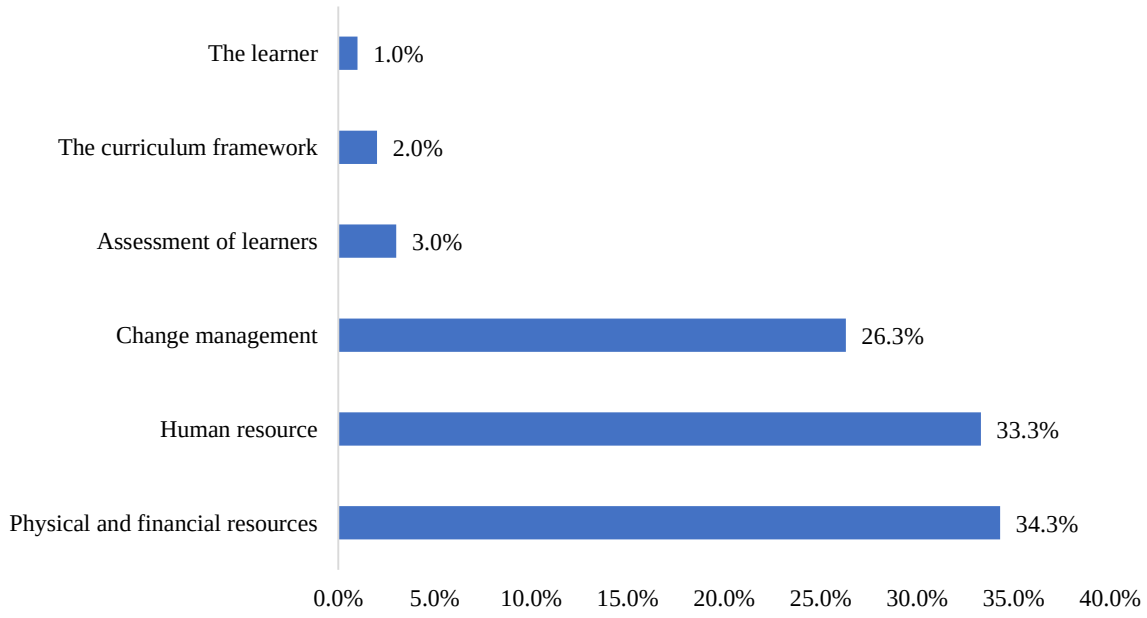


Figure 4.6: *The frequency of themes in the perceptions of NCDC master trainers and MoES officials regarding implementation of the LSC.*

Source: Primary Data, 2023

4.4.1 Theme 1: Physical and financial resources

The education process is heavily reliant on a variety of resources. It is unsurprising therefore, that the matter of resources was foremost for the change facilitators in the implementation of the LSC. Physical resources mentioned included: school infrastructure like laboratories, classrooms, agricultural land, and libraries; technological devices and internet connectivity; instructional materials; and electricity. Financial considerations included: the higher disposable income of non-USE schools as compared to USE schools, constraints to teacher professional development at national, regional, and school levels, the range of curriculum offerings to learners, and the general high cost of implementation of the curriculum.

Change facilitators recognised that many schools, specifically Government schools were grappling with a severe inadequacy in school infrastructure and this was affecting

the implementation negatively. For example, MoES3, a senior district education officer observed:

> *The curriculum is good but the equipment is not there. The equipment is only in good schools. When they want to make a project, the equipment must be there but you go to schools where they don't even have a computer or electricity.*

NCDC3, a national master trainer for the curriculum noted:

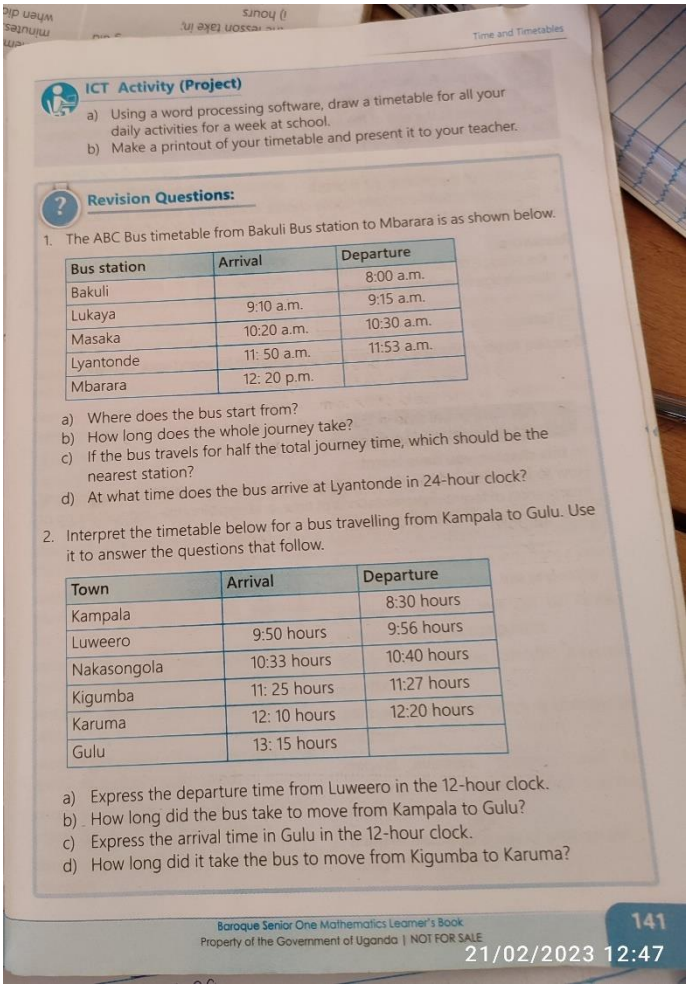
> *There are challenges with infrastructure and resources. For example, in agriculture, which is a key backbone for the economy. Some schools cannot really teach agriculture because of the requirements. You have to have a garden so learners can put nursery beds, we have things like cattle keeping*.

Moreover, several of these change facilitators acknowledged the Government had not been proactive about improving the capacity of the schools to facilitate the new curriculum as confessed by an official in charge of Government secondary schools:

> *We were supposed, as Government, to expand classroom facilities so that there is more room for collaborative learning. We do not have a program as a Ministry to quickly expand classrooms in all schools*. (MoES4)

In acknowledgment of the rapid global advance towards digital technology, the LSC requires ICT integration into multiple aspects of implementation as illustrated in Figure 4.7. Most teachers simply ignored this activity despite ICT integration being a core part of LSC implementation. Change facilitators acknowledged that ICT integration had not been possible for many schools. This was expressed by an official in charge of Government secondary schools:

> *Schools were not adequately prepared for the new curriculum because many of them can have capacity to use their own generated resources to enhance ICT but I think there was no prior warning and prior arrangement, leave alone the issue of taxes and other conditions that have continued to make it very difficult for ICT to play a role in this new curriculum as a core component.* (MoES1)



Time and Timetables

ICT Activity (Project)

a) Using a word processing software, draw a timetable for all your daily activities for a week at school.
b) Make a printout of your timetable and present it to your teacher.

Revision Questions:

1. The ABC Bus timetable from Bakuli Bus station to Mbarara is as shown below.

Bus station	Arrival	Departure
Bakuli		8:00 a.m.
Lukaya	9:10 a.m.	9:15 a.m.
Masaka	10:20 a.m.	10:30 a.m.
Lyantonde	11: 50 a.m.	11:53 a.m.
Mbarara	12: 20 p.m.	

a) Where does the bus start from?
b) How long does the whole journey take?
c) If the bus travels for half the total journey time, which should be the nearest station?
d) At what time does the bus arrive at Lyantonde in 24-hour clock?

2. Interpret the timetable below for a bus travelling from Kampala to Gulu. Use it to answer the questions that follow.

Town	Arrival	Departure
Kampala		8:30 hours
Luweero	9:50 hours	9:56 hours
Nakasongola	10:33 hours	10:40 hours
Kigumba	11: 25 hours	11:27 hours
Karuma	12: 10 hours	12:20 hours
Gulu	13: 15 hours	

a) Express the departure time from Luweero in the 12-hour clock.
b) How long did the bus take to move from Kampala to Gulu?
c) Express the arrival time in Gulu in the 12-hour clock.
d) How long did it take the bus to move from Kigumba to Karuma?

Baroque Senior One Mathematics Learner's Book
Property of the Government of Uganda | NOT FOR SALE
141
21/02/2023 12:47

Figure 4.7: *A page in a Senior 1 Math learners' book showing an ICT activity/project. Most teachers simply ignored this activity despite ICT integration being a core part of LSC implementation. (Field, 2023)*

An important distinction in implementation of the curriculum arose within the context of finances. Change facilitators often drew lines of distinction between 'well-resourced' and 'poorly-resourced' schools as stated by MoES1: "So adoption was very fast but we realise that the implementation is varying from school to school with schools that are better resourced doing much better than schools that are terribly under-resourced." For Government schools, a distinction was drawn between non-USE and USE schools: "non-USE schools are working with a bigger disposable income" (MoES1). This extended to the menu of subjects a school could afford to offer students as noted by NCDC3: "A school may want to offer a given subject but the resources may not be there. This has been a key issue." These differences in resource-capability of schools

had the effect of migration of learners between institutions, creating new challenges for the better-resourced institutions. This was explained by MoES2, an official in charge of private secondary schools and institutions:

> *In February we found that there are schools whose enrolment is going down because they are not doing the new curriculum. For example, a government school here in Central had its enrolment increased from 1,300 to about 2,500 because learners transferred in from a neighbouring private school that was not really implementing the new curriculum well. The Government school is overwhelmed; they are conducting lessons under trees and so on.*

However, change facilitators also noted that some poorly-resourced schools were actually doing better than their counterparts. NCDC2 explained:

> *Implementation of the schools is uneven. Some with limited resources are doing well but others with resources are struggling… Upcountry schools took off in projects better than urban schools. For many of these rural schools, the projects carried a lot of meaning but in urban areas, there is a sense of sufficiency which limits creativity of projects.* (NCDC2)

4.4.2 Theme 2: Human resource

Matters to do with human resource featured heavily in the responses of NCDC and MoES officials. This was in acknowledgement of the fact that the involvement of implementers was central to the success of this reform effort. Teachers were the key human resource mentioned. However, other categories, including school administrators, librarians, and even the trainers themselves were mentioned. Particularly, change facilitators expressed concerns regarding the aspects of: staffing levels in schools; teacher workloads; and teacher remuneration; teacher competence, readiness, and preparation.

Participants recognized that majority of the Government schools were grappling with large student numbers which were hindering the implementation of the LSC. Specifically, large student-teacher ratios were seen to inhibit effective teacher-learner

interaction and hence assessment of individual learner competences and progress. For example, MoES1 wondered:

> *We have class sizes ranging from 60 to 120 under the stewardship of only one teacher. So, in such a situation how do you ensure that there is effective participation of all learners? Teachers feel that something has to be done regarding reduction of class size.*

This problem, they observed, was compounded by the gross understaffing that existed in many schools, especially those in rural areas. However, it was noted that the Government was in the process of recruiting more teachers; a process that was itself challenged by financial inadequacy resulting from a recent increment for teachers of science subjects. MoES1 expounded: "The enhancement of science teachers' salaries ate into some of the resources we had put aside to recruit teachers through the gap-filling arrangement." This resulted in a perceived demoralization among teachers of Arts as illustrated by NCDC3 and NCDC4, themselves teachers: "But of course it is also causing other issues because the teachers of arts are not wanting to do the projects and all those things because they think they are not being considered" (NCDC3); and

> *Our government is paying a small group of teachers very highly. The science teachers are getting three million, the arts teachers are getting 800,000, yet they are the majority. So, the practicing teachers are frustrated. Many are likely to leave. If they don't leave, they're highly demotivated*. (NCDC4)

The capacity of the teachers to implement the LSC was also brought up frequently. Firstly, it was acknowledged that the initial training sessions were not effective due to the trainers themselves not being knowledgeable enough. Secondly, a cascaded model of training had been adopted as a resource-effective means of training as many teachers as possible in the shortest time possible. The participants were divided as to the effectiveness of this model in preparing the teachers for implementation. Some felt it had achieved its objective, like MoES1:

> *Four to six teachers from every school were invited and after going through a two week's training were required to go back to school and organize school-based training creating a cascaded model of training. This way we have managed to increase the number of teachers who are conversant with the new curriculum.*

However, others like MoES4 questioned its effectiveness: "And like in every cascade model, the quality always reduces as you go down. So, there is need for continuous capacity-building, gap-filling, and interventions. So, it is not very effective." The whole process of teacher professional development, both initial and continuous was seen to have been greatly hampered by lack of funds in various aspects. Change facilitators decried limited funding to conduct teacher training:

> *Under the curriculum implementation framework, we had a program for teacher orientation and training starting with the NCDC as part of its mandate. Of course, we have not had the funds. The budget that was presented, Ministry of Finance could not avail the money; I think it availed only 20% of the money"* (MoES4).

It was also recognized that only those schools with greater disposable income had been able to conduct frequent training of their teachers. Additionally, lack of funding meant that only a limited number of representatives from every school could attend. For instance, speaking of the training of teachers for the vocational aspect of the curriculum, MoES2 noted: "But the money was so little. Each school was allowed to bring only one teacher and they were 376 in one centre." All this translated into teachers who were inadequately prepared for the implementation of the curriculum. However, it was noted that there was support for teacher professional development from partner organisations in some pockets of the country. These included: "UNICEF, the Belgian Embassy, the Norwegian Embassy, UK Aid, and the World Bank" (MoES4).

Another issue that came up regarding teachers was their low levels of competence in ICT, a core component of the LSC as pointed out by MoES4:

> *Even just competence, ICT skills of teachers is a real challenge. We thought we would be better at secondary but in the provincial regions*

> *upcountry many teachers do not have even the basic knowledge of computer so we cannot expect them to leverage ICT in their implementation.*

In addition to this, NCDC4 noted that there were many untrained teachers especially in the rural schools, a fact that was compromising the quality of implementation of the LSC. This was in reference to the common practice among school administrators of hiring recent secondary school graduates to fill staffing gaps in their schools. This problem was compounded by the deeply-ingrained practice of part-timing by secondary school teachers, wherein, a teacher may be working in multiple schools, often for economic reasons. NCDC3 observed: "The other thing is that the new curriculum requires teachers to know learners and spend a lot of time with them, observe their generic skills and values, and all these things. But the teachers are saying that they do not have time. They are having four schools, three schools yet the curriculum wants to confine them to one school."

4.4.3 Theme 3: Change management

Change management is the foremost curriculum reform strategy. It scaffolds all other processes by providing a positive environment for the change process to unfold. Change facilitators' responses were categorized into three main issues: stakeholder engagement, communication channels, and monitoring and evaluation. As pointed out by MoES4, this process was led by "the curriculum taskforce at the Ministry led by the director of Basic Education" and was comprised of representatives from: "the Ministry, various departments, the national teachers' union, head teachers of secondary schools, teacher training universities and colleges, and foundation bodies".

Most of the participants were convinced that through continuous stakeholder engagement, positive changes had been made in the perceptions of all the key

stakeholders. For example, MoES2 asserted: "I think among the key successes is getting people to appreciate the need for change in the school, in the classroom, the teaching-learning processes". However, key change management issues seemed to have persisted. Top among them was that school Boards of Governors and head teachers seemed to still be unsupportive of the change process. This seemed to have caused lapses in instructional support of the curriculum. NCDC4 opined:

> *Interestingly teachers are well-trained more than their administrators. So, it has caused a conflict between the teaching fraternity and their leaders. The administrators have been trained on very few occasions… But they don't even show up; they send their assistants most of the time. So, they are not well prepared to supervise."*

This perceived lack of knowledge and subsequent lack of support for the curriculum spread upwards to the district education leadership who participants observed, had not been oriented well in the new curriculum.

The participants also highlighted the challenges with monitoring and evaluation for the LSC. To begin with, it was noted that the communication channels between teachers and the MoES were not very straightforward. The most common one was through the head teachers, but this was not always effective, as NCDC4 observed:

> *A more structured way of getting the teachers to talk to us is at a higher level. The Association of Secondary Schools Head teachers of Uganda (ASSHU). But they are not classroom teachers; they are school administrators and their views are sometimes clouded by administrative challenges and interests*.

The use of digital platforms especially WhatsApp was hailed as most effective with change facilitators holding membership on the same platforms as teachers. This was found to be a quick and effective channel for sharing information regarding the LSC. However, its informal nature meant that there was little follow-up and accountability.

Indeed, some participants noted that there was very little data regarding the way the change process was unfolding on the ground. Illustratively, commenting on the expectation that schools facilitate teachers in continuous professional development for the LSC, MoES2 confessed: “We have no data on those trainings”, and MoES1 noted: “One key challenge that we have is that many of our so-called CPD training programs are not properly institutionalized so you can hardly take stock of what is being done.” The Monitoring and Evaluation unit of the Ministry was reported to be under-funded and hence relied on head teachers to supervise and report the progress of the implementation through the Teacher Effectiveness and Learner Achievement (TELA) online system. Unfortunately, participants noted that head teachers were not doing it as lamented by MoES3; a senior district education officer: “They are not doing it. They don’t do inspections or submit files. Actually, I saw it only in two schools but it is not sufficient.” Nonetheless, as reported by MoES4, anecdotal evidence revealed that learners were indeed enjoying and benefitting from the curriculum in terms of improved competences.

4.4.4 Theme 4: Assessment of Learners

The fourth theme that was derived from the change facilitators’ responses was issues to do with the assessment of learners. A key departure of the LSC from the old curriculum was the modality of assessment of learners. The LSC brought with it a variety of new assessment modes, emphasized formative assessment above summative assessment, and integrated vocational assessment into the curriculum. The change facilitators exuded concern that there had been inadequate preparation for the skills-based assessment as expressed by MoES1:

> *Now given the time when this curriculum started, no proper and adequate plans were put in place to prepare for the skill-based assessment by the Directorate of Industrial Training. At this point, the*

> *learners have not even selected what occupation they want to be assessed in. So, a key change is that learners should be prepared early enough for the occupation they will be assessed in by the time they complete senior three.*

The ratio of formative to summative assessment, which had been set at 20:80 in the curriculum framework also came up. Change facilitators were concerned that the results of the formative assessment might not be genuine as no proper framework for submission of these results to the national examination body was in place as yet. This also meant that learners transferring from one school to another mid-cycle risked losing their accumulated formative assessment results.

Participants also raised the concern that several schools were still giving learners frequent examinations as before. This contradicted the requirements of the new curriculum. It was aptly put by MoES2, who, commenting on the predicament facing private schools, said:

> *Unfortunately, the biggest number that does not appreciate or understand the curriculum again comes from the private schools. This is because we had come to a point where our education system had become so marks-driven that to be successful, you had to get learners getting marks and this was mostly done by the private schools. So, they were kind of lost changing from that because they were at a loss as to what to show parents to convince them that they were doing a good job. As a result of this, some school directors were telling teachers: "Do your curriculum but also give the tests so that we show the marks".*

Therefore, this was an indication that many teachers, especially those in private schools, were still stuck in the old ways of assessing learners.

4.4.5 Theme 5: The Curriculum Framework

The curriculum framework for the LSC was spelled out by the NCDC and it provided the standards of learning outcomes as well as the strategy of instruction under the new curriculum. Change facilitators who voiced concerns about this issue were all NCDC master trainers. It is important to note that inasmuch as they were trainers for the new

curriculum, these participants were also actively serving as teachers in various secondary schools. NCDC1 and NCDC3 raised the concern that ICT and agriculture, both deemed core subjects, had been made elective. NCDC3 explained:

> *There is also the issue with the curriculum menu. Some subjects were scrapped off, others were merged, and others made elective. For example, my subject ICT has been made an elective, so has agriculture yet it is the backbone of the country. So, we saw a lot of debate concerning what has been made elective and what has been made compulsory, and subject choices.*

There was also mention of the content coverage during lessons with the allusion that there was less provided given the recommended amount of content in the instructional guides. This was also attributed to the requirement that learners work in groups as pointed out by NCDC5: "Group work in all lessons takes a lot of time. The first lesson they discuss and the next lesson they share findings."

4.4.6 Theme 6: Learner Competences and Attitudes

The final theme that was coded from the participant's responses reflected concerns about the quality of the learner vis a vis the pre-requisite competences for engaging effectively in the new curriculum. Again, this concern was raised exclusively by NCDC trainers who, being active teachers themselves, had hands-on experience in the classroom and had also interacted with teachers all around the country during training sessions. The main concern was that many learners, especially in rural contexts, lacked basic skills of reading, writing, and communication which was hindering them from flourishing in the curriculum. NCDC4 reported:

> *The secondary school children themselves are extremely sub-standard; they were not well taught in primary school. So their literacy levels are very low. It is surprising that they crossed over to secondary. It calls into question the national primary leaving exams. For example, a school called P, which is within a refugee camp. P seems to have books with a reasonable number of teachers but now the learners can hardly read and write. So engaging in activities to generate ideas and make presentations is just very hard for them.*

NCDC3 revealed the responses teachers seemed to be having towards such learners:

> *Teachers are saying, 'these learners are very dense; even if we try to probe them, they are totally dry. Even if we try to tell them to come and present, they have no resources at all! So I end up just teaching them the old way'.*

This therefore presented a point of assumption that change facilitators had made regarding the competences of learners transitioning into secondary school; one that had the potential to hinder the achievement of curricular objectives for a section of learners.

Comparison of quantitative and qualitative results

4.5 A Multiple Case Study

A multiple case study was conducted to compare and appraise the curriculum reform strategies, teacher concerns, and quality of LSC implementation in two divergent socioeconomic contexts. This was to answer the question:

> RQ4. What is the influence of curriculum reform strategies on teacher concerns and implementation quality in the selected schools?

The decision to select schools based on socioeconomic context arose from preliminary analysis of data from the foregoing convergent mixed methods study, coupled with field observations during data collection. It was apparent that implementation of the curriculum differed significantly in high and low SES schools. Hence the researcher sought to further investigate the three study variables within these real-life implementation contexts and hence further elaborate upon research questions 1, 2, and 3.

The data for this phase of the study was obtained through the selection of two schools from the main study as instrumental cases. They are described in detail in section 3.8. The findings are presented in the order: lesson observations, and teacher post-lesson

interviews together with school administrator interviews. A detailed comparison of the quality of implementation between the two schools is presented in Appendix P.

4.5.1 Lesson Observation Findings

Lessons in both case study schools were observed in the Senior two classes (both schools had multiple streams of this class with at least 70 learners in every class). An observation checklist was utilised in which specific markers of the competency-based curriculum as stipulated in the NCDC implementation guidelines were assessed. These were organised according to the tenets of quality curriculum implementation explicated by Fullan (2015).

In this portion of the study, it was important for me as the researcher to exercise reflexivity during my assessment of the lessons. This is because my impressions of the two different school and classroom settings could have biased my observations and scoring. I may have been more inclined to score the low SES school lower than the higher one even if the teachers were performing at almost the same level. I had to always guard against that. It was easy to apply different judgements to the lessons. Therefore, I kept reviewing my scoring at each stage to assess whether my personal experiences as a teacher, and the understandings I had regarding the differences in implementation conditions had biased my assessment in any way to give a genuine score to the lessons under observation.

It must also be noted that it was not possible to observe all the elements of competency-based instruction in a single lesson. This was especially the case for assessment. Hardly any teachers conducted assessment exercises during the lessons that were observed. Therefore, the analysis was based on a general impression of the lesson with a threshold of at least 80% of the designated markers.

Lessons in both schools presented several similarities despite the divergent implementation conditions. To begin with, all teachers used the teachers' guides and learners' books prescribed by the NCDC. This was with the exception of the German language lesson which had not been provided with instructional materials. However, even here, the teacher did use the syllabus as a guide. The benefit that learners derived from these materials differed in that, whereas at NSS there was an original, coloured book copy for every three to five learners, at MSS, coloured copies were in short supply and most teachers made black and white copies to be shared between five to ten learners. These copies were often unclear due to poor quality copying. This showed that teachers were endeavouring to align their teaching with the curriculum framework despite resource shortage.

There was also notable learner participation in all classes. Where before, learners might have sat silently listening to the teacher or copying notes off the blackboard, this time teachers took care to get learners involved in the lesson by answering of questions or performing various activities. It must be noted, however, that the quality of learner participation was frequently limited to brief in-group discussions and answering of questions. In all lessons there was extremely limited time on task for learners, in which they might have engaged in brainstorming, self-assessment, debates, or even problem-formulation and presentation before their peers. Teachers often rushed the lesson forward in a bid to complete their planned content. This is attributable to a mismatch between recommended content vis a vis time allocated per lesson in the timetable.

All teachers utilised learner groups in their lessons. Learners were always asked to work within their groups. Groups facilitated the sharing of learners' books which were always in short supply, especially at MSS. However, it often emerged that these groups were

permanent; so much so that even their seating arrangements were fixed. Few teachers attempted to curate these groups for the specific purposes of their lessons or to leverage learners' attributes. This was one of the features of the curriculum that had been taken as perfunctory by teachers thereby running the risk of losing out on its benefit.

Lastly, a stand-out feature of the new curriculum is the requirement that teachers integrate cross-cutting issues in their lessons. These are contemporary global issues such as climate change, environmental degradation, racial justice, and technological advancement. In none of the lessons observed did teachers tie in a contemporary issue into what they were teaching. The integration of values as outlined in the curriculum framework was also absent in all lessons. This could have been an indicator of limited understanding of these aspects, failure to appreciate the essence of such integration into their lessons, or simple ignorance about these issues. Nonetheless, teachers did emphasize two 21st Century skills: communication and collaboration.

The differences in lesson delivery mainly differed along the lines of resource availability; both physical and financial. The better infrastructure at NSS did provide teachers and learners with an edge in the learning process as compared to MSS. For instance, in the Geography lesson at MSS, learners had to use their imagination to conceptualise the content. However, at NSS, learners were able to use their laptop computers during the lesson to research the content as the teacher guided. The differences in learning environment due to infrastructure are depicted in Figures 4.8 and 4.9. Again, with the highly equipped library at NSS, learners had access to a vast resource for research and learning compared to those at MSS where there was a small library with few resource materials.

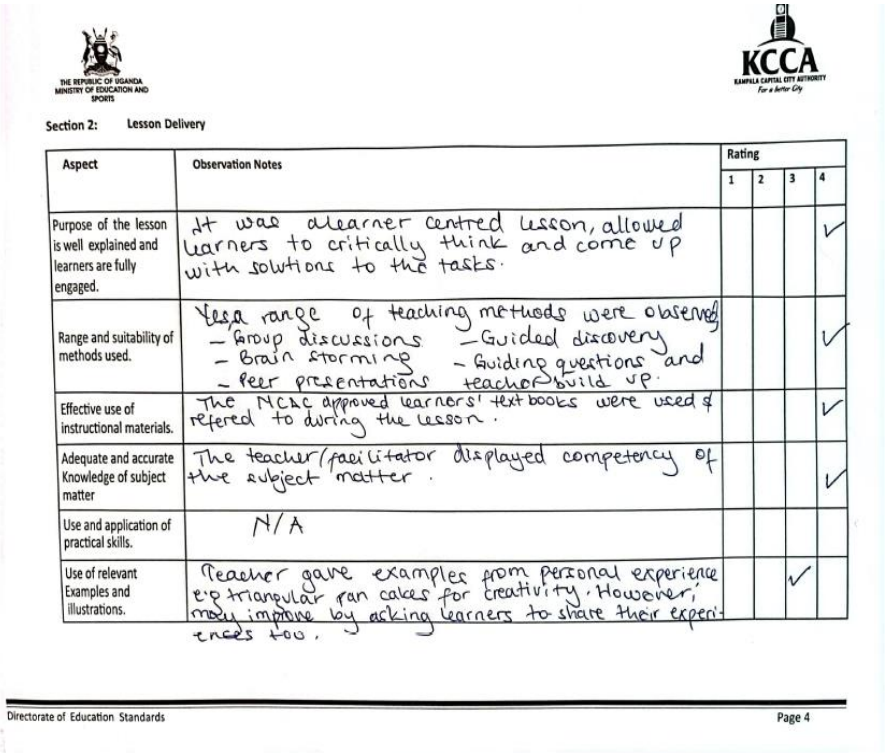
Figure 4.8: *A Geography lesson at NSS showing ICT integration facilitated by learners using their personal laptops in the lesson. Both ICT resources and infrastructure like wi-fi connection were available (Source: Field, 2023)*

Figure 4.9: *An Agriculture lesson at MSS showing reliance on hard-copy books and the traditional chalk and talk pedagogy. There was no ICT integration in any of the lessons due to lack of ICT resources and infrastructure. (Field, 2023)*

Overall, lesson observations demonstrated that teachers had assimilated various aspects of the competency-based curriculum. However, in both schools, there were many aspects of the implementation that were still inadequately conceptualised by teachers. Nonetheless, teachers at NSS demonstrated greater understanding and competence, possibly due to the numerous trainings they had received as well as frequent supervision visits by administrators. A detailed comparison of lessons at NSS and MSS is provided in Appendix P: Comparison of Lesson Observation Findings at NSS and MSS.

4.5.2 Document Analysis

There was very little to compare as far as document analysis went. At NSS, school administrators and teachers availed all documents requested. In fact, schemes of work, learner assessment records, and lesson plans were available in both digital and hard copy (Figure 4.11). According to participants at NSS, schemes of work and lesson plans were digitized to facilitate timely checking by school administrators to whom teachers sent them by email. Teacher supervision records were detailed and seemed to be conducted frequently (Figure 4.10). On the other hand, at MSS, teachers were only able to avail schemes of work in hard copy, and most were incomplete. None of the teachers wrote lesson plans and the administrators confessed to not expecting this of them. There were no teacher supervision records either and administrators admitted to never having conducted any supervision since LSC implementation began. Nonetheless, learner assessment records were available in the format recommended by the NCDC.



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Section 2: Lesson Delivery

Aspect	Observation Notes	Rating 1	2	3	4
Purpose of the lesson is well explained and learners are fully engaged.	It was a learner centred lesson, allowed learners to critically think and come up with solutions to the tasks.				✓
Range and suitability of methods used.	Yes a range of teaching methods were observed - Group discussions - Guided discovery - Brain storming - Guiding questions and - Peer presentations teacher build up.				✓
Effective use of instructional materials.	The NCDC approved learners' text books were used & refered to during the lesson.				✓
Adequate and accurate Knowledge of subject matter	The teacher/facilitator displayed competency of the subject matter.				✓
Use and application of practical skills.	N/A				
Use of relevant Examples and illustrations.	Teacher gave examples from personal experience e.g triangular pan cakes for creativity. However, may improve by asking learners to share their experiences too.			✓	

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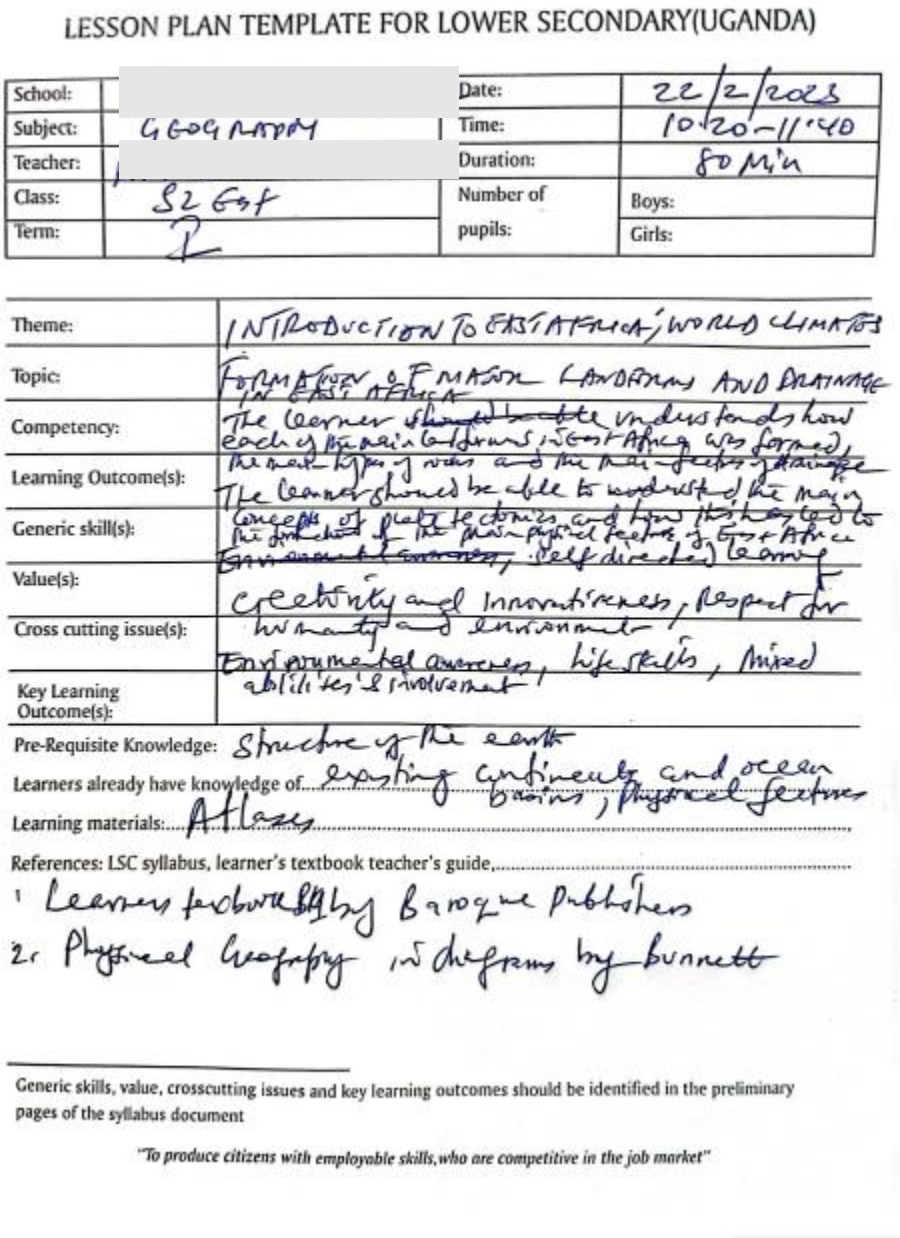
Figure 4.10: *Page 4 from a completed 10-page supervision tool for a lesson at NSS. (Field, 2023)*



LESSON PLAN TEMPLATE FOR LOWER SECONDARY(UGANDA)

School:		Date:	22/2/2023
Subject:	GEOGRAPHY	Time:	10:20–11:40
Teacher:		Duration:	80 Min
Class:	S2 East	Number of pupils:	Boys:
Term:	2		Girls:

Theme:	INTRODUCTION TO EAST AFRICA; WORLD CLIMATES
Topic:	FORMATION OF MAJOR LANDFORMS AND DRAINAGE IN EAST AFRICA
Competency:	The learner should be able understands how each of the main landforms in East Africa was formed, the main types of rocks and the main features of drainage
Learning Outcome(s):	The learner should be able to understand the main concepts of plate tectonics and how this has led to the formation of the main physical features of East Africa
Generic skill(s):	~~Environmental awareness~~, self directed learning
Value(s):	creativity and innovativeness, Respect for humanity and environment
Cross cutting issue(s):	Environmental awareness, life skills, Mixed abilities' involvement
Key Learning Outcome(s):	

Pre-Requisite Knowledge: Structure of the earth

Learners already have knowledge of: existing continents and ocean basins, physical features

Learning materials: Atlases

References: LSC syllabus, learner's textbook teacher's guide,

1. Learners textbook S4 by Baroque Publishers
2. Physical Geography in diagrams by Burnett

Generic skills, value, crosscutting issues and key learning outcomes should be identified in the preliminary pages of the syllabus document

"To produce citizens with employable skills, who are competitive in the job market"

Figure 4.11: *A completed lesson plan for the Geography lesson at NSS. (Field, 2023)*

4.5.3 Teacher Post-lesson and School Administrator Interviews

Interviews with teachers after their lessons as well as interviews with school administrators were analysed thematically. Their perceptions were placed deductively into five themes generated earlier in the mixed methods phase from the interviews with NCDC and MoES officials. This was done for purposes of parsimony by facilitating consistent comparison of participant responses all through the study. The responses

from teachers and school administrators in each school were analysed side by side within each theme and are presented below.

4.5.3.1 Physical and Financial Resources

The importance of material resources in the implementation of the LSC was underscored by the difference socio-economic status between NSS and MSS. Participant responses in this theme diverged along socioeconomic lines with those from NSS expressing satisfaction with facilities in place while those at MSS lamented about the scarcity and poor quality of resources. Participant SA1, a recent transfer from a high socio-economic status school to MSS, made this comment:

> *But schools' socioeconomic dynamics are so different! … yet we are all in the same country trying to implement the same curriculum. So there is nothing called equity in implementing that curriculum in terms of the resources the schools have and we are in the same country!*

As a government school, NSS enjoys provision in the form of instructional materials and capitation. Teachers and school administrators noted that basic provisions had indeed been made by the Government, however, this was always far from sufficient and in some cases, like materials for the vocational subjects and languages like German, they were missing altogether. Nonetheless, due to its non-USE status and subsequent large disposable income in the form of school fees charged to learners, the school was able to put in place various strategies to bridge this gap. This included purchasing of more learners' books from various publishers to supplement those provided by the Government. Physical infrastructure was also demonstrated to be sufficient with plans for expansion and equipping of classrooms as well as strengthening the Wi-Fi network in place. This was highlighted in statements such as the following:

> *Ideally, the capitation grant is supposed to assist in the running of the school. However, compared to the school fees the learners are paying, it is just a drop in the ocean*. (SA4)

> *Now for us here what we have done as an administration is to incur those costs and add as a school to supplement some subjects*. (SA3)
>
> *But S2 classrooms have been renovated with whiteboards and projectors are to be installed in each room.* (SA4)

The availability of financial resources at NSS was also seen to boost the implementation of the curriculum through the hiring of technical support personnel for teachers. The higher socio-economic status of the learners also contributed to the availability of physical and financial resources for LSC implementation. In addition to the books provided by the school, administrators explained that parents often provided their children with personal copies of the books. Moreover, more than half of the learners had personal laptop computers in every class, an invaluable resource for LSC implementation as pointed out by SA4: "In S2, out of almost 400 learners, about 200 have personal computers which can aid in the lesson".

The picture at MSS, however, was quite different. Inasmuch as MSS enjoyed government provision of instructional materials, teachers and school administrators also lamented that they were insufficient. Thus, teachers often had to rely on photocopying of resources as the school could scarcely afford to supplement these materials. Teachers also expressed difficulty in accessing certain teaching aids due to limited funding. In addition, participants underscored that school infrastructure like classrooms, science laboratories, and the computer laboratory were not well equipped for LSC implementation. This is illustrated in Figure 4.12 wherein a teacher of chemistry had to conduct the practical lesson in the classroom since the laboratory was too small to accommodate the large class.

Figure 4.12: *A chemistry lesson at MSS conducted in the classroom due to insufficient space in the school science laboratory. (Field, 2023)*

Most classrooms had no connections to electricity. The computer laboratory boasted a total of 30 computers for use by the whole school resulting in learners at the lower secondary level being precluded from using them.

> *Yeah we feel supported to some extent but the support is also limited and it's little. But we may not blame Government because maybe that is what Government can afford according to its plan because I know they are aware. You give 100 students 10 books; you are aware and also we keep expressing the need*. (SA1)
>
> *Materials are not all enough because if at all they were enough we could have given them, any day any time she can make her or his own research but there is that scarcity.* (T4)
>
> *No sockets in the classroom, we have a long extension which we connect from the staffroom and it goes direct to the classrooms.* (SA2)
>
> *ICT they're not okay, because a teacher handling competency-based curriculum is supposed to have a laptop and majority they don't have. We have like two teachers, the deputy inclusive, the third one*. (SA2)

The low socio-economic status of learners came up for mention as limiting the financial capacity of the school in terms of remuneration of private teachers, supplementation of instructional materials, and even acquisition of technological gadgets by learners. On a positive note, however, it was observed that the school had plenty of land for agriculture.

4.5.3.2 Human Resource

This theme referred to all aspects of the human resource in the implementation of the LSC, specifically, the teachers. Thus, it described all efforts toward teacher training and competences; staffing levels in schools; teacher workloads; and teacher remuneration. Teacher training at NSS seemed to be a top priority with the school arrangement organizing frequent targeted professional development sessions targeted at the LSC reform. As noted by participant SA3, all teachers were compelled to attend these trainings with the result that 100% had received multiple trainings by the time of the study. This had helped to transform teacher attitudes as related by participant SA4: "There were challenges with a few staff who were attached to the old. Termly seminars to address this: more than 10 since implementation began. In some terms two or three." Additionally, the school boasted at least eight in-house experts on the LSC as explained by participant SA3: "We've now even become master trainers in the curriculum. The school has around master trainers." This ensured that teachers had access to resourceful personnel at all times to support their implementation.

Regarding teacher competences, whereas school administrators were convinced that teachers were fully proficient in the use of ICT in instruction, teachers confessed to being challenged in this aspect. Most teachers still neglected the use of technology in

their lessons as owned by participant T9: “Of course it would have been nice if I had used some ICT but I did not prepare for that really so maybe the next lesson.”

At NSS, large student to teacher ratios were a challenge even with its large staff numbers (120 teachers) as revealed by participant T10: “Yeah, class size is a very big concern. It is not easy to manage them; they are a big number”. This is illustrated in Figure 4.13. It was laudable that a few contingency strategies were in place to help teachers cope including co-teaching arrangements and plans to construct more classrooms to reduce class sizes.

Figure 4.13: *A congested classroom at NGS. (Field, 2023)*

Teachers here were also well motivated in terms of remuneration packages like per-lesson allowances and general welfare. This, in addition to close monitoring of staff attendance through supervision, ensured that teacher absenteeism was not a problem at NSS. Thus, learners had the benefit of teachers who were always present.

Over at MSS, both teachers and administrators felt that teacher training for the LSC had been inadequate and haphazard with the result that teachers were struggling to implement various aspects of the curriculum. Participant SA2 noted that about 60% of the teachers had received training. This was blamed on limited funding as explained by participant SA1:

> *We would want more of those trainings but even NCDC limits the number we are limited by funding. So, what we do, we keep on training each other… But the training is haphazard, not well organized, not well funded.*

Participant T4 underscored this: “We are just getting some little information from our colleagues; they tell you this, you go by that.” Subsequently, teachers were relying more on the old teaching methods with some integration of learner-centered approaches as revealed by participant SA1:

> *The teachers have not fully transformed themselves to the new and they’re using so many aspects of the old in the new. So we can talk about the new but even when we go to the classrooms you will find the old in action.*

Large student to teacher ratios were also a problem at MSS. However, teachers had to cope with congested classrooms as there were no present or future support mechanisms in place. Teachers also had to bear with back-to-back lessons leaving little time for lesson preparation due to few teachers on staff as shared by participant T5: “Actually, new curriculum I need a lower load and the timetable to be spaced but if you’re moving from lesson to lesson then you find you cannot cover what you’re supposed to.” The school attempted to address this by hiring private teachers. Unfortunately, due to the necessarily low remuneration these received, they were described by participant SA1 as "poor quality"; a factor that further negatively impacted implementation. Relatedly, teacher welfare and remuneration at MSS was cited by participant SA1 as relatively poor. This, the administrator felt, had led to rampant teacher absenteeism; another major

hindrance to the implementation of the LSC: “Because teachers are not settled; the new curriculum needs someone who is settled. They’re not settled, moving up and down looking for resources here and there.”

4.5.3.3 Change management

This theme related to all efforts aimed at helping teachers to transition into the new curriculum both by school administrators, and externally by MoES, NCDC, and district education officials. It also included perceptions of their effectiveness. Thus, change management was coded when participants mentioned issues to do with communication, monitoring and evaluation, stakeholder engagement, and school policies.

At NSS, there was high proactivity by school administrators in supporting teachers to transition into the new curriculum. This was manifested through investment in teacher training, multiple supervision avenues involving different levels of administrators, and supportive policies like the teacher laptop project as expressed by the following participants:

> *Now what they do, supervision is done because the head of department is supposed to come and observe your lessons. Also, the top administrators, each one of them has got a schedule for supervision during the week. We also have the Monitoring and Evaluation committee who go around every lesson ensuring that teachers are there.* (T7, Humanities teacher)
>
> *Because as a school, they brought up a policy of allowing them get laptops with small deductions from their salary.* (SA3, Dean Lower School)
>
> *We got someone from NCDC and hired them to do the supervision.* (SA3, Dean Lower School)

Participants from NSS also seemed to be benefitting from direct and up to date communication from the NCDC and MoES as a result of having several teachers trained as national master trainers. This was explained by SA3:

> *Usually, because we are master trainers, we are part of those trainings during the holiday so we tell them what is new. Because it is actually still changing. Even from NCDC itself they still make those reforms so they communicate, we also come here and teach others.*

Therefore, as far as change management was concerned, NSS seemed to be keeping well updated and ensuring as smooth a transition as possible. However, some teachers still felt that consultation with them in the development of the LSC has been deficient as expressed by participant T7: "There was very little consultation; in fact, they should change the syllabus for senior one geography." Moreover, participants noted that they had received minimal monitoring support from the MoES. Participant SA4 highlighted this: "To my knowledge, we have been visited once from the Ministry. They saw only about two teachers and left; it seems they are understaffed. No feedback was given to us staff. Maybe the head teacher will brief us."

Despite their professed appreciation for the new curriculum, there was evidence of continued reliance on the old teaching practices among NSS teachers. For instance, a language teacher confessed to periodically putting aside the new materials and teaching from the old books and preparing exercises from them. This was done out of dissatisfaction with the content of the new materials. Relatedly, school administrators warned that teachers would continue in old teaching practices if the MoES and NCDC did not actively eliminate competition among schools, based on performance in the end of cycle assessment as has been the norm.

At MSS, teachers and administrators also expressed appreciation for the new approach of the LSC. However, it was apparent that teachers were receiving little support in their transition efforts in terms of supervision by administrators as revealed by SA1: "I spot; I look at what teachers do as I pass by. I have not done organized supervision". Just as in NSS, MSS had received limited monitoring support from the NCDC and MoES: "No,

not from the ministry, not from the district. They don't have time to go to these places. First of all they are few and also they're underfunded so they just choose where to go; they don't go everywhere. They've not been here" (SA1). However, school administrators stated that they had been able to keep up to date with developments in the LSC reform through periodic circulars from the NCDC and MoES and communications during national training sessions.

Teachers at MSS also revealed that some school policies were not supportive of their implementation of the curriculum. For instance, the school was against the acquisition and use of personal technological gadgets by learners. Participant SA2 asserted: "No, we can't allow them. Because they cannot only use these phones for education purposes, automatically they can use them to watch movies, pornographic movies, they can't use them only for educational purposes." Additionally, teachers revealed that financial support for the acquisition of instructional materials was hard to come by as related by participant T5: "But of course you know when you request for something small it takes time to be granted ..." On this basis, teachers rationalized the use of old teaching methods as explained by participant T4:

> *I think the old curriculum can be better reason being you just give them notes which is available thereafter I assess but this time round it is practical; it should be done by themselves and if at all the books are not enough it becomes very difficult.*

4.5.3.4 Assessment of Learners

The mode of learner assessment represented a key change in the LSC reform. Previously, much of the instruction in Ugandan secondary schools revolved around summative examination with schools being ranked in performance on this basis. Therefore, to attract more learners, assessment was given high prominence in school

functions, especially in non-USE schools. The theme of assessment of learners was therefore generated from concerns about the new assessment requirements.

At NSS, a school that consistently topped rankings in performance nationally, assessment was a major concern among both teachers and administrators. Besides the observation by participants that the assessment of learners at every chapter was hectic, participants felt that this kind of formative assessment lacked validity as it was highly subjective. For example, participant T10 pointed out: "It is subjective; according to somebody's impression and actually some of the learners may be misplaced. Someone may impress you as you look at their work. The marks may not be genuine for all learners." Referring to the 20:80 apportionment of the contribution of formative to summative assessment, participant SA4 opined: "… the 20% portion may not be too reliable or valid as teachers may give varied tests. It will be difficult to judge quality or validity of the tests given." One participant suggested a 50:50 apportionment of the contributions to a learner's final grade. This revealed scepticism about the effectiveness of the new assessment modes.

Another issue regarding the assessment of learners was the end of cycle examinations, both for the senior three vocational examinations to be prepared by the Directorate of Industrial Training (DIT), and the senior four summative examinations to be prepared by the Uganda National Examinations Board (UNEB). Participants at NSS expressed dissatisfaction with the apparent lack of preparedness and insufficient communication by the concerned bodies. They felt that these examinations were high-stakes and yet they were unprepared. Participant SA3 explained:

> *UNEB has not really come out to tell us the true picture of the assessment. The projects we are doing them, activities of integration, but we have that fear, we don't know what the exam will look like.*

Participant SA3 added that should UNEB rank schools as always, then the spirit of competition among schools would persist prompting teachers to revert to examination-oriented teaching methodologies. However, it was notable that the school endeavoured to abide by the recommended assessment modes.

At MSS, on the other hand, there was very little commentary about learner assessment. It was only mentioned by participant SA1 who opined that the teachers at MSS had not properly conceptualized the criterion-referenced approach of assessment in the competency-based curriculum. Participant SA1 observed: “The assessment is lacking because it does not conform to the expected assessment. But as much as it is lacking, it is an improvement from the previous one so we can afford to live with it as we keep improving.” This pointed to a need for further training for these teachers due to limited understanding and practice of the new assessment modes.

4.5.3.5 The Curriculum Framework

The perceptions of teachers and administrators regarding the prescribed syllabus, subject menu, time allocation, prescribed instructional materials, and curriculum content were also gathered. This was the one theme where teachers from both socioeconomic contexts seemed to have similar concerns. Firstly, it was found that all participants found the materials ‘user-friendly’. This meant that the way the learning content was set out in both teachers’ guides and learners’ books was easy to understand and navigate through.

However, teachers at NSS faulted the content of the curriculum vis a vis the time allocated for delivery, specifically that the content recommended per lesson was often too much as noted by the vocational teacher:

> *One thing we are facing is the time they give us in senior one and two. Only one lesson in a week as per the Ministry. Yet they made it compulsory. So if it is compulsory why isn't it given the same time as the Biology, the Chemistry, you know*. (T10)

The teachers of languages and humanities also decried what they deemed unsuitable content for their subjects. Whereas the language teacher claimed that the content was too shallow, the humanities teacher complained that the content was too complex for the lower grades. Participant SA2 also noted that there were errors in some of the materials. Therefore, it emerged that there were fundamental issues to be addressed in the implementation process.

Similarly, teachers at MSS decried the imbalance between the time-allocation for each lesson vis a vis the content to be covered. However, school administrators only commented that the materials were user-friendly. School administrators thus seemed to have little familiarity with the nuances of the curriculum framework probably because they had limited interaction with it due to the few lesson supervision visits that had been conducted so far.

4.5.3.6 Learner Competences and Attitudes

The learner is a key stakeholder in this LSC reform process since this reform was based on a learner-centered competency-based curriculum. Therefore, it was essential to garner the perspectives of teachers and administrators on the learner responses to the curriculum at their respective schools. Notably, all stakeholders at both schools had very little to say regarding learners. This was an indication that they were still dealing with their own transition into the new curriculum and had not yet advanced to considering learner needs and responses at a deeper level.

To note, at NSS, this final theme of learner competences and attitudes was specifically brought up by teachers and not school administrators most likely due to the former's

proximity to learners. Teachers observed that learners still showed reluctance to play their part in the competency-based curriculum. The science teacher stated:

> *I feel like the same effort they [school administrators] put in the teachers they should also put in the students. Because if the students do not know that it is entirely upon them, they may think that the teacher does not know what they're is doing. Because you will tell them, do this research, am not supposed to teach you. They are a bit sceptical; they're like "eh but another teacher teaches us but why do you want us to?"* (T9)

At MSS, teachers pointed out that learners were not participating enough during lessons, instead expecting to receive from the teacher. Participant T5 revealed:

> *Actually they don't participate. Sometimes you find you're teaching but they let you down; you spend much time waiting for them to give you feedback. So time is spent at the end of the day you cover a small thing.*

Rampant learner absenteeism was also mentioned and tied to the learners' socio-economic background as expressed in the following concern: "For the majority of our learners we don't know their background but you find they don't care, they don't mind. That is why out of a class of about 100 there are only 30" (T5). Again, this theme was only mentioned by teachers at MSS. Thus, it is clear that such is an example of a key aspect of curriculum implementation that only the teachers are intimately acquainted with and hence they can be a great resource in streamlining this.

4.6 Integration of Quantitative and Qualitative Findings

It was necessary to integrate the findings of the quantitative and qualitative phases of this study to achieve elaboration and clarification to answer research question four:

> RQ5: What insights on the patterns and relationships between curriculum reform strategies, teacher concerns, and implementation quality of the LSC can be derived from the qualitatively-established themes?

The flowing section presents an integration of the findings from the quantitative and qualitative portions of the convergent parallel and multiple case study phases.

From the integration (Table 4.27), it was clear that the qualitative data largely complemented the quantitative by elaborating upon the inadequacies in the domains of change management, resourcing of the curriculum, teacher professional development, and monitoring and evaluation of the implementation process. However, a divergence was revealed in the differences in group profiles from the quantitative and qualitative data. Whereas the quantitative data from the Stages of Concerns questionnaire revealed a non-user group profile with intense self concerns, the qualitative themes revealed a user group profile with high task and impact concerns.

In their manual for the assessment of open comments on concerns about an innovation, Newlove and Hall (1976) noted that such a result is unsurprising because educators often imagine themselves to be operating at the impact levels of concerns at all times. However, their research showed that this is not usually the case and the majority of educators start at intense personal and informational concerns when confronted with an educational change; as demonstrated in the quantitative SoCQ findings. Moreover, the teachers who answered the open comments section were invariably those who cared enough about the curriculum to express their concise concerns; hence the low scores at the unconcerned and personal stages, and high scores at the management and consequence stages.

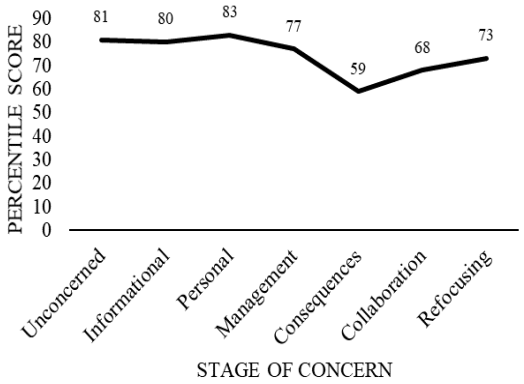
The qualitative data expanded upon the quantitative finding that teachers had positive perceptions about the resourcing of the curriculum. It was found that teachers were specifically satisfied with the distribution of teacher's guides and learners' books for most subjects, except for the languages including *Luganda*, Swahili, Arabic, and

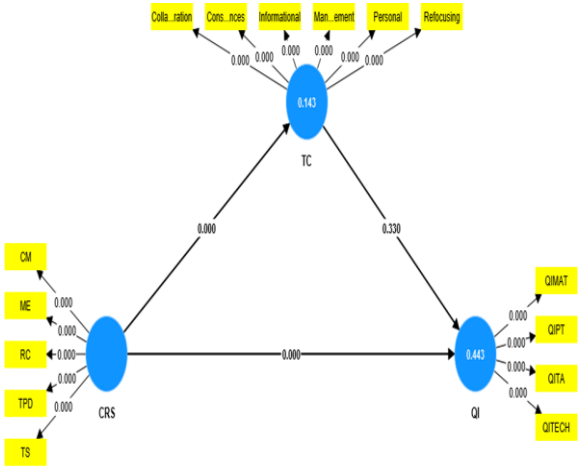
German. Nonetheless, it must be noted that this positive perception was only marginal as teachers had negative perceptions about all other aspects of resourcing, especially ICT and infrastructure. Another important point of expansion was on the negative perception of teacher professional development. Qualitative data revealed that teachers felt that they were insufficiently knowledgeable about two specific areas: assessment in the LSC and how to conduct projects.

Mediation analysis produced a direct-only non-mediation implying that there existed another mediating factor in the relationship between curriculum reform strategies and quality of implementation of the curriculum other than teacher concerns. This led to the conclusion that teacher concerns did not have a significant impact on the quality of implementations at the time of the study.

Whereas the multiple case study revealed similar teacher concerns in the areas of curriculum framework, learner competences and attitudes, and assessment of learners, there were distinct divergences in the themes of physical and financial resources, human resource, and change management. This amplified the concerns of teachers as expressed in the first phase of the study. Key problem areas that were highlighted included differences in school management systems which led to low support for teachers in the low SES and sufficient support in the high SES school. Physical and financial infrastructure was also revealed to be a significant bottleneck to LSC implementation in the low SES school. Finally, teacher professional culture differed in the two contexts with low motivation and high absenteeism in the low SES school, and high motivation and attendance in the high SES school. These differing professional cultures had differing impacts on LSC implementation.

Table 4.27: *A joint display showing the integration of quantitative and qualitative data as well as meta-inferences.*

QUANTITATIVE RESULTS	QUALITATIVE FINDINGS	INFERENCES
RQ1. Patterns of TC •High Self, low impact. •Demographic variables explain 5% of TC variance. •Qualification and Subject group have significant correlation with TC. •Overall positive perceptions on: RC, M/E, QIMAT. Neutral perception on QIPT. •Overall negative perceptions on: CM, TPD, TS, QITECH, QITA, QIWM.  	**RQ1b. Expressed teacher concerns** •Change philosophy is widely adopted. Intense Management followed by Consequence. •Resource inadequacy (physical, financial, human) is severely limiting implementation. •Information gaps: Need for more training on the competence-based curriculum for both teachers and school administrators. •Remuneration was not commensurate to increased workload, especially for Arts teachers. •Large student to teacher ratios hindering effective implementation.	**RQ5: Insights on quantitative results from qualitative findings** *Convergence* •Both quantitative and qualitative data showed perceptions of inadequacy in teacher professional development; remuneration; and stakeholder engagement. •There is agreement on the change philosophy among teachers and change facilitators. •Despite their concerns, teachers are implementing the LSC. *Divergence* •Quantitative data showed positive perceptions on RC but qualitative data revealed severe inadequacies especially in low SES schools. •Quantitative data revealed negative perceptions about all of the QI measures except QIMAT, qualitative data revealed that teachers and change facilitators perceive the reform as progressing well. •Quantitative data indicated low teacher interest and engagement with the LSC, especially among teachers of vocational and arts subjects but qualitative data revealed that teachers and change facilitators perceived teachers as being highly engaged in the curriculum.

QUANTITATIVE RESULTS	QUALITATIVE FINDINGS	INFERENCES
RQ2. Mediation analysis •CRS explain 14% TC, 44% QI. •Effect of CRS on QI is large (0.637). •Effect of CRS on TC is medium (0.167). •Effect of TC on QI is small (0.004). •Direct only non-mediation. 	**RQ3. Change facilitator perceptions** •Stakeholders have embraced the change. •Resource inadequacy is a major problem. •Cascaded teacher training model was not optimum. •Large student to teacher ratios exacerbated by understaffing. **RQ4: Multiple Case Study** •Implementation was being driven by the resources available which was mainly a function of the socioeconomic status of the school and its learners. •Teacher professional culture and personal commitment in the LSC implementation differed on basis of school SES.	*Expansion* •Positive perceptions about resources were specific to distribution of teachers' and learners' books. However, other resources categories, specifically ICT and infrastructure were deemed grossly inadequate. •Specific gaps in teacher training: assessment, projects. *Meta-inferences* By the measures of QI used, teachers have adapted to the pedagogy required by the LSC despite the severe inadequacy of resources necessary to implement the curriculum. Their concerns reflect these needs; however, concerns have not significantly affected the quality of implementation. This is indicative of a superficial change in which teachers are doing just enough to give the appearance of compliance and avoid sanctioning (Fuller, 2015; Rogan & Grayson, 2003)

4.7 Discussion of Findings

4.7.1 Teacher concerns in the LSC reform

The quantitative results revealed that, when framed in the CBAM Stages of Concerns conceptual model, teachers had their most intense concerns in the self stage, followed by the management stage, and the least intense concerns were at the impact stage. The personal stage of concerns topped the group profile at 83%, followed by the unconcerned stage at 81%, and the informational stage at 80%. There was a tailing up of refocusing concerns (73%) which, when paired with intense personal concerns (83%), is an indication of resistance to the educational change (George et al., 2013).

The ideal wave motion development of stages of concerns proposed by Hall and Hord (2015) suggested that it was not unusual for teachers to present such a profile in the first three years of implementation of an educational change. However, with the Uganda LSC in its third year of implementation by the time of data collection, it was unusual that the second most intense stage of concern would be the unconcerned stage.

According to Hall and Hord (2015), the unconcerned stage was an indication that teachers were not involved or interested in the change, rather, their attention lay elsewhere. What explains this apparent indifference to a nationally-mandated change, coupled with intense personal concerns and a possible resistance to the curriculum? The CBAM lays out several prerequisite conditions for the quasi-developmental progression of teacher concerns in educational change including: appropriateness of the change to the context, sufficiency of time for the change process, pro-activity of the change leaders, and facilitation of the change process (George et al., 2013; Hall & Hord, 2015). The findings of this study revealed negative perceptions from the teachers on several of these points.

Teacher perceptions as measured on the Likert scale revealed negative perceptions on most indicators of curriculum reform strategies: change management, teacher professional development, and individualised teacher support. Positive perceptions were recorded on resourcing of the curriculum; a nod to the distribution of teachers' guides and learners' books in government schools. In the indicators of quality of implementation, teachers also had negative perceptions on use of technology, adoption of new teaching practices, and workload management. They were positive regarding the use of new curriculum materials but neutral on transformation of pedagogical beliefs and theories. This was an indicator that inasmuch as teachers professed adoption of the change philosophy behind the LSC, there were still many hurdles to be overcome before the change actually registered at classroom level (Fullan, 2015).

The findings from the qualitative portion of the study revealed that collectively participants expressed the most intense concerns at the management stage (50.70%), followed by the consequence stage (22.40%), the informational stage (12.50%), the refocusing stage (8.50%), and the personal stage (5.70%). There were no concerns recorded at the unconcerned stage and extremely few at the collaboration stage (0.20%). This could be because those participants who had intense concerns at the unconcerned stage may have opted not to volunteer a qualitative response in congruence with their minimal interest in the curriculum. It is also possible that due to cultural appropriateness, teachers may have refrained from revealing their disinterest in the curriculum outright. As pointed out by Newlove and Hall (1976) in their manual for assessing open-ended statements of concern, teachers often perceive themselves to have intense impact concerns, even when they do not and so such expressions would be typical in teacher comments.

The low score on the collaboration stage in both the SoCQ and the qualitative group profiles confirms the claim by Rogan and Grayson (2003) that in most developing countries, teachers seldom have the expectation or experience of collaborating with colleagues. From the intense management concerns (also reflected in the lesson observations), it was apparent that teachers had many frustrations in implementing the LSC, most of them historical; carried over from the previous curriculum and rooted in socioeconomic disparities in school contexts. Evidence from the multiple case study, the perceptions of change facilitators, and expressions of concern from the teachers themselves revealed distinct disparities in implementation conditions. While teachers in a few schools seemed to be enjoying sufficient support, many others were struggling with aspects like insufficient information, insufficient instructional resources, inadequate school infrastructure, insufficient financial resources, high learner to teacher ratios, and general low teacher motivation. These challenges have historically plagued curriculum implementation and hence the quality of education in Uganda and sub-Saharan Africa in general, and now exert their influence on the LSC (Altinyelken, 2010; Cunningham, 2018; Diffang, 2019; Fleisch et al., 2019; Isaboke, Mweru, et al., 2021; Komba & Mwandaji, 2015; Nsengimana, 2021).

Studies on teacher concerns in curriculum implementation, especially for competency-based curricula, around the African continent have revealed similar findings. In South Africa, Oguoma et al. (2019) reported that in implementing the physical sciences Curriculum and Assessment Policy Statement (CAPS), teachers were encumbered by insufficiency of time and resources. In Cameroon, Wiysahnyuy (2021) and Diffang (2019) showed that teachers were struggling to implement the competency-based approach in public secondary schools due to insufficient teaching time, inadequate knowledge and skills despite numerous trainings, overcrowded classrooms, and poor-

quality instructional materials including syllabi. The situation was not much different in Ghana, Zambia, Rwanda, Tanzania, and Kenya where studies showed that teachers were not maintaining fidelity to the competency-based approach, often reverting to old pedagogical practices due to: teacher knowledge gaps, inadequate learning facilities, high student to teacher ratios, and insufficient instructional materials (Chemagosi, 2020; Isaboke, Wambiri, et al., 2021; Kabombwe & Mulenga, 2019; Komba & Mwandaji, 2015; Nsengimana, 2021; Ntumi et al., 2023). Reviews of educational reform across sub-Saharan Africa concluded that policy-makers generally failed to match their high aspirations with realities on the ground, often undermining the capacity of the education system to deliver the desired changes (Cunningham, 2018; Fleisch et al., 2019; Sajitha et al., 2018).

Besides structural and technical challenges, it was interesting to note the interaction between teacher concerns and teacher demographic variables. Previous studies in different contexts and on different educational innovations have revealed varied results. For example, in Ghana, Sarfo et al. (2020) and Apau (2021) investigated teacher concerns in the implementation of the ICT curriculum in basic education and the standard-based curriculum respectively. While Sarfo et al. (2020) found significant differences in concerns between male and female teachers and no significant differences in concerns of teachers at different experience levels, Apau (2021) found significant differences in concerns of male and female teachers, and no significant differences in concerns of teachers at different experience levels. Thus, it may be argued that interactions between demographic traits and teacher concerns are highly contextual and informative only for a particular innovation.

In this study, it was found that teacher gender and experience level had no significant impact on their concerns in implementation of the LSC. However, their qualification level and subject group taught were found to have a significant impact on their concerns.

Specifically, teachers with diploma qualifications seemed to have a more positive interaction with the LSC, posting low scores on the unconcerned stage and high on the information, consequence, and collaboration stages as compared to their Bachelors and Masters degree colleagues. This may be ascribed to the mode of training for diploma level teachers, which is distinctly more hands-on and practical compared to the theoretical one at the Bachelors' level. Notably, with the aid of the Belgian embassy to Uganda, the Government of Uganda revamped teacher training across all five diploma-awarding institutions, emphasising integration of technology in teaching as well as active teaching and learning (Enabel, 2022); a pedagogical approach that is well aligned to the requirements of the LSC. This therefore offers illumination regarding the most ideal training approach for teachers going forward.

In addition, the patterns of concerns of the Masters group revealed high self and low task and impact concerns. This is unsurprising as more often than not, Ugandan teachers who pursue higher degrees do so in a bid to find a way out of the profession. This corresponds to the statistic that there is very little room for career progression in the teaching profession in Uganda (Arinaitwe et al., 2019; UNESCO - IIEP Pôle de Dakar, 2014). When it comes to promotion, seniority often trumps competence and academic qualification. There is also little incentive to progress academically as there is no assurance of higher remuneration or promotion. This is a stark contrast to teacher policies in countries like Finland which are characterised by high teacher quality and in which Masters qualification is a requirement for teachers (Federick, 2020; Ustun & Eryilmaz, 2018).

The results also uncovered differences in concerns of teachers in different subject groups. This was significant because, as noted by Cuadra and Moreno (2005), school teachers often centre their professional identities on their subject specializations. So, implementation was siloed within the different subject groups. Differences in teacher

concerns by subjects taught revealed key points of intervention by change facilitators to support teachers in their LSC implementation. It was interesting to discover that there were no significant differences between the concerns of humanities, business and languages teachers and the teachers of the math and sciences group despite the latter being placed on a much higher salary scale than the former. In fact, the teachers of the humanities, business, and languages group posted higher means in the impact stages of concern and the lowest in the unconcerned stage as compared to the math and sciences group. Therefore, just as there is no consensus in scholarship on the relationship between teacher pay and student outcomes (Dolton et al., 2018; Schleicher, 2020), this study seems to indicate that teacher pay may not correlate with teacher motivation either.

The study revealed worrying results for teachers of vocational and arts with higher scores at the unconcerned stage and low scores at informational, consequence, and collaboration stages. Qualitative data backed this finding with teachers revealing that the vocational subjects were insufficiently resourced and understaffed compared to other subjects. Additionally, there seemed to be much confusion surrounding the assessment of their subject, especially at the scheduled end of cycle by the DIT. This concern was mirrored in the sentiments by the Uganda National Teachers Union (UNATU) secretary general who pointed out that vocational subjects in many schools were challenged by low resource, inadequate training of teachers, and unclear assessment guidelines (Baguma, 2023). Therefore, it emerged that teachers of vocational subjects were in greatest need of support and guidance.

4.7.2 Mediating effect of teacher concerns on the relationship between curriculum reform strategies and quality of implementation

The mediation study revealed that the curriculum reform strategies employed by change facilitators in the LSC has a significant impact on the quality of implementation. CRS

explained 44.3% of QI and had a large effect size (0.637). On teacher concerns, CRS also had a significant impact, explaining 14.3% and with a medium effect size (0.167). Conversely, TC was found to have no significant impact on QI, with a small effect size (0.004). Therefore, whereas the direct effect, that is the impact of CRS on QI was significant ($p < 0.05$), the indirect effect, that is the impact of CRS on QI through TC was insignificant ($p = 0.337$). According to Hair et al. (2021), this constituted a direct only non-mediation, meaning that while the theoretical basis of the study was sound, there was possibly another mediator affecting the relationship between CRS and QI more strongly.

Therefore, despite the importance placed on teacher disposition towards a change process (Fullan, 2015; Gouëdard et al., 2020; Hall & Hord, 2015; Verger et al., 2013), the concerns of teachers in this sample group were simply not moving the needle in their implementation of the LSC reform. Considering that CRS explained only 14.3% of TC, it is apparent that the concerns of Ugandan secondary school teachers mostly lay elsewhere. This finding confirms that from the SoCQ group profile wherein teachers registered intense personal and unconcerned stage concerns. This could imply that these teachers were actually so disengaged that they were simply not investing much thought or effort into this educational change. According to Goodson (2014) this response is typical of teachers implementing externally-mandated change as it often fails to inspire their personal and professional commitment.

It is important to note that this curriculum review comes at a time when disparity in remuneration between arts and science teachers of at least 300% has been instituted by the Government of Uganda (Wambede et al., 2022). With the increased workload that accompanies the revised LSC, it is unsurprising that teachers are primarily concerned

about its impact on their roles, finances, and professional lives. Moreover, the multiple case study revealed poor teacher welfare and mean working conditions in low SES school as compared to high SES school. This has contributed to rampant teacher absenteeism in lower SES schools as revealed in change facilitator interviews and in the multiple case study. It is evident that the insistence by the MoES on implementing the curriculum within existing structures (Museveni, 2020) has affected curriculum delivery as it has failed to cater for the unique demands of the LSC on both the school and the teacher. An educational reform that does not seem to seriously take into account the working conditions, personal and professional needs of teachers often results in widespread disenfranchisement of the teaching fraternity and may adversely affect the curriculum implementation and curtail its goals (Baguma, 2023; Sajitha et al., 2018; Verger et al., 2013).

Reflecting on the American situation, Fullan (2015) attributed the increasing trends in teacher dissatisfaction to what he termed adverse micro and macro factors, specifically: local school conditions; unfriendly policies; and negative attitudes towards the teaching profession. This situation is keenly reflected in sub-Saharan Africa. According to the UNESCO Teachers Initiative in sub-Saharan Africa (TISSA) report on Uganda, teacher dissatisfaction was alarmingly high with 47% of teachers reporting dissatisfaction with their job, only 16% aspiring to remain in the teaching profession, and 59% willing to change career paths if they had the opportunity (UNESCO - IIEP Pôle de Dakar, 2014).

The findings in the present study indicate that this problem persists, and may even be worse, almost a decade later. To note, studies on teacher motivation in Uganda have revealed that teaching is one of the most poorly-perceived professions; fettered by challenges like low salaries and limited avenues for career progression (Arinaitwe et

al., 2019; Edge et al., 2017; UNESCO - IIEP Pôle de Dakar, 2014). In addition, the 2018 Global Teacher Status Index recorded that the estimated teachers' average gross annual pay in Uganda was among the lowest in the world (Dolton et al., 2018). The report went on to suggest a positive correlation between teacher pay and student educational outcomes. This reinforces the assertion in this study that the apparent indifference of Ugandan teachers as revealed in their concerns may have adverse consequences on the LSC reform.

4.7.3 Perceptions of change facilitators on curriculum reform strategies, teacher concerns, and quality of implementation of the LSC

The perceptions of two categories of national-level change facilitators regarding the three constructs under study were sought out. The theme of physical and financial resources was most prominent in their responses (34.3%), followed by that of human resource (33.3%) referring mainly to issues surrounding teachers but also school administrators and support staff like librarians. The third most prominent theme was change management (26.3%) referring to stakeholder engagement, communication, and monitoring and evaluation. Three minor themes were also identified in their responses: assessment of learners (3.0%), the curriculum framework (2.0%), and learner competences and attitudes (1.0%). All these themes closely mirrored the various concerns expressed by teachers in their implementation of the LSC.

Change facilitators applauded the MoES for ensuring that every school in the country received learners' books and teachers' guides for the new curriculum. However, they acknowledged that the quantities were token compared to the increased learner enrolments occasioned by the UPE and USE policies. This factor presented initial difficulties in implementation for lower SES schools that were limited in their capacity

to supplement these materials. The story was replicated with many other physical and financial resources revealing strong contrasts between low and high SES schools. This is a challenge that has greatly hampered the cause of quality education across the sub-Saharan region (Cunningham, 2018; Fleisch et al., 2019; Sajitha et al., 2018).

The main human resource issues identified by change facilitators surrounded the teaching faculty. They included: low competence to deliver the LSC due to weaknesses in the cascaded model of training; rampant understaffing typified by employment of unqualified personnel to fill the gaps, especially in low SES schools; low teacher competence in use of ICT for instruction; and low teacher motivation due to low remuneration especially for non-science teachers as well as poor teacher welfare in low SES schools. The latter, it was acknowledged, had exacerbated the historical problem of teacher absenteeism (Edge et al., 2017; Sajitha et al., 2018; UNESCO - IIEP Pôle de Dakar, 2014) which was debilitating to the new curriculum. Teachers aside, change facilitators echoed the concern regarding insufficient training for school administrators which rendered them incapable of properly guiding the reform process. This was also reflected in interviews with school administrators at the lower SES school and in the document analysis whereby there were no records of teacher supervision and scarce documentation was conducted by teachers. It would appear that these “gatekeepers of educational change” (Fullan, 2015, p.142) had been neglected in the change process, presenting an additional layer of frustration for teachers.

Regarding the change management process, there seemed to be unanimous agreement among change facilitators that the change rationale had been widely accepted by all stakeholders. In fact, change facilitators were quite emphatic that the LSC had almost universal backing of all stakeholders, a fact which they believed could drive the

implementation and would assure success. In a sense, this is an example of the policy myth of rational goal-setting (de Bliesemann, 2016) whereby change facilitators are pushing implementation of the LSC as a laudable national educational goal all the while creating silences around the many technical and structural challenges besieging change implementers.

Despite the perceived widespread acceptance of the LSC reform, change facilitators, just like teachers, also noted that key stakeholders including school boards and parents were reluctant to support the change as required possibly due to limited sensitisation. Lack of parental cooperation was found by Isaboke et al. (2021) to be a major challenge to the implementation of the competency-based curriculum in Kenya. Finally, the persistent lack of data on the change process was seen as a major challenge. Change facilitators owned to lacking baseline data prior to introducing the LSC, and data on the ongoing teacher professional development programs. Much of the reported success was thus based on anecdotal evidence; a situation which did not make for sustainable change.

The change facilitators also echoed teachers' concerns regarding gaps in assessment of learners. Lack of preparedness for skills-based assessment, a challenge that was mentioned by teachers with reference to the vocational subjects, was highlighted. Besides this, they acknowledged a lack of clear frameworks for submission of learners' formative results to UNEB and just like the teachers, questioned the genuineness of such results. In his review of the assessment aspect of the LSC, D'Agostino (2023) observed that the curriculum was rolled out before reforms to assessment were finalised thereby creating gaps. Inasmuch as the new syllabus books provided sample

assessments, these were insufficient in equipping teachers to assess learners for higher-order thinking skills, as expressed by the teachers in this study.

Finally, a less-attended-to factor came through in the change facilitators' perceptions: that of learner competence and attitudes. They revealed that most learners from low SES contexts lacked the pre-requisite competences to effectively engage with the competency-based curriculum specifically in reading, writing, and communication in English the official language of instruction. This observation was confirmed by Uwezo Uganda (2019) which reported that by 2018, only 33% of primary school children in grades three to seven could read and comprehend a grade two level story. This problem was more persistent in community, government, and private schools where the reading competence of grade three to seven learners was 22%, 28%, and 44% respectively. Given that USE schools mainly derive their learner enrolment from these schools, this presented a major challenge as the LSC assumed that learners were able to conduct research independently of the teacher. This situation prompted teachers to revert to previous pedagogies to support learners.

4.7.4 Influence of curriculum reform strategies on teacher concerns and implementation quality

The multiple case study was instrumental in comparing implementation conditions in two different socioeconomic conditions. It provided evidence to hypothesise that at present, in Uganda, it was school socioeconomic status that mediated the relationship between curriculum reform strategies and quality of implementation of the curriculum. Indeed, there were clear differences on every aspect of curriculum reform strategy between the low and high SES schools. Teachers in the high SES school were more comprehensively trained, supervised, and supported with infrastructure and adequate

human resource, whereas those in the low SES school struggled on all these points in addition to low welfare. These findings underscored the assertion by Rogan and Grayson (2003) that quality of curriculum implementation is highly contingent on school contexts and so policy makers must adjust demands and support schools accordingly.

Several important insights emerged here. To begin with, there were differences in accountability and commitment levels among teachers in high and low SES school. Whereas in the high SES school strong accountability systems existed resulting in higher levels of commitment, these were almost non-existent in the low SES school thereby adversely impacting LSC implementation in the latter. This situation, mainly characterised by teacher absenteeism both from the classroom and school, is chronic to Uganda and other sub-Saharan countries (O'Sullivan, 2022; Sajitha et al., 2018; Ssenkande et al., 2022; Uwezo Uganda, 2019). Teachers at the low SES schools exhibited little accountability to their work and the school administrators seemed almost powerless to control this; a theme that was mentioned in the change facilitator interviews with reference to low SES schools across the country. This was also evident in the apparent diligence in documentation at the high SES school and the negligence of the same in the low SES school. It is possible that this low accountability and commitment and high teacher absenteeism corresponded with the low level of government and parental investment in low SES schools.

Nonetheless, it was interesting to note some points of similarity such as the preponderance of elements of the previous teaching methodologies such as lecturing and teacher-centeredness in both schools despite the better conditions in the high SES school. This confirmed the negative perception on adoption of new teaching approaches

revealed in the quantitative phase. A study by Kabombwe and Mulenga (2019) on the competency-based curriculum in Zambia revealed similar findings where teachers were simply not using the new teaching approaches, instead opting for teacher-centered, and content-rich instruction.

It would be tempting to ascribe this to inadequate training in the Ugandan case, however, teachers in the high SES school had received multiple, consistent trainings on the LSC. It would seem that it was more a matter of non-transformation of pedagogical beliefs and theories, thereby confirming the neutral perceptions of transformation of pedagogical beliefs revealed in the quantitative phase. Consequently, Fleisch et al. (2019) recommended effective and sustained teacher professional development, which would need to be accompanied with structural support to teachers in low SES schools.

4.7.5 Insights on quantitative results through qualitative findings

For the most part, qualitative data complemented the quantitative data. Several points of convergence were found. The perception of efficient distribution of instructional materials explained the positive perception on resourcing of the curriculum and use of new materials. The negative perceptions on most of the other constructs including change management, teacher professional development, individualised teacher support, use of technology, workload management and adoption of new teaching approaches were explained by expressions of discontent with stakeholder engagement, the quality and quantity of training received by teachers, the perceived lack of support at school level, and inadequacy of ICT infrastructure among others.

The intense informational and management concerns from teachers were found to relate to a perception of insufficient training and understanding about core concepts in the LSC. Qualitative data expanded upon this by pointing to two specific areas: conducting

projects, and assessment of learners. Another point of expansion came through the change facilitator interviews and multiple case study. It was revealed that the wide disparity in salaries between teachers of the arts and those of the sciences was a major point of discontent especially considering the much-increased workload of the LSC. Teachers in lower SES schools were found to have much lower welfare, remuneration (for private teachers), and hence low motivation leading to rampant absenteeism. This supplements scholarship such as Arinaitwe et al. (2019) and UNESCO - IIEP Pôle de Dakar (2014) which asserted that teacher dissatisfaction in Uganda stemmed from the low remuneration and low status of the teaching profession in Uganda.

Therefore, by the measures of implementation quality employed in this study, it may be surmised that teachers had adapted to the pedagogy prescribed for the LSC. This is in spite of the severe inadequacies in the resources necessary to implement the curriculum effectively. In such circumstances, where the requirements of the curriculum reform do not align with the realities of the implementation contexts, superficial change is inevitable; whereby teachers only do enough to give the appearance of compliance and avoid sanctioning (Fullan, 2015; Leithwood et al., 1994; Rogan & Grayson, 2003).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter provides a summary of the findings from every research question. Conclusions on the study findings are then presented, situating them within theoretical discourse. Recommendations for management and policy at national and school levels are also discussed are also suggested. The chapter concludes with recommendations for further study.

5.1 Summary of the findings

5.1.1 What are the concerns of teachers implementing the Uganda lower secondary curriculum reform?

The following is a summary of the findings on both the patterns and specific expressions of teacher concerns in the Uganda LSC implementation.

5.1.1.1 Patterns of teacher concerns

Overall, this study revealed that the concerns profile of the respondents, as measured on the CBAM Stages of Concerns Questionnaire, was that of a disinterested negatively-disposed non-user. Teachers had intense concerns at the self stage, with the personal stage concerns peaking at 83%, followed by unconcerned stage at 81%, and the informational stage at 80%. The teachers scored lower on the task stage (management concerns) at 77% and even lower on impact stage (consequence, collaboration, and refocusing concerns) at 59%, 68%, and 73% respectively. The group concerns profile tailed up at the refocusing stage, which, when paired with their intense personal concerns, revealed a disposition of resistance by the teachers towards the curriculum reform. These results were thus an indication that the LSC reform was yet to gain acceptance among its key implementers: the teachers.

A comparison of the patterns of teacher concern within the four demographic groupings of gender, length of teaching experience, qualification level, and subject group was conducted. This revealed significant correlation in the highest teacher concerns with the demographic groups of qualification level (r (385) = -.13, *p*=.01) and subject group (r (385) =-.12, *p*=.022). Gender and experience levels were not significantly correlated with the highest teacher concerns. Analysis of differences in teacher concerns among the qualification levels showed significant differences at the unconcerned (p< .001), informational (*p*= .009), personal (*p*= .005), consequence (*p*= .003), and collaboration stages (*p*= .002). Teachers at the diploma level (n=43) had more intense informational (M=4.89), personal (M=5.01), and consequence stage concerns (M=5.49) compared to Bachelors and Masters' degree holders. Teachers with Bachelors (n=281) and Masters' (n=60) qualifications were found to have intense concerns at the unconcerned stage (M=2.96 and M=3.35 respectively). This was an indication of greater interest and involvement in the LSC reform on the part of Diploma-level teachers compared to Bachelors and Masters' level ones.

At the subject group categorisation, significant differences in teacher concerns were found at the unconcerned (*p*< .001), consequence (*p*= .01), and collaboration (*p*< .001) stages. Teachers of the vocational and arts subjects (n=89) scored higher on the unconcerned stage (M= 3.36) compared to those of humanities, business and languages (n=157, M=2.50), and math and science (n-141, M=3.04). Vocational and arts subject teachers also scored lower means on the consequence (M=4.95) and collaboration concerns (4.61) compared to the other two groups. This was a worrisome indicator of low levels of interest and engagement with the LSC by vocational and arts subject teachers and hence pointed to an urgent need for special, individualised support for this group.

An analysis of the Likert scale responses of the teachers on their perceptions regarding curriculum reform strategies employed by national and school-level change facilitators as well as their own quality of implementation was also conducted. Results revealed negative perceptions on most indicators of the indicators that were assessed. Specifically, teachers had negative perceptions on change management (M=2.58), teacher professional development (2.72), individualised teacher support (M=2.59), technology use (M=2.44), adoption of new teaching approaches (M=3.10), and workload management (M=2.82). The teachers did have positive perceptions on the resourcing of the curriculum (M=2.28), monitoring and evaluation (M=2.51), and use of the new materials (M=3.09). They were neutral on their transformation of professional theories and beliefs (M=2.84). This was an indication that by and large, the curriculum reform strategies may not have been achieving their goals as teachers did not feel supported in their implementation of the LSC. The effect of this was reflected in their quality of implementation of the LSC.

5.1.1.2 Expressed Concerns of Teachers

All the respondents to the teachers' survey were invited to offer a comment expressing their individual concerns regarding the LSC reform implementation. 73% (n=283) of the respondents complied and offered a qualitative response. Deductive thematic analysis of these short responses revealed highest frequency of occurrence of management concerns (50.7%), followed by consequence (22.4%), informational (12.5%), refocusing (8.5%), personal (5.7%), and collaboration (0.2%) concerns. The unconcerned stage did not feature among the concerns possibly because teachers who opted to respond were sufficiently interested in and knowledgeable about the LSC, which was not consistent with the unconcerned stage.

Teachers expressed intense concerns regarding their day-to-day activities as they implemented the LSC. Major challenges were noted regarding: adequacy of instructional materials considering the large learner enrollment in most schools; the lack of technological facilities to support ICT integration which is a core component of the LSC; inadequate school infrastructure, limited financial provision for curriculum needs; and challenges with time management considering the large content in many of the subjects. Teachers also expressed numerous concerns about the impact of the curriculum on their learners. Some believed that the curriculum was going to be highly beneficial with its emphasis on competency while others believed it was too shallow and would thus disadvantage the learners. Teachers questioned the ability of learners to cope with the LSC citing limited prerequisite competences such as reading, personal note-making, and research.

Informational concerns also featured prominently among teacher responses. There numerous calls for further training with many teachers feeling that the training was inadequate. The areas of conducting assessments in the LSC and projects were identified as most confusing for teachers. Besides need for training, a handful of teachers lamented the increased workload, pointing out that it was almost impossible to cater individually to learners given their big classes. The discrepancies in remuneration between teachers of arts and those of sciences was also highlighted as a discouraging factor. Teachers also evinced very little expectation of collaboration, revealing that implementation was still quite siloed to individual teachers.

Several teachers urged a reconsideration of the approach to the entire curriculum reform. There was a conviction that the reform should have started at the primary school level. A number of teachers also felt that stakeholder engagement for the LSC had been

inadequate and inefficient which had led to limited support for the change. As a result, teachers felt they were struggling with various aspects of implementation that required input and support from stakeholders like parents, school administrators, school board members, and community leaders.

5.1.2 Mediating effect of teacher concerns on the relationship between curriculum reform strategies and the quality of implementation of the LSC

Mediation analysis found a significant impact of curriculum reform strategies employed by change facilitators at national, regional, and school levels on the quality of implementation of the curriculum by teachers (β= 0.644, t=18.576, p< .001). Curriculum reform strategies were also found to have a statistically significant impact on the concerns of teachers (β= 0.379, t= 8.947, p< .001). However, teacher concerns had no significant impact on their quality of curriculum implementation (β= 0.051, t= 0.973, p> 0.1). Thus, a direct-only non-mediation effect of teacher concerns on the relationship between curriculum reform strategies and the quality of implementation of the curriculum teachers was inferred. The structural equation model was found to have sufficient explanatory and predictive power for the relationship between the three constructs under study. This result implied that inasmuch as the theoretical framework of the model was sound, there was another more important mediator in this relationship besides teacher concerns.

5.1.3 Perceptions of Selected Change Facilitators

Inductive thematic analysis of interviews with change facilitators revealed six themes in the LSC implementation: physical and financial resources (34.3%), human resource (33.3%), change management (26.3%), assessment of learners (3.0%), the curriculum framework (2.0%), and the learner (1.0%). Their perceptions were well aligned with

the concerns of teachers regarding these themes. Change facilitators recognized that physical and financial resources continued to present a significant hurdle in the implementation of the LSC. They noted that many schools especially at the low SES echelons grappled with limited infrastructure and finances to implement the LSC. They acknowledged that the LSC was, in fact, a costly curriculum to run and this had put most schools under significant strain with the government offering extremely limited financial support. This had created different strata of implementation with a few schools cruising along but many others struggling significantly.

Regarding the human resources, change facilitators noted that issues surrounding staffing levels in schools, teacher remuneration, and teacher competence and preparedness were affecting LSC implementation. While commending the extensive teacher training that had already been conducted, they acknowledged that the cascaded model that was adopted had been limited in efficiency, leading to capacity gaps among the teachers. The large student to teacher ratios were also recognized as an impediment to effective LSC implementation, a problem which persisted due to the limited local government wage bill for teaching staff. Thus, recruitment of more teachers was not feasible. Besides teachers, it was noted that majority of the schools lacked qualified librarians and laboratory technicians to further support the LSC implementation.

In the aspect of change management, change facilitators differed from the teachers in that while teachers felt that stakeholder engagement had been insufficient, they believed that it had been well done and there was goodwill and buy-in from all stakeholders. They did however note that some school boards and administrators were not providing teachers with adequate support in the LSC implementation. Moreover, the monitoring and evaluation of the implementation was found to be wanting as school administrators

were not providing timely, complete reports. The MoES itself was also acknowledged to have limited capacity to conduct nation-wide support monitoring and evaluation of the reform process. This presented a major gap in the LSC implementation.

Finally, the change facilitators concurred with the teachers in their concern regarding learner assessment. Several issues were noted, including that both schools were not adequately prepared for skills-based assessment; the reliability of the formative assessment was questioned due to the lack of a framework for submission of those results to the UNEB; and the persistence of the practice of giving learners frequent standard examinations as in the old curriculum. These issues undermined the quality of implementation of the LSC. The competences of learners also came up for mention, with change facilitators observing that learners, especially those in lower SES contexts did not possess basic competences of reading, writing, and communication. This had prompted teachers to revert to old pedagogies in order to push curriculum coverage.

5.1.4 Influence of curriculum reform strategies on teacher concerns and implementation quality in selected school contexts

A multiple case study was conducted to explore how the Lower Secondary Curriculum (LSC) was being implemented in two schools with divergent socioeconomic contexts. The main findings, derived from classroom observations, document analysis, and interviews, revealed both the commonalities and contrasts between the two schools, code-named NSS (high socio-economic status) and MSS (low socio-economic status).

From the lesson observations, it was apparent that teachers in both schools used official materials, but resource availability impacted the quality of lessons. NSS had more resources like personal laptops for learners, while MSS had limited access to books and no ICT infrastructure. Learners participated in lessons, but often only in brief

discussions. More complex tasks like debates or problem-solving were rare due to time constraints. Group work was common, but groupings were often static, reducing the effectiveness of this strategy. The integration of contemporary global issues (like climate change) and values outlined in the curriculum was lacking in both schools.

From the document analysis, it was clear that NSS teachers kept detailed, organized records, including digital lesson plans and supervision documents. MSS, however, had incomplete documentation and no supervision records.

The interviews revealed that different curriculum reform strategies had been employed in the two schools with mostly divergent results for teacher concerns and implementation quality. Regarding resources, NSS benefitted from higher fees, allowing for more materials and better infrastructure. MSS struggled with insufficient government support, poor infrastructure, and fewer resources. On human resources, NSS emphasized teacher training, leading to greater competence, while MSS teachers felt underprepared due to limited training. In change management, NSS showed proactive change management efforts with frequent supervision and policies to support curriculum implementation, while MSS lacked structured support. In the area of assessment, both schools expressed concerns about the reliability and validity of formative assessments. NSS was particularly worried about UNEB's lack of clarity on end-cycle exams, whereas MSS had limited understanding of new assessment methods. As for the curriculum framework, teachers at both schools found the materials user-friendly but felt the content-to-time allocation was imbalanced, making it difficult to cover the syllabus adequately. Lastly, regarding learner competencies, both schools found that learners were not fully engaged in the new learner-centered curriculum, with MSS facing issues of low participation and high absenteeism.

Therefore, the study revealed that while both schools attempted to implement the LSC, socioeconomic disparities significantly dictated the type and extent of curriculum reform strategies employed by school administrators. This influenced the teachers' concerns and ultimately determined their capacity to implement the curriculum. NSS had better infrastructure and resources, enabling more effective implementation, while MSS faced significant challenges related to limited resources, inadequate training, and infrastructure deficits.

5.1.5 Insights on quantitative results through qualitative findings

The quantitative results were in large part confirmed and explained by the qualitative findings. Both quantitative and qualitative findings were consistent with the ideal occurrence of concerns as proposed by Hall and Hord (2015) whereby in the first three to five years of introduction of an educational change, teachers have intense self concerns and low impact-stage concerns. The intense unconcerned, personal, and informational concerns were explained by the perceptions of inadequate training of teachers, limited stakeholder management, and unsatisfactory teacher remuneration vis a vis workload. Significant hurdles to curriculum implementation were revealed in the qualitative phase, which explained the mediation results whereby teacher concerns were not significantly impacting the quality of implementation. This pointed to a superficial implementation of the curriculum as the tenets of the change had not penetrated the personal and professional commitments of the teachers.

These results were further illustrated in the multiple case study, where it was shown that many teachers were challenged in their implementation of the LSC. Thus, whereas teachers did indeed have important concerns on the curriculum reform process, these were simply not moving the needle on implementation. Contextualization of the study

in the case studies indicated that implementation was being driven by the resources available which was mainly a function of the socioeconomic status of the school and its learners. Lesson observations, document analyses, and interviews with teachers and school administrators revealed contrasting resource systems and professional culture, which greatly buffered the curriculum implementation in the high SES case school but hampered it in the case of the low SES school. This is a worrisome prospect considering that low SES schools in Uganda vastly outnumber high SES ones. Nonetheless, it was clear that teachers at both low and high SES schools still held on to certain tenets of old pedagogy like 'chalk and talk'. This could be explained by the fact that all these teachers were trained in the old curriculum and hence had neither overcome old pedagogy nor embraced the new professional theories and beliefs.

5.2 Conclusions

Teacher concerns are the pulse of an educational change. Regrettably, they are one of the most undermined aspects of change especially in nation-wide endeavours. Notwithstanding, teacher concerns represent one of the "key details" Fullan (2015, p.22) that must be attended to by change facilitators for a successful change process. This study investigated the concerns of Ugandan secondary school teachers tasked with the implementation of the LSC reform. The Uganda LSC reform sought to revitalize and transform the country's education system to position the country to better pursue national socioeconomic goals. The following are the conclusions from this study:

5.2.1 An Analysis of Teachers' Concerns in Implementing the Uganda LSC

Teachers' concerns in implementing the Uganda Lower Secondary Curriculum (LSC) revealed a sense of disengagement and resistance. The teachers showed intense self-stage concerns, particularly personal and informational, indicating a lack of acceptance

of the reform. While stakeholders, including teachers, professed an adoption of the change philosophy, teachers' concerns reflect superficial implementation and disengagement. There were significant concerns related to the adequacy of instructional materials, the integration of ICT, infrastructure, and the perceived impact of the curriculum on learners. Teachers also expressed confusion regarding assessment procedures and projects. These concerns point to ineffective strategies, a lack of clarity, and insufficient commitment to the reform. Teachers faced varying conditions, with those in lower socioeconomic contexts struggling more than their better-resourced counterparts. Teacher concerns, especially around their motivation, working conditions, and the perceived lack of ownership in the reform, thus underscore the issues of top-down models that do not address local school contexts.

5.2.2 The Relationships Between Curriculum Reform Strategies, Teacher Concerns, and Implementation Quality

The study found that curriculum reform strategies had a significant impact on both the quality of implementation and teacher concerns. However, teacher concerns did not significantly affect the quality of implementation, suggesting that there are more critical mediators in this relationship. Moreover, the study showed that curriculum reform strategies did not fully account for teacher concerns. The top-down approach assumed that policymakers could control the process, but this neglected the realities of individual school contexts. The lack of ownership, clarity, and inspiration for change among teachers further weakened implementation. Teachers' self-stage concerns (informational and personal) prevailed, signalling that they were not fully engaged with the curriculum changes.

5.2.3 The Perceptions of Change Facilitators on the Curriculum Reform Strategies, Teacher Concerns, and Implementation Quality

Change facilitators (MoES officials and NCDC trainers) perceived the LSC reform as largely adopted, but their insights revealed gaps in implementation, including superficial teacher engagement and resistance. They noted insufficient attention to teachers' working conditions and concerns, which led to uneven implementation and a false sense of success. Facilitators also admitted a lack of preparedness and inadequate communication of the vision to teachers, which hindered broader action. Some facilitators, recognizing the mismatch between the reform's goals and teachers' realities, acknowledged that the reform may not have been adequately contextualized for schools with fewer resources.

5.2.4 The Influence of Curriculum Reform Strategies on Teacher Concerns and Implementation Quality in Two Case Schools

In the two case study schools, teachers experienced starkly different working conditions. One school's environment was conducive to reform, while the other's was debilitating. Teachers in the well-resourced school made some instructional changes but largely retained old teaching practices, reflecting superficial compliance with the reform. Meanwhile, teachers in the under-resourced school struggled with implementation. These differences in context significantly influenced how curriculum reform strategies affected teachers' concerns and overall implementation quality. Both schools experienced difficulties with learner engagement and assessment, but NSS was better equipped to address these challenges.

5.2.5 Insights on Quantitative Results Through Qualitative Findings on How Teacher Concerns May Be Leveraged for Effective LSC Implementation

Both the quantitative and qualitative data reflected the complex dynamics between curriculum reform strategies, teacher concerns, and the quality of implementation in the context of Uganda's LSC reform. Quantitative data (through the Concerns-Based Adoption Model) and qualitative data (from open-ended statements) both revealed high self-stage concerns, such as a lack of personal commitment to the reform. While teachers expressed superficial acceptance of the reform, deeper concerns about professional development, working conditions, and the clarity of the reform goals persisted. By integrating the quantitative and qualitative data, change facilitators can better assess and address these concerns. The study suggests that acknowledging and incorporating teacher concerns into the curriculum implementation process could improve engagement and lead to more sustainable changes.

5.3 Theoretical Contributions

This study contributes to the literature on the implementation and management of educational change in the Ugandan context and similar contexts in sub-Saharan Africa and beyond. Much of the research on various aspects of progress in the Ugandan LSC implementation has been theoretical, literature review-based, or small-scale and localised (Aheisibwe & Barigye, 2023; Kidega et al., 2023; Mubangizi, 2020; Muhwezi, 2022; Olema et al., 2021). This empirical study took a large-scale approach, sampling teachers from diverse schools around the entire central sub-region thereby providing a wider scope of understanding of teacher concerns. It provides unique insights on the concerns of teachers who are "the only input that counts" in educational change (Verger et al., 2013, p. iv).

An important contribution of this study to the understanding of the case of LSC reform implementation in Uganda is the revelation of high levels of disengagement and possible resistance by the teachers. The qualitative exploration through teacher open-ended statements, change facilitator perceptions and the multiple case study gave grounds for the contention that inasmuch as the LSC reform had been introduced, the change philosophy and innovation was yet to make significant inroads into the personal and professional commitment of teachers. This confirmed the assertion by Goodson (2014) that externally-mandated change often places teachers in a crisis of positionality whereby teachers, who would otherwise have been drivers of change, become reactive, resistant, and conservative agents of change.

Viewed through the lens of Lewin's Change as Three Steps (CATS) model (Cummings et al., 2016), the findings suggest that these teachers had not quite made it out of the unfreezing stage. Despite apparent changes in instructional approaches and the perception by most change facilitators and teachers that the change had indeed been embraced, it was evident that old teaching practices still prevailed to a larger extent even in the well-resourced schools. This indicates that teachers may have made superficial changes only to the extent that they could avoid sanctions (Fullan, 2015; Rogan & Grayson, 2003).

The apparent overwhelming acceptance of the change philosophy by teachers must therefore be questioned critically. The unfreezing stage involves generation of enough motivation for organisational members to want to change (Cummings et al., 2016; Hussain et al., 2018). In the Uganda LSC reform, change facilitators undertook this through an extensive campaign of demonising the old curriculum in the hurriedly-organised teacher training sessions a month before implementation began and on

various mass communication media. Communiques from the NCDC were also released compelling schools to begin adaptation despite the prevailing atmosphere of confusion. It may be concluded therefore that in proclaiming the curriculum change a success, change facilitators may have declared victory too soon (Kotter, 2012).

Following Kotter's eight-stage process of change, the findings of this study point to strategic lapses in the initial stages of: establishing a sense of urgency, identification and empowerment of change leaders, communication of the vision, and empowerment of change implementers for broad-based action (Kotter, 2012). Indeed, the last point was a major source of concern for teachers and school-level change facilitators who felt that they were simply not equipped enough to transition properly. As put by one school administrator: "We are just living with the old and pretending to be in the new…", and a teacher of Geography: "The old curriculum works due to scarcity… but this one would have been better for the learner". In this sense therefore, the case of the Uganda LSC implementation supplies an illustration of the propagation of policy myth (de Bliesemann, 2016) wherein the goals and demands of the LSC seem to be irreconcilable with the realities in the school implementing it, hence breeding conflicts which are often suppressed through silences in discourse.

This study employed the Concerns Based Adoption Model to analyse teacher concerns in the implementation of the nationwide LSC Reform in Uganda. Most policy-implementation models, including the 5C protocol (Najam, 1995); the curriculum implementation framework from the OECD (OECD, 2020); and Rogan and Grayson's curriculum implementation framework for developing countries (Rogan & Grayson, 2003) take an eagle's view of the educational change process, minimising the perspectives and experiences of change implementers. The CBAM was found to be a

useful model to effectively measure the behavioural and affective aspects of curriculum implementation (George et al., 2013; Gundy & Berger, 2016). Moreover, employment of the CBAM in the East African context, where it has seldom been used, showed it to be a universally-relevant tool for gauging the progress of nation-wide educational change from the change implementer's perspective.

Additionally, the study methodology demonstrated one approach of integrating quantitative data from the CBAM Stages of Concerns Questionnaire and qualitative data from gathering of open statements about an educational change as recommended by (George et al., 2013). Integration of findings from these two datasets provided important insights for the interpretation of teacher concerns. It also aided in the contextualisation of interpretations of the group's SoCQ profile. This is a useful approach for change facilitators at both school and national levels in assessing and understanding the concerns of teachers in educational change in Uganda and in similar contexts.

The assumption of hierarchical presentation of teacher concerns as represented by the ideal wave motion progression of concerns (Hall & Hord, 2015) was confirmed in this study. The group profile revealed that teachers in the sample group generally presented intense self-stage concerns, which is the first stage of concerns that is expected within the initial three years of introduction of an educational innovation. This, despite their qualitative expressions being skewed towards the higher impact concerns. This divergence between open statements and SoCQ concerns profile confirms the caution by Newlove and Hall (1976) that the self-perceptions of teachers is often at odds with their actual attitudes and dispositions towards an educational change so school-level change facilitators will have to be careful not to simply take the teachers' words during

assessment of their concerns. The hierarchical progression of concerns will need to be further confirmed through a longitudinal assessment of these teachers' concerns.

Finally, this study contributed an action model by which change facilitators at the school and national level may manage the curriculum reform process. Nilsen (2015) explained that an action model, which is a type of process model, serves to support implementation by translating research into practice by highlighting critical elements of the process and proposing steps to be followed for successful implementation. The action model proposed in this study identified key weak points in the LSC reform process as revealed from the findings on teacher concerns. These included: limited involvement of teachers in the curriculum development process, non-contextualisation of curriculum reform strategies, and low levels of accountability in most government secondary schools. The main body of this study has provided a demonstration of how school-level change facilitators can collect, analyse, and interpret teacher concerns through the integration of the CBAM SoCQ and open statements. Thus, the model proposes a cyclic curriculum management process wherein teacher concerns are leveraged in curriculum implementation, evaluation, and continual review.

5.4 A Proposed Curriculum Management Cycle

This study proposes that one of the key avenues by which Ugandan change facilitators can wrest control of the reform process is to leverage the concerns of teachers; the "street-level bureaucrats" (Nilsen et al., 2013; Souto-Otero, 2011). The Education 2030 Incheon Declaration, and the UNESCO-IICBA teacher support and motivation framework for Africa lobbied for greater teacher involvement in educational decision-making by ensuring that teachers' needs and concerns are heard and addressed (UNESCO, 2016; UNESCO-IICBA, 2017). Teacher concerns, as has been

demonstrated in this study, provide key insights into the progress of an educational change.

The challenge, however is in how to capture the concerns of every individual teacher in the teaching corpus around the country. This is a formidable prospect which is often undermined by policy makers in their push for “big idea reforms” (Fleisch et al., 2019). As a result, many of these reforms in the sub-Saharan Africa region have failed to realise stated educational objectives (Cunningham, 2018; Fleisch et al., 2019). As noted by Hall and Hord (2015), change is unique to the individual teacher, it is a process, and can only be realised through the actual change in classroom practices by every individual teacher country-wide.

An action model in the form of a curriculum management cycle is therefore proposed as shown in Figure 5.1. This cycle visualises the quality assurance process advanced in the draft curriculum framework that was proposed by McRory (2013). It incorporates teacher concerns into this process thereby allowing teacher concerns to be a primary guide for continual review and improvement of the curriculum.

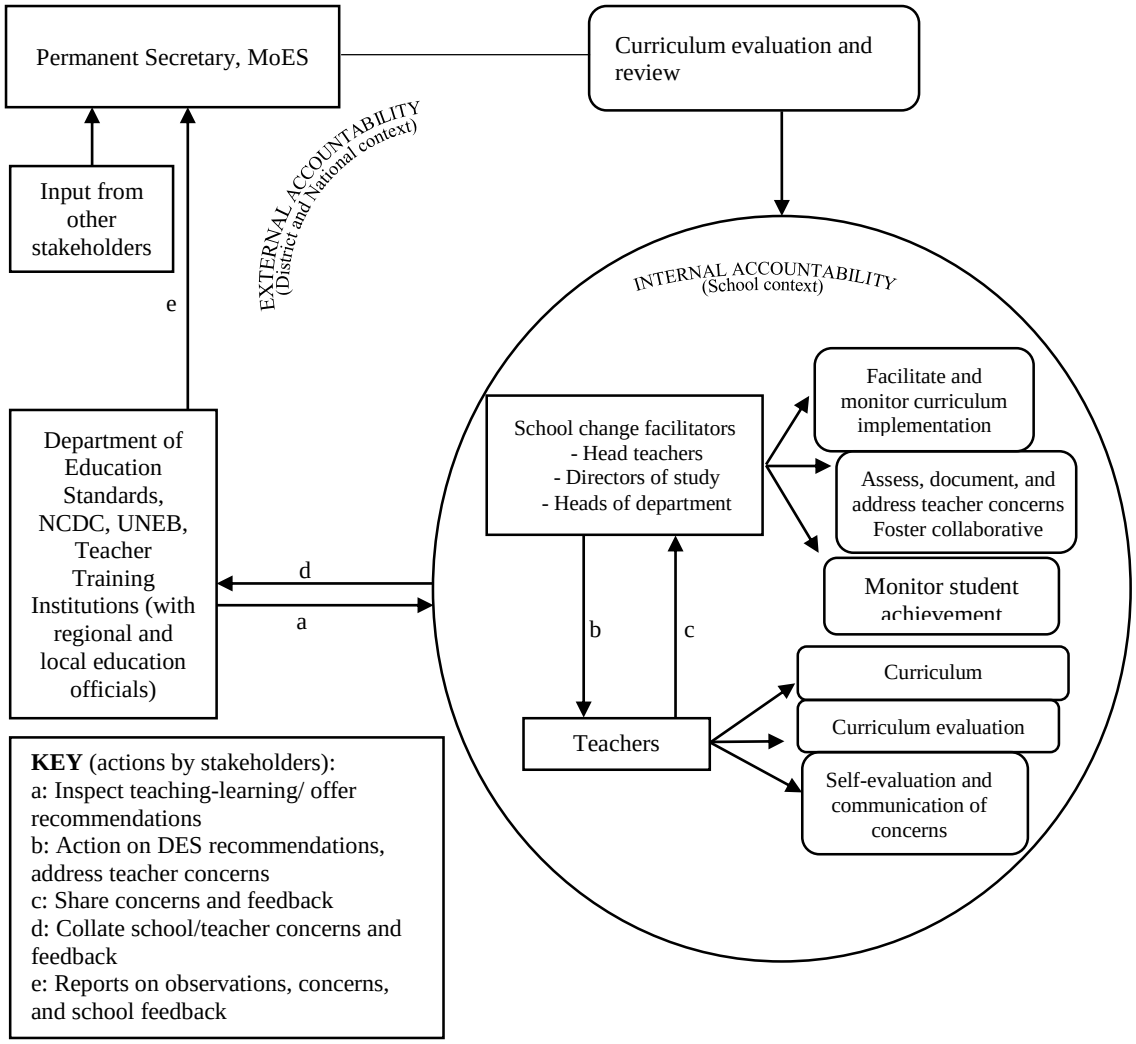


Figure 5.1: *A proposed curriculum management cycle for the revised LSC in Uganda (Author, 2024)*

Note: The cycle integrates recommendations from this study's findings with concepts from Fullan (2015), Hall and Hord (2015), and McRory (2013).

The curriculum management cycle presents three key functions through which teacher concerns may be leveraged in educational change:

i. Diagnosis: Within the school context, school administrators have the imperative to guide educational change. Thus, they have direct oversight over the ways in which teachers receive, interpret, engage with, and implement the curriculum for achievement of stipulated educational objectives. Thus, within the cycle, contextualised teacher concerns may be gathered and categorised by school level change facilitators using the diagnostic tools of the CBAM. Thereafter, they may be escalated to regional and national change facilitators. This will facilitate enhanced understanding and measurement of progress in implementation; identification of problem areas; and improvement of the curriculum through evaluation and review.

ii. Intervention: The curriculum management cycle will facilitate timely and contextually-relevant interventions for effective curriculum implementation. Feedback from teachers through the expression of their concerns, juxtaposed with conclusions from assessment of student achievement should inform the type and depth of intervention programs to be designed and conducted. Conversely, the cycle allows feedback from local and national educational leaders to trickle down to teachers. School administrators are able to align this feedback with the contextual realities of their school and, in collaboration with the teachers, implement the suggestions from change facilitators.

iii. Accountability: By generating and maintaining dialogue around the curriculum reform process, the curriculum management cycle will help to establish accountability systems both internally within the school system

and externally. Accountability is encouraged when teachers are conducting self-evaluation on their implementation of the curriculum; the school administrators are evaluating systems in place to support implementation; and external change facilitators are frequently exchanging feedback with the schools. Thus, teacher ownership and commitment to the curriculum are engendered as their concerns are solicited and addressed.

This cycle would allow the national change facilitators to view the progress of the reform from the real-world settings in the country, specifically in the schools, districts, and sub-region contexts; which is fundamental to successful educational change in sub-Saharan contexts (Rogan & Grayson, 2003). It would guide them to design relevant continuous professional capacity development programs that cater to the real-time issues that the teachers are dealing with, just as Fuller (1974) suggested. More importantly, it would allow them to factor the concerns of the individual teachers in curriculum evaluation and review, such that the teachers attain a very real voice and influence in the curriculum development cycle. As Ornstein and Hunkins (2018) opined, curriculum is always in a state of being made so the cyclic process ensures this. Such a curriculum management cycle would also facilitate the creation and maintenance of systems of internal and external accountability, a feature that is missing in many Ugandan government secondary schools, as has been demonstrated in this study. Fullan (2015) explained that internal accountability was a precondition for continuous student improvement as it assured both individual and collective responsibility through the creation of a collaborative school culture. This study demonstrated a general lack of collaborative culture among teachers in Ugandan schools which meant that teachers were not benefitting from collegial support in implementing the LSC. Moreover, establishment of internal accountability systems

may be a useful means of stimulating teacher professional and personal commitment to the LSC reform. External accountability can then be built upon this through continuous monitoring, standards-setting, interventions, and review of the curriculum (Fullan, 2015).

This proposed curriculum management cycle presents some assumptions. Firstly, it assumes that a robust information management system exists through which information may flow between schools and national-level change facilitators. Thus, existing systems like the Teacher Effectiveness and Learner Achievement (TELA) would have to be strengthened and popularised for this purpose. Secondly, it assumes that school administrators are present at their work stations and sufficiently knowledgeable and engaged in the curriculum reform process. The findings of this study revealed that this was often not the case, especially in low SES government schools where lower-cadre administrators like directors of study or teacher leaders often took leadership. This is detrimental to the change process, since school administrators constitute an important link between external change facilitators and the school system. As Fullan (2015) admonished, successful educational change relies on school administrators taking up their role as instructional leaders, creating a conducive environment for teachers and students. Therefore, the MoES and its supporting agencies should intensify efforts to build the capacity of school administrators to take up their roles within the schools.

5.5 Recommendations

Further, the following recommendations are made based on the findings of this study:

At policy level:

i. The NCDC and Ministry of Education should adopt the curriculum management cycle proposed in this study as it incorporates teacher concerns and also provides critical contextual information about the progress of the curriculum reform process. By placing teacher concerns at the heart of curriculum implementation and review, policy makers signal their commitment to teacher involvement and hence reinvigorate teacher commitment and motivation.

ii. The Uganda National Institute of Education (UNITE), all teacher training institutions, and the NCDC should align programs of teacher capacity development to the concerns expressed by teachers since these concerns represent the prevailing knowledge and skill gaps. In this study, the areas of project management and assessment of learners came up severally for mention by teachers.

iii. Following the higher impact concerns by diploma-level teachers compared to Bachelor's and Master's degree-level teachers, the MoES through the Uganda National Institute of Teacher Education (UNITE) should consider modelling teacher training programs after those used at National Teacher Colleges. It was demonstrated in this study that this kind of training seems to be more compatible with the requirements of the competency-based curriculum as compared to the more theoretical bachelor and Masters trainings.

iv. There is an urgent need for the MoES in collaboration with the Ministry of Finance, Planning, and Economic Development of Uganda (MoFPED) to build the capacity of schools in low SES contexts to implement the curriculum. These schools constitute the majority of government secondary

schools in Uganda. Thus, it is not enough to place expectations and demands upon them to implement the LSC. Their lower capacity for contingency in terms of supplementing instructional materials, expanding infrastructure to accommodate LSC demands, and hiring more teachers must be acknowledged. There may be a need to re-evaluate the funding model to channel more resources away from non-USE schools, which already have a robust disposable income, to USE schools, which strongly depend on government capitation. They should also be supported through technical advice from experts on how to manage the curriculum given their specific contexts.

v. The Government through the Ministry of Education and Sports, should review teacher remuneration. The existing salary disparities between teachers of sciences and those of arts subjects should be removed since these perceptions of unjust remuneration are negatively impacting teacher commitment to curriculum implementation.

vi. Rather than predicate salary enhancement on the subject group taught, with science teachers earning more than arts teachers, the Government of Uganda, through the MoES and Ministry of Finance, Planning, and Development should incentivise teachers based on qualification and competence. Thus, teacher remuneration structures should be revised to motivate more teachers to upgrade their qualifications and remain within the teaching profession. This will help to boost competence among Ugandan teachers to deliver the LSC reform and hence support the achievement of its objectives.

At the school administration level:

i. School administrators and leaders should be trained in the use of the CBAM to monitor progress in curriculum implementation, and specifically teacher concerns. Few other models offer the range of adaptable diagnostic tools for monitoring curriculum change at individual, or group levels. Thus, the CBAM can be employed by school administrators, as was demonstrated in this study, to gain insight into teacher concerns, understandings, and practices during educational change.

ii. Teacher concerns should be addressed to farthest extent possible to support them progress to impact concerns. Suppression or neglect of teacher concerns only breeds frustration and lowers the quality of LSC implementation. This is facilitated by consistent interaction between school administrators and teachers through classroom supervision and feedback, and staff sessions to discuss curriculum implementation. Differential attention should be paid to subject groups, especially the vocational and arts group as they were showed to be struggling with curriculum implementation.

iii. As leaders of educational change, school administrators should establish and maintain communication channels with national-level change facilitators through which teacher concerns can be conveyed. Therefore, they should make the most of systems like the Teacher Effectiveness and Learner Achievement (TELA) online system to provide up-to-date reports on implementation progress to national change facilitators.

iv. School administrators should actively encourage collaboration among teachers in the implementation of the LSC. This must be preceded by

training on the value of professional learning communities and how both school administrators and teachers can leverage them for increased teacher productivity, accountability, and motivation. They must also create a conducive environment for collaborative practices, for example by allowing teachers some free time on the timetable for this purpose.

For further exploration:

i. It is recommended that a longitudinal study be conducted to document the evolution of concerns of teachers implementing the Uganda LSC over time. This would be instructive for change facilitators on the factors shaping the reform process through the perspective of teachers who are key implementers.

ii. This study focused on curriculum implementation in government schools. Therefore, it will be important to investigate the curriculum implementation process in private schools considering that they constitute the majority of secondary school institutions in Uganda. This will offer change facilitators a circumspect understanding of teacher support needs in the implementation of the LSC.

iii. This study offered grounds for concluding that there were high levels of disengagement among secondary school teachers tasked with implementing the LSC. Further research needs to be conducted into this phenomenon to empirically confirm or disconfirm this assertion and also provide a greater understanding of it in the Ugandan secondary school context.

iv. The study found a direct-only non-mediating effect of teacher concerns on the relationship between curriculum reform strategies and quality of curriculum implementation. Additionally, the multiple case study revealed

that school socioeconomic context greatly contributed to the quality of curriculum implementation. However, teacher concerns in both socioeconomic contexts were more or less similar. Therefore, a study should be conducted on the relationships between school socioeconomic context and teacher concerns to determine whether there are actually differences in concerns of teachers in either context.

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APPENDICES

Appendix A: Map of Uganda showing sub-regions.

Source: (UNHCR, 2020)

Appendix B: Sampling frame showing list of government schools in Central sub-region of Uganda (Ministry of Education And Sports, 2019)

SN	School	District	EMIS CODE
1	MAZZI VOC SSS	LUWEERO	218016
2	KABUNGO S.S	KALUNGU	5705
3	LUZINGA SSS	KAMULI	3748
4	KABUWOKO S S S	RAKAI	10118
5	MPUNGE SEED SS	MUKONO	0
6	AIRFORCE SS	ENTEBBE MC	288001
7	LUBIRI S S S	KAMPALA	3428
8	KALANGAALO S.S	MITYANA	8728
9	NALINYA LWANTALE	LUWEERO	20883
10	HOLY FAMILY KYAMULIBWA	KALUNGU	228138
11	BUSSI SEED SS	WAKISO	7517
12	KYAKAGO S S S	RAKAI	328020
13	MUBENDE ARMY SS	MUBENDE	2980062
14	SAM IGA MEMORIAL COLLEGE	WAKISO	8177
15	KABULASOKE SEC.SCH.	GOMBA	7901
16	BUVUMA COLLEGE	BUVUMA	9175
17	ST PHILLIPS EQUATORIAL SEC SCH.NABUSANKE	MPIGI	8425
18	KADDUGALA S.S	MASAKA	5615
19	BUSOGA HIGH	KAMULI	20536
20	BUKASA S.S	KALANGALA	128001
21	ST ANDREW KAGGWA MADUDU SS	MUBENDE	8592
22	BUKANDULA MIXED S.S	GOMBA	7894
23	NAMASUMBI MOSLEM SCH	MUKONO	9240
24	NAKWAYA S.S	MITYANA	8804
25	LYANTONDE S.S.S	LYANTONDE	9888
26	GOMBE S.S	MPIGI	21189
27	UGANDA MARTYRS S.S BUYOGA	BUKOMANSIMBI	5513
28	NAMAKWA S.S	MUKONO	9332
29	KASANGOMBE S.S	NAKASEKE	218042
30	KYATO S.S	KALUNGU	5694
31	BUDDE S.S.S	BUTAMBALA	7817
32	KATALEKAMMESE MODERN SS	NAKASEKE	5690012
33	KISOZI SEED SS	GOMBA	
34	LUZIRA SS	KAMPALA	3313
35	KAPEEKA S.S	NAKASEKE	5240
36	KASAWO S.S.S	MUKONO	9425

SN	School	District	EMIS CODE
37	ST JOHN MARY MUZEEYI'S BIGADA S S	RAKAI	9905
38	NGOMA SS	NAKASEKE	5302
39	BAMUSUTA SS	KIBOGA	11332
40	NATETE MUSLIM H.S	KAMPALA	3411
41	KAKOMA S S S	RAKAI	10025
42	NABINGOOLA PUBLIC SCHOOL	MUBENDE	298003
43	ST JOSEPH S.S KAKINDU	MITYANA	790022
44	ST JOHN'S NANDERE SS	LUWEERO	5182
45	KITALA SS	WAKISO	538209
46	ST EDWARDS COLLEGE GALAMBA	WAKISO	538153
47	3 RS S.S	BUIKWE	8950
48	NAMUTAMBA SEC SCHOOL	MITYANA	8754
49	LUTEETE SS	LUWEERO	5370
50	LUWEERO SEED SS	LUWEERO	218090
51	ST VICTOR'S KITAASA S.S.	BUKOMANSIMBI	5493
52	KIKUNGWE S.S	MASAKA	5570
53	BISHOPS MUKONO	MUKONO MC	21541
54	KASAKA S.S	GOMBA	7934
55	WAMPEEWO NTAKKE SSS	WAKISO	8265
56	BUTAWUKA MAGEZI NTAKE	BUTAMBALA	7830
57	NAKASOGA	RAKAI	10144
58	MENGO S S S	KAMPALA	20457
59	MAWOGOLA HIGH S BUKULULA	SEMBABULE	468025
60	BUYAMBA S S S	RAKAI	10043
61	KABBO SEED SS	MUBENDE	
62	NAAMA S.S	MITYANA	8769
63	KAMPALA H.S	KAMPALA	3124
64	ST PAUL C.O.U SS	KYANKWANZI	
65	BAGEZZA SEED SS	MUBENDE	298046
66	KIBUUKA MEMORIAL S.S.S	MPIGI	8391
67	KITAGOBWA S.S	BUTAMBALA	7888
68	ST BERNARD MANYA S S S	RAKAI	9948
69	ST ANDREW KAGGWA SSS	LUWEERO	5119
70	ST MARK SSS KAMENGO	MPIGI	8328
71	KITENGA SS	MUBENDE	8567
72	BULAMU SEED SEC.SCH.	MPIGI	288123
73	KAMULI GIRLS' COLLEGE	KAMULI	3744
74	MACKAY COLLEGE SCHOOL	KAMPALA	3412
75	BOMBO ARMY SS	LUWEERO	218035
76	KABUKYE SS	KAMULI	3548

SN	School	District	EMIS CODE
77	ENTEBBE S.S.S.	WAKISO	22672
78	KINGS COLL BUDDO	WAKISO	7624
79	ST PETER'S S.S KIGUMBA	BUKOMANSIMBI	228044
80	MYANZI SS	MUBENDE	8714
81	KAKO S.S	MASAKA	20996
82	ST MAURICE LWAGGULWE S.S.S	MASAKA	5574
83	NAMAGABI S.S	KAYUNGA	9611
84	KITANTE HILL SCHOOL	KAMPALA	20309
85	VICTORIA SS SSI	BUIKWE	9157
86	SEETA COLLEGE	MUKONO	9351
87	TRINITY COLLEGE NABBINGO	WAKISO	22748
88	ST MUGAGA SS KIGANDA	MUBENDE	8686
89	JJUNGO SSS	WAKISO	7523
90	LUTENGO S.S.S	KALUNGU	5687
91	BUSULWA MEMORIAL SS	KIBOGA	11277
92	KYAGAMBIDDWA	KALUNGU	5740
93	ST ANTHONY S.S KAYUNGA	MASAKA	5610
94	BUJUBI S.S	MITYANA	8474
95	KYAMBOGO COLLEGE S	KAMPALA	20408
96	ST JOSEPH'S VOCATIONAL SSS, KIGANDO	KYANKWANZI	378031
97	NAMPUNGE COMMUNITY HIGH SCHOOL	WAKISO	7501
98	GALIRAYA SEED S.S	KAYUNGA	308000
99	KIBIBI S.S	MPIGI	484128
100	ST JOSEPH'S SS VVUMBA	KYANKWANZI	11385
101	KIZIBA HIGH SCHOOL	RAKAI	328005
102	KABALE SANJE S S	RAKAI	9929
103	NDEJJE S.S	LUWEERO	20882
104	ST CHARLES LWANGA SS	MUKONO	290169
105	KATEREERO S S S	RAKAI	9962
106	KYOTERA CENTRAL S S	RAKAI	10130
107	NSANGI SECONDARY SCHOOL	WAKISO	7687
108	BUTOLOOGO SEED SS	MUBENDE	
109	SEKANYONYI SSS	MITYANA	8852
110	KASANA SS & VOC SCH	MUKONO	308050
111	SSEKE S.S	LWENGO	5803
112	MPIGI SS	LUWEERO	5381
113	SEMBABULE COU SS	SEMBABULE	12805
114	LUKALU S.S	BUTAMBALA	7840
115	ST KIZITO S.S NAKIBANO	MUKONO	9483

SN	School	District	EMIS CODE
116	NDAGWE S.S	LWENGO	5852
117	ST PETER NSAMBYA	KAMPALA	20398
118	NABISUNSA GIRLS	KAMPALA	20407
119	OUR LADY OF COUNSEL GAYAZA	WAKISO	8224
120	BALIBASEKA SS	WAKISO	538116
121	KIGGWA S.S.S	MITYANA	8440
122	KABUKUNGE MOSLEM S.S	KALUNGU	5701
123	ST MATIA MULUMBA MIREMBE-MARIA SS	MUBENDE	298097
124	ST KIZITO SSS BANDA	MITYANA	8467
125	KITATYA S.S	KAYUNGA	8924
126	NYENGA S.S KIGUDU	BUIKWE	9087
127	KINUUKA SEED S.S	LYANTONDE	810000
128	BUSAANA S.S.S	KAYUNGA	9555
129	ST CHARLES LWANGA LWANGIRI SS	MUBENDE	298010
130	KIWOKO S.S	NAKASEKE	218004
131	OLD KAMPALA SSS	KAMPALA	20342
132	NDEEBA S.S.S	KAYUNGA	9592
133	MASAKA S.S	MASAKA	21049
134	LWEMIYAGA SS	SEMBABULE	12688
135	MISANVU S.S	BUKOMANSIMBI	5505
136	SSERWANGA LWANGA MEM S.S.S	KALANGALA	128000
137	MITYANA S.S	MITYANA	21393
138	BUWAMBO SEED SECONDARY SCHOOL	WAKISO	55154
139	NAKASONGOLA S.S.	NAKASONGOLA	12682
140	BUKUYA SS	MUBENDE	8613
141	ST RAPHAEL'S KABIRA S S S	RAKAI	10066
142	ST JOHNS KALIIRO COMP. S.S	LYANTONDE	328105
143	ST BALIKUDDEMBE S.S MITALA MARIA	MPIGI	21223
144	KASSANDA SS	MUBENDE	8655
145	MATEETE COMPREHENSIVE SS	SEMBABULE	468026
146	KASENYI SS	MUBENDE	8602
147	ST GONZAGA S.S.S	LYANTONDE	9893
148	KIBAALE S S S	RAKAI	9993
149	KIRYASAAKA SEC.	BUKOMANSIMBI	5506
150	NAKATEETE S.S	LWENGO	228057
151	CARDINAL NSUBUGA S.S.S KITAKYUSA	MPIGI	308060
152	ST PAUL S.S MBULAMUTI	KAMULI	3730
153	KOLOLO HS	KAMPALA	3100
154	SSERINYA S S S	RAKAI	9961

SN	School	District	EMIS CODE
155	MASULITA SSS	WAKISO	7586
156	KAGGULWE S.S	BUTAMBALA	7847
157	NANKANDULA SS	KYANKWANZI	11348
158	KALWANA SS	MUBENDE	298014
159	ST CHARLES LWANGA SS KASASA	KALUNGU	0
160	KIBULI S S S	KAMPALA	20398
161	ST KIZITO KATIKAMU KISULE SS	LUWEERO	5210
162	KIJJABWEMI S.S	MASAKA MC	5766
163	KITEBI S.S	KAMPALA	3395
164	KAIKOLONGO SEED SECONDARY SCHOOL	LWENGO	228021
165	MENDE KALEMA MEMORIAL SSS	WAKISO	7782
166	MPENJA SEC.SCH.	GOMBA	7965
167	ST MARIA GORETTI KATENDE	MPIGI	21236
168	LWABIYATA SEED SS	NAKASONGOLA	458019
169	ST HERMAN LWANKONI	RAKAI	10152
170	MIGYERA UWESO S.S	NAKASONGOLA	458014
171	KALOKE CHRISTIAN HIGH SCHOOL	NAKASEKE	218009
172	NAKASONGOLA ARMY S.S	NAKASONGOLA	12673
173	BISHOP DUNSTAN S.S.S	KALANGALA	3054
174	NAKANYONYI S.S.S	MUKONO	9472
175	NAMWEZI SS	BUIKWE	9074
176	LWERU S.S	BUIKWE	308071
177	UPPER PRISON INMATES SS LUZIRA	KAMPALA	111111
178	SEMU M MUWANGUZI SSS	LUWEERO	218014
179	TARGET COMMUNITY COLLEGE	LUWEERO	218036
180	B.L.K MUWONGE NTUNDA	MUKONO	9530
181	KAKOOGE S.S.S	NAKASONGOLA	12574
182	MMANZE SSS	WAKISO	7587
183	ST DENIS SSEBUGWAWO SS GGABA	KAMPALA	138034
184	ST ANN'S SS NTUUSI	SEMBABULE	12703
185	NAMUGANGA S.S.S	MUKONO	9519
186	ST BALIKUDDEMBE S.S LWABENGE	KALUNGU	5739
187	KALINABIRI S S	KAMPALA	20404
188	LUWERO S.S.	LUWEERO	5137
189	MBULIRE S.S	BUKOMANSIMBI	5520
190	MATALE C/U SEC SCHOOL	RAKAI	10092
191	KITENDE SSS	WAKISO	7693
192	KINYOGOGA SEED S.S	NAKASEKE	650006
193	ST MARY'S NKOZI S.S	MPIGI	21258

SN	School	District	EMIS CODE
194	KIFAMBA COMP. SS	RAKAI	328031
195	BUKOMERO SECONDARY SCHOOL	KIBOGA	11255
196	ST CLEMENT S.S NKONI	LWENGO	228056
197	ST KALORI LWANGA SS MULAJJE	LUWEERO	
198	KASAMBYA PARENTS	MUBENDE	298016
199	ST M. KALEMBA S.S NAZIGO	KAYUNGA	22559
200	KOLOLO SS	KAMPALA	3097
201	MUKONO H.S	MUKONO MC	9294
202	LUBUGUMU JAMIA HIGH SCHOOL	WAKISO	528201
203	KALONGO S.S	NAKASONGOLA	458013
204	MUBENDE LIGHT SSS	MUBENDE	8510
205	ST PETERS NKOKONJERU	BUIKWE	9167
206	PILIGRIM'S GIRLS S.S BUKULULA	MASAKA	21012
207	KOJJA S.S.S	MUKONO	9387
208	KASENGEJJE SS	WAKISO	7749
209	KIRINYA COU SS	WAKISO	550153
210	BAALE S.S	KAYUNGA	8871
211	MATUUMU SS	KAMULI	3715
212	KIJAGUZO S.S	NAKASEKE	5345
213	BUYIMBAZI SS	KYANKWANZI	378032
214	KANGULUMIRA PUBLIC S.S	KAYUNGA	498012
215	KIYUNI SS	MUBENDE	8576
216	ST JOSEPHS S.S KYANKWANZI	KYANKWANZI	378029
217	BULO PARENTS	MPIGI	21175
218	NAMILYANGO COLLEGE	MUKONO MC	9219
219	ST PETER'S NAMWENDWA SS	KAMULI	3611
220	KISAALIZI S.S	NAKASONGOLA	12628
221	KAWEMPE MUSLIM	KAMPALA	20361
222	HOLY FAMILY NAZARETH S S	RAKAI	328003
223	NAKYENYI S.S.S	LWENGO	5836
224	AGGREY MEMORIAL SS	WAKISO	8139
225	ST JOSEPH'S VOCATIONAL HIGH SCH.NAKASONGOLA	NAKASONGOLA	458020
226	CITY HIGH	KAMPALA	20295
227	ST MARY'S S S SSANJE	RAKAI	9930
228	BUGULUMBYA SS	KAMULI	148018
229	GAYAZA HIGH SCH	WAKISO	22935
230	MAKERERE COLLEGE	KAMPALA	20375
231	KIBOGA PARENT'S SSS	KYANKWANZI	378012
232	KKOME SEED S.S	MUKONO	290343

SN	School	District	EMIS CODE
233	ST ADRIAN KASOZI S S	RAKAI	10057
234	BUZZIBWERA SS	LUWEERO	5422
235	WAKISO SS FOR THE DEAF	WAKISO	7506
236	KIRA SS	WAKISO	8032
237	ST MARY'S COLLEGE KISUBI	WAKISO	22707
238	NGOGWE BASKERVILLE S.S	BUIKWE	308094
239	KIWAWU S.S.S	MITYANA	8490
240	NAMASAGALI COLLEGE	KAMULI	3601
241	LWAMATA SEED SS	KIBOGA	378028
242	KAKUNGUBE SS	MUBENDE	8711
243	BUZAAYA SS	KAMULI	3711
244	CHRIST THE KING S S KALISIZO	RAKAI	10080
245	ST LEONARD'S S.S	GOMBA	7954
246	ST HENRY'S KITOVU	MASAKA	5787
247	NAGGULU SEED SS	WAKISO	550140
248	KALASA COLLEGE	LUWEERO	5157
249	SACRED HEART NAJJA S.S	BUIKWE	308021
250	ENTEBBE COMPREHENSIVE SS	ENTEBBE MC	538007
251	KISOWERA S.S.S	MUKONO	9269
252	KAKABAGYO	RAKAI	328006
253	ST PAUL KYANUKUZI SS	LWENGO	210314
254	KAWANDA PARENTS	SEMBABULE	468020
255	MWEREERWE SS	WAKISO	7998
256	SIR APOLLO KAGGWA S.S	MUKONO	9346
257	SAYIDINA ABUBAKER S.S	BUTAMBALA	7845
258	WAKATAYI SS	LUWEERO	5434
259	KAMDA COMMUNITY S.S	MUKONO	308058
260	MT. ST. MARY'S NAMAGUNGA	MUKONO	21659
261	MISANVUCOMPREHENSIVE S.S	BUKOMANSIMBI	228063
262	BALAWOLI SS	KAMULI	3503
263	NAMATABA S.S	MUKONO	9488
264	ST CHARLES LWANGA LWEBITAKULI	SEMBABULE	12733
265	KIMULI S S S	RAKAI	328004
266	KANJUKI S S	KAYUNGA	22544
267	BOMBO S.S.	LUWEERO	5088

Appendix C: Statements on the Stages of Concern in the SoCQ

Item	Statement
Stage 0	
3	I am more concerned about another innovation.
12	I am not concerned about this innovation at this time.
21	I am preoccupied with things other than this innovation.
23	I spend little time thinking about this innovation.
30	Currently, other priorities prevent me from focusing my attention on this innovation.
Stage 1	
6	I have a very limited knowledge of the innovation.
14	I would like to discuss the possibility of using the innovation.
15	I would like to know what resources are available if we decide to adopt this innovation.
26	I would like to know what the use of the innovation will require in the immediate future.
35	I would like to know how this innovation is better than what we have now.
Stage 2	
7	I would like to know the effect of reorganization on my professional status.
13	I would like to know who will make the decisions in the new system.
17	I would like to know how my teaching or administration is supposed to change.
28	I would like to have more information on time and energy commitments required by this innovation.
33	I would like to know how my role will change when I am using the innovation.
Stage 3	
4	I am concerned about not having enough time to organize myself each day.
8	I am concerned about conflict between my interests and my responsibilities.
16	I am concerned about my inability to manage all the innovation requires.
25	I am concerned about time spent working with nonacademic problems related to this innovation.
34	Coordination of tasks and people is taking too much of my time.
Stage 4	
1	I am concerned about students' attitudes toward this innovation.
11	I am concerned about how the innovation affects students.
19	I am concerned about evaluating my impact on students.
24	I would like to excite my students about their part in this approach.
32	I would like to use feedback from students to change the program.

Item	Statement
Stage 5	
5	I would like to help other faculty in their use of the innovation.
10	I would like to develop working relationships with both our faculty and outside faculty using this innovation.
18	I would like to familiarize other departments or people with the progress of this new approach.
27	I would like to coordinate my effort with others to maximize the innovation's effects.
29	I would like to know what other faculty are doing in this area.
Stage 6	
2	I now know of some other approaches that might work better.
9	I am concerned about revising my use of the innovation.
20	I would like to revise the innovation's instructional approach.
22	I would like to modify our use of the innovation based on the experiences of our students.
31	I would like to determine how to supplement, enhance, or replace the innovation.

Source: (George et al., 2013, pp. 27, 28)

Appendix D: Stages of Concerns Scoring Device

Stages of Concern Quick Scoring Device

SoCQ 075

A

Date: _____

Site: _____ SS#: _____

Innovation: _____

B

Stage 0	1	2	3	4	5	6
3 ___	6 ___	7 ___	4 ___	1 ___	5 ___	2 ___
12 ___	14 ___	13 ___	8 ___	11 ___	10 ___	9 ___
21 ___	15 ___	17 ___	16 ___	19 ___	18 ___	20 ___
23 ___	26 ___	28 ___	25 ___	24 ___	27 ___	22 ___
30 ___	35 ___	33 ___	34 ___	32 ___	29 ___	31 ___

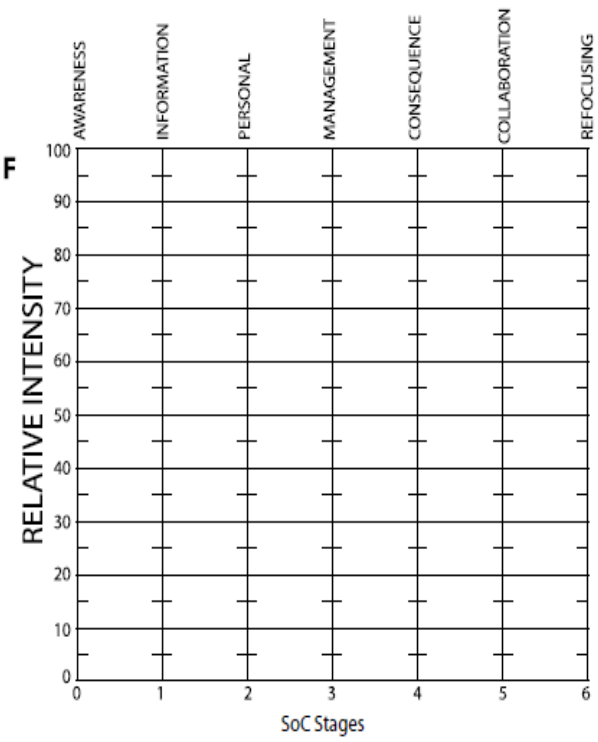
Raw Score Totals	**C**	___	___	___	___	___	___	___
Percentile Scores	**E**	___	___	___	___	___	___	___

D

Five Item Raw Scale Score Total	Percentiles for:						
	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
0	0	5	5	2	1	1	1
1	1	12	12	5	1	2	2
2	2	16	14	7	1	3	3
3	4	19	17	9	2	3	5
4	7	23	21	11	2	4	6
5	14	27	25	15	3	5	9
6	22	30	28	18	3	7	11
7	31	34	31	23	4	9	14
8	40	37	35	27	5	10	17
9	48	40	39	30	5	12	20
10	55	43	41	34	7	14	22
11	61	45	45	39	8	16	26
12	69	48	48	43	9	19	30
13	75	51	52	47	11	22	34
14	81	54	55	52	13	25	38
15	87	57	57	56	16	28	42
16	91	60	59	60	19	31	47
17	94	63	63	65	21	36	52
18	96	66	67	69	24	40	57
19	97	69	70	73	27	44	60
20	98	72	72	77	30	48	65
21	99	75	76	80	33	52	69
22	99	80	78	83	38	55	73
23	99	84	80	85	43	59	77
24	99	88	83	88	48	64	81
25	99	90	85	90	54	68	84
26	99	91	87	92	59	72	87
27	99	93	89	94	63	76	90
28	99	95	91	95	66	80	92
29	99	96	92	97	71	84	94
30	99	97	94	97	76	88	96
31	99	98	95	98	82	91	97
32	99	99	96	98	86	93	98
33	99	99	96	99	90	95	99
34	99	99	97	99	92	97	99
35	99	99	99	99	96	98	99

Concerns Based Systems International

F



Source: (George et al, 2013)

Appendix E: Questionnaire

Questionnaire

Greetings! No. [ ]

The purpose of this questionnaire is to determine what you as a key implementer of the **Competency-based Curriculum (CBC)**, also referred to as **the lower secondary curriculum**, are concerned about in your implementation of it. It also seeks to find out how you are using the curriculum and how you have experienced the whole curriculum reform process.

It consists of 3 parts:

Part A requests some background information about your teaching experience,

Part B investigates your concerns as you implement the curriculum, and

Part C inquires about your experience with the entire curriculum reform process thus far.

The information herein is strictly for research purposes and shall be treated with utmost confidentiality. However, the results of the entire study may be shared with the Ministry of Education, NCDC, and other educational stakeholders and scholars.

You are not required to disclose your name or any other sensitive information. By filling out this questionnaire, you indicate your consent to voluntarily participate in this survey and research study.

Your voice matters.

Thank you in advance!

A:
Please tick the **one** box containing the option of your response in each set.

Gender:	Male	Female

Highest certification earned (or currently studying for)**:**	Certificate	Diploma	Bachelors degree	Masters degree

Number of years in active teaching:	0- 5 years	6- 10 years	11- 15 years	More than 15 years

My main teaching subject(s) is(are) in the group of:	Humanities, Business & Languages	Math & Sciences	Vocational & Arts

My major source of information about the CBC is:	NCDC training sessions	School administration	Fellow teachers	Internet

B:
The following section comprises the Stages of Concerns Questionnaire developed by (George et al., 2013). It consists of 35 items.
Please respond to the items in this section in terms of your **present concerns**, or how you feel about your involvement or potential involvement with the competency-based curriculum (CBC).

The responses range from 0 to 7. Please circle your response as in the example below:

For example:

This statement is very true of me at this time.	0 1 2 3 4 5 6 (7)
This statement is somewhat true of me now.	0 1 2 3 (4) 5 6 7
This statement is not at all true of me at this time.	0 1 (2) 3 4 5 6 7
This statement seems irrelevant to me.	(0) 1 2 3 4 5 6 7

0	**1 2**	**3 4 5**	**6 7**
Irrelevant	Not true of me now	Somewhat true of me now	Very true of me now

Circle **ONE** number for each statement.

1. I am concerned about learners' attitudes toward the CBC.	0 1 2 3 4 5 6 7
2. I now know of some other approaches that might work better.	0 1 2 3 4 5 6 7
3. I am more concerned about another curriculum.	0 1 2 3 4 5 6 7
4. I am concerned about not having enough time to organize myself each day.	0 1 2 3 4 5 6 7
5. I would like to help other teachers in their use of the CBC.	0 1 2 3 4 5 6 7
6. I have a very limited knowledge of the CBC.	0 1 2 3 4 5 6 7
7. I would like to know the effect of the CBC on my professional status.	0 1 2 3 4 5 6 7
8. I am concerned about conflict between my interests and my responsibilities.	0 1 2 3 4 5 6 7
9. I am concerned about revising my use of the CBC.	0 1 2 3 4 5 6 7
10. I would like to develop working relationships with both our faculty and outside faculty using this CBC.	0 1 2 3 4 5 6 7
11. I am concerned about how the CBC affects learners.	0 1 2 3 4 5 6 7
12. I am not concerned about the CBC at this time.	0 1 2 3 4 5 6 7
13. I would like to know who will make the decisions in the CBC system.	0 1 2 3 4 5 6 7
14. I would like to discuss the possibility of using the CBC.	0 1 2 3 4 5 6 7
15. I would like to know what resources are available if we decide to adopt the CBC.	0 1 2 3 4 5 6 7
16. I am concerned about my inability to manage all that the CBC requires.	0 1 2 3 4 5 6 7
17. I would like to know how my teaching is supposed to change.	0 1 2 3 4 5 6 7
18. I would like to familiarize other departments or persons with the progress of this new approach.	0 1 2 3 4 5 6 7

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Irrelevant	Not true of me now		Somewhat true of me now			Very true of me now	

Circle **ONE** number for each statement.

19. I am concerned about evaluating my impact on learners.	0	1	2	3	4	5	6	7
20. I would like to revise the CBC'S approach.	0	1	2	3	4	5	6	7
21. I am preoccupied with things other than the CBC.	0	1	2	3	4	5	6	7
22. I would like to modify our use of the CBC based on the experiences of our learners.	0	1	2	3	4	5	6	7
23. I spend little time thinking about the CBC.	0	1	2	3	4	5	6	7
24. I would like to excite my learners about their part in this approach.	0	1	2	3	4	5	6	7
25. I am concerned about time spent working with nonacademic problems related to the CBC.	0	1	2	3	4	5	6	7
26. I would like to know what the use of the CBC will require in the immediate future.	0	1	2	3	4	5	6	7
27. I would like to coordinate my efforts with others to maximize the CBC'S effects.	0	1	2	3	4	5	6	7
28. I would like to have more information on time and energy commitments required by the CBC.	0	1	2	3	4	5	6	7
29. I would like to know what other teachers are doing in this area.	0	1	2	3	4	5	6	7
30. Currently, other priorities prevent me from focusing my attention on the CBC.	0	1	2	3	4	5	6	7
31. I would like to determine how to supplement, enhance, or replace the CBC.	0	1	2	3	4	5	6	7
32. I would like to use feedback from learners to change the curriculum.	0	1	2	3	4	5	6	7
33. I would like to know how my role will change when I am using the CBC.	0	1	2	3	4	5	6	7
34. Coordination of tasks and people is taking too much of my time.	0	1	2	3	4	5	6	7
35. I would like to know how the CBC is better than what we had before.	0	1	2	3	4	5	6	7

C:

In this section, kindly share your experiences with the entire curriculum reform process to-date. Please indicate your degree of agreement by placing a tick **(√)** inside the box under one of the following headings:

1- Strongly disagree, 2- Disagree, 3- Agree, or 4- Strongly agree.

1- Strongly disagree 2- Disagree 3- Agree 4- Strongly agree	**1**	**2**	**3**	**4**
CHANGE MANAGEMENT				
There has been sufficient communication about the CBC since implementation began.				
The available policy documents about the CBC provide adequate information.				
I understand the philosophy behind the change from the previous curriculum to the CBC.				
I agree with the rationale behind the CBC with its different teaching and assessment methods.				
In my opinion, there has been sufficient consultation with the relevant stakeholders concerning the CBC.				
The learners have received adequate guidance and counselling about the CBC.				
TEACHER PROFESSIONAL DEVELOPMENT				
I am confident to implement the CBC with the NCDC support training I have received.				
I am confident to implement the CBC with the training I received from fellow teachers.				
I have been adequately equipped to conduct the different forms of assessment in the CBC.				
I am being supported to grow my skill in using ICT for teaching.				
I am confident to support my fellow teachers to implement the CBC.				
My school administration has supported us teachers to work together in groups as we implement the curriculum.				

1-Strongly disagree 2- Disagree 3- Agree 4- Strongly agree	**1**	**2**	**3**	**4**
At least once a month, I have opportunity to participate in continuous professional development sessions geared towards my implementation of the CBC.				
RESOURCING THE CURRICULUM				
The distribution of teachers' guides and learner's books has been done in an effective manner.				
Each of my learners has a copy of the learner's book for each of the subjects I teach				
There are enough technological devices to support lesson planning and delivery at my school.				
A stable internet connection is available at my school to support my implementation of the CBC.				
The learners at my school have access to ICT resources to support their learning.				
Most of the instructional materials I require to implement the CBC have been availed to me.				
The learner-teacher ratio at my school allows me to provide sufficient support to each learner.				
My teaching workload allows me time for effective lesson planning, lesson delivery, and learner assessment.				
MONITORING AND EVALUATION				
On a weekly basis, I receive supportive supervision from my school administrators as I implement the CBC.				
My lesson plans and schemes of work are checked by my supervisors on a weekly basis.				
Progress in implementation of the CBC is often an agenda item during staff/ departmental meetings.				
I have received guidance in my implementation of CBC from my school administrators.				
The guidance I have received from my school administrators has supported me to improve my implementation of the CBC.				

IMPLEMENTATION OF THE CURRICULUM				
1- Strongly disagree 2- Disagree 3- Agree 4- Strongly agree	**1**	**2**	**3**	**4**
I make use of technological devices like TVs, DVDs, and desktop monitors during my lessons.				
I have been able to supplement my teaching with ICT in at least 50% of my lessons since I began implementing the CBC.				
I make use of ICT in preparing learner reports				
I think the new syllabus for my subject(s) is(are) comprehensive.				
I use the teacher's guide during all my lessons.				
The teacher's guide is effective in supporting learning.				
I direct the learners to refer to their guides during my lessons.				
I often have to supplement the learner's book with other materials.				
I often set my own Activities of Integration to supplement those suggested in the teacher's guide.				
I have utilized a variety of assessment methods in addition to projects and activities of integration.				
I use the criterion-referenced grading system for every assessment I give to my learners.				
I find it easy to prepare reports for learners as required by the new curriculum.				
The new teaching methods are effective even in my large classes.				
I can facilitate the CBC effectively as a part-time teacher. **(Skip this question if you are a full-time teacher at this school)**				
I sometimes need to use the traditional 'chalk and talk' method during my lessons.				
Teaching should focus more on acquisition of skills than knowledge.				
Learners achieve more academically when they are faced with fewer tests and exams.				
I am satisfied with the 20:80 ratio of formative to summative assessment.				
CBC implementation helps me to cater for the needs and interests of each learner.				

I am comfortable with my new role as a facilitator of learning as opposed to being the sole fountain of knowledge.				

In the space below, please make a comment on your experience with implementing the CBC so far **OR** comment on any of the issues mentioned above.

THANK YOU FOR YOUR TIME!

Appendix F: Lesson observation checklist

OBSERVATION CHECKLIST:					
SCHOOL: PARTICIPANT:					
Dimension of implementation	**Observation element**	**Not Evident (0)**	**Fairly Evident (1)**	**Evident (2)**	**Comments**
Utilisation of instructional materials and technologies	Use of a lesson plan				
	Use of a scheme of work				
	Use of evaluation grid (RACE)				
	Use of teacher's guide				
	Use of learner's book				
	ICT for learning stimulus, support, continuation				
Adoption of new teaching practices	Criterion-referenced assessment				
	Setting of activities of integration				
	Problem/activity-based teaching/learning				
	Learner self-assessment				
	Multiple formative assessment (projects, portfolios, tests, essays, debates, experiments, research, etc)				
	Assessment by Triangulation (Observation, Conversation, Product)				
Transformation of pedagogical assumptions and theories	Active learner participation				
	Teacher as facilitator of learning				
	Grouping of learners/ classroom organisation				
	Integration of cross-cutting issues, values, and generic skills				
	Authentic assessment (task, context, criteria)				

Appendix G: Interview schedule for school administrators

The following themes and questions shall guide the semi-structured interviews for the school administrators in the case study schools;
Change management:

- Briefly describe how you have handled the change management process at your school (in terms of stakeholder consultation and sensitization, guidance and counselling of students, and communication).
- Which policy documents have guided the implementation of the CBC at your school? How have you used these documents?
- In your view, what has been the general response of the teachers to the curriculum reform process from 2020 to date?
- What are some of the major concerns that teachers have expressed regarding the implementation of the CBC? How have you addressed them? How successful have you been in addressing these concerns?

Teacher professional development:

- What percentage of your teachers have received training for the CBC?
- Have you facilitated any special school-based sessions to support the teachers in the implementation of the CBC? Which ones? How frequently?
- What percentage of your teachers is sufficiently proficient in the use of ICT for teaching?
- What are some of the challenges that your teachers face in the use of ICT in teaching?
- What are some of the successes and challenges that teachers have had in implementing the new assessment modes? How have you addressed the challenges?

Resourcing the curriculum

- Briefly comment on the process of production and distribution of teaching and learning materials by the Government. Do you feel supported in terms of these and other resources (mention any others)?
- To what extent have the materials been user-friendly for learners and teachers?
- Do you feel that the student-teacher ratios at your school are allowing the effective implementation of the CBC?
- How have you supported the vocational subjects (nutrition and food technology, performing arts, agriculture, eteacher concerns) in the implementation of the CBC? Has the Government aided in any way?

Monitoring and evaluation

- Have you received any CBC-specific supervisory or inspection visits from the Ministry of Education (DIS, DES, or NCDC)? What has been your experience with these?
- What is your program for supervising teachers as they implement the CBC like? (Kindly share any supervision document templates)
- As you supervised your teachers, what are some of the key successes and challenges you have noted in their implementation of the CBC?

Appendix H: Interview schedule for NCDC and Ministry of Education officials

The following themes and questions shall guide the semi-structured interviews for the NCDC official and the Ministry of Education official:
Change management:

- Briefly comment on the change management process for the CBC. What have been the key successes and challenges you have had?
- What are the specific change management processes that have targeted teachers?
- What have been the major concerns teachers have expressed concerning the CBC? How have they been addressed?
- What are some of the communication channels and feedback mechanisms through which teachers can reach curriculum change facilitators?

Teacher professional development

- How effective has the cascaded model of training for the teachers been (in terms of number of teachers reached, adoption of new pedagogies by teachers, alteration of professional attitudes and beliefs)? (Please share statistics)
- In what ways have you supported the teachers to grow in their ICT proficiency?
- What continuous development programs are on the menu for teachers in the curriculum reform process?
- What professional development has been conducted for school administrators regarding the CBC?

Resourcing the curriculum

- How have you supported schools to surmount the challenges of inadequate infrastructure and poor internet connectivity in as far as the use of ICT is concerned?
- Briefly comment on the successes and challenges of the process of production and distribution of curriculum materials across the country. How were the challenges addressed?
- How has the Government addressed the matter of high student to teacher ratios?

Monitoring and evaluation

- What are some of the key insights that have emerged from preliminary inspection and supervision visits to schools as they implement the CBC?
- How have school administrators been equipped to monitor and evaluate the CBC reform?
- Looking forward, what are some changes that may be made to the CBC in order to enhance its fit for purpose?

Appendix I: Document Analysis Checklist

Standard: the document meets the requirement stipulated by the NCDC in terms of content, language, and level of complexity.
Complete: all necessary information in the document have been filled out.
Detailed: the document has been filled out to the required level of detail and is sufficiently informative.

DOCUMENT ANALYSIS CHECKLIST					
0- Poor, 1- Fair, 2- Good					
Document type	**Criteria**				
	Available (Y/N)	**Standard**	**Complete**	**Detailed**	**Comment**
Lesson plan					
Scheme of work					
Report card					
Formative assessment records					
Activity of integration assessment records					

Appendix J: Content Validity Index Results

TRIAL 2

Domain: Curriculum Reform Strategies					
Item	Expert 1	Expert 2	Expert in agreement	I-CVI	Universal Agreement
1	4	2	1	0.5	0
2	4	2	1	0.5	0
3	4	4	2	1	1
4	4	4	2	1	1
5	4	4	2	1	1
6	4	4	2	1	1
7	4	4	2	1	1
8	4	4	2	1	1
9	4	4	2	1	1
10	4	4	2	1	1
11	4	4	2	1	1
12	4	4	2	1	1
13	4	4	2	1	1
14	4	4	2	1	1
15	4	4	2	1	1
16	4	4	2	1	1
17	4	4	2	1	1
18	4	4	2	1	1
19	4	4	2	1	1
20	4	4	2	1	1
21	4	4	2	1	1
22	4	4	2	1	1
23	4	4	2	1	1
24	4	4	2	1	1
25	4	4	2	1	1
26	4	4	2	1	1
27	4	4	2	1	1
Proportion relevance	1	0.9259		S-CVI Ave= 0.962963	S-CVI UA Ave= 0.9259

Domain: Quality of Implementation					
Item	Expert 1	Expert 2	Expert in agreement	I-CVI	Universal Agreement
1	4	4	2	1	1
2	4	4	2	1	1
3	4	4	2	1	1
4	4	4	2	1	1
5	4	4	2	1	1
6	4	4	2	1	1
7	4	4	2	1	1
8	4	4	2	1	1
9	4	4	2	1	1
10	4	4	2	1	1
11	4	3	1	0.5	0
12	4	4	2	1	1
13	4	4	2	1	1
14	4	4	2	1	1
15	4	4	2	1	1
16	4	4	2	1	1
17	4	4	2	1	1
18	4	4	2	1	1
19	4	4	2	1	1
20	4	4	2	1	1
21	4	4	2	1	1
22	4	4	2	1	1
Proportion relevance	1	0.9		S-CVI Ave= 0.9772	S-CVI UA Ave= 0.9545

Appendix K: Multiple regression analysis for effect of demographic characteristics on teacher concerns.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.278	0.382		3.345	<.001		
	Qual=Certificate	-0.964	1.236	-0.040	-0.780	0.436	0.948	1.055
	Qual=Diploma	1.176	0.423	0.174	2.777	0.006	0.629	1.589
	Qual=Bachelors	0.569	0.303	0.119	1.881	0.061	0.611	1.636
	Gender=Male	0.100	0.220	0.023	0.453	0.651	0.958	1.044
	Exp=0 to 5 years	0.095	0.319	0.018	0.296	0.767	0.692	1.446
	Exp=6 to 10 years	-0.874	0.298	-0.175	-2.935	0.004	0.688	1.454
	Exp=11 to 15 years	-0.430	0.284	-0.092	-1.514	0.131	0.672	1.487
	SubjGp=Humanities, Business, and Languages	0.561	0.279	0.130	2.010	0.045	0.593	1.687
	SubjGp=Math and Science	0.516	0.283	0.117	1.826	0.069	0.601	1.663

a Dependent Variable: HC

b Reference variables: Qual: Masters; Experience: over 15 years; Subject Group: Vocational and Arts

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.278	0.382		3.345	0.001	0.527	2.029		
	Certificate	-0.964	1.236	-0.040	-0.780	0.436	-3.394	1.466	0.948	1.055
	Diploma	1.176	0.423	0.174	2.777	0.006	0.343	2.008	0.629	1.589
	Bachelors	0.569	0.303	0.119	1.881	0.061	-0.026	1.164	0.611	1.636
	0 to 5 years	0.095	0.319	0.018	0.296	0.767	-0.533	0.723	0.692	1.446
	6 to 10 years	-0.874	0.298	-0.175	-2.935	0.004	-1.459	-0.288	0.688	1.454
	11 to 15 years	-0.430	0.284	-0.092	-1.514	0.131	-0.988	0.128	0.672	1.487
	Humanities, Business, and Language	0.561	0.279	0.130	2.010	0.045	0.012	1.110	0.593	1.687
	Math and Science	0.516	0.283	0.117	1.826	0.069	-0.040	1.072	0.601	1.663
	Male	0.100	0.220	0.023	0.453	0.651	-0.333	0.532	0.958	1.044

a. Dependent Variable: HC

b. Reference variables: Qual: Masters; Experience: over 15 years; Subject Group: Vocational and Arts

Appendix L: Exploratory Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.872
Bartlett's Test of Sphericity	Approx. Chi-Square	7144.633
	df	861
	Sig.	<.001

Communalities

	Initial	Extraction
CM1	1	0.718
CM2	1	0.673
CM3	1	0.527
TPD1	1	0.700
TPD2	1	0.648
TPD3	1	0.614
TPD4	1	0.637
TPD5	1	0.561
TPD6	1	0.487
RC1	1	0.546
RC2	1	0.607
RC3	1	0.724
RC4	1	0.711
RC5	1	0.618
RC6	1	0.622
RC7	1	0.542
ME1	1	0.699
ME2	1	0.748
ME3	1	0.612
TS1	1	0.768
TS2	1	0.795
QIWM1	1	0.586
QIWM2	1	0.592
QIWM3	1	0.424
QIWM5	1	0.634
QITECH1	1	0.765
QITECH2	1	0.802
QITECH3	1	0.640
QIMAT1	1	0.576
QIMAT2	1	0.673
QIMAT3	1	0.640
QIMAT4	1	0.654
QITA1	1	0.628
QITA2	1	0.617
QITA3	1	0.699

QITA4	1	0.649
QIPT1	1	0.468
QIPT2	1	0.530
QIPT3	1	0.523
QIPT4	1	0.547
QIPT5	1	0.574
QIPT6	1	0.561

Extraction Method: Principal Component Analysis.

Appendix M: Factors showing their factor loadings, eigen values, percentage variance, and Cronbach's Aplha

Factor number and name	Factor loading	Eigen value	% variance	Cronbach's Alpha
1. Resourcing the curriculum		9.658	22.995	0.859
RC1: The distribution of teachers' guides and learner's books has been done in an effective manner.	0.591			
RC2: Each of my learners has a copy of the learner's book for each of the subjects I teach.	0.777			
RC3: There are enough technological devices to support lesson planning and delivery at my school.	0.804			
RC4: A stable internet connection is available at my school to support my implementation of the CBC.	0.781			
RC5: The learners at my school have access to ICT resources to support their learning.	0.719			
RC6: Most of the instructional materials I require to implement the CBC have been availed to me.	0.748			
RC7: The learner-teacher ratio at my school allows me to provide sufficient support to each learner.	0.611			
2. Teacher professional development		4.449	10.592	0.818
TPD1: I am confident to implement the CBC with the NCDC support training I have received.	0.747			
TPD2: I am confident to implement the CBC with the training I received from fellow teachers.	0.76			
TPD3: I have been adequately equipped to conduct the different forms of assessment in the CBC.	0.723			
TPD4: I am being supported to grow my skill in using ICT for teaching.	0.547			
TPD5: I am confident to support my fellow teachers to implement the CBC.	0.675			
TPD6: My school administration has supported us teachers to work together in groups as we implement the curriculum.	0.515			
3. Quality of implementation: teaching approaches		2.136	5.085	0.777
QITA1: I often have to supplement the learner's book with other materials.	0.633			
QITA2: I often set my own Activities of Integration to supplement those suggested in the teacher's guide.	0.762			

Factor number and name	Factor loading	Eigen value	% variance	Cronbach's Alpha
QITA3: I have utilized a variety of assessment methods in addition to projects and activities of integration.	0.784			
QITA4: I use the criterion-referenced grading system for every assessment I give to my learners.	0.692			
4. Quality of implementation: Materials use		1.792	4.266	0.736
QIMAT1: I think the new syllabus for my subject(s) is(are) comprehensive.	0.597			
QIMAT2: I use the teacher's guide during all my lessons.	0.777			
QIMAT3: The teacher's guide is effective in supporting learning.	0.693			
QIMAT4: I direct the learners to refer to their guides during my lessons.	0.706			
5. Quality of implementation: transformation of professional theories		1.776	4.228	0.787
QIPT1: I sometimes need to use the traditional 'chalk and talk' method during my lessons.	0.56			
QIPT2: Teaching should focus more on acquisition of skills than knowledge.	0.617			
QIPT3: Learners achieve more academically when they are faced with fewer tests and exams.	0.667			
QIPT4: I am satisfied with the 20:80 ratio of formative to summative assessment.	0.648			
QIPT5: CBC implementation helps me to cater for the needs and interests of each learner.	0.632			
QIPT6: I am comfortable with my new role as a facilitator of learning as opposed to being the sole fountain of knowledge.	0.506			
6. Quality of implementation: Technology use		1.592	3.791	0.815
QITECH1: I make use of technological devices like TVs, DVDs, and desktop monitors during my lessons.	0.82			
QITECH2: I have been able to supplement my teaching with ICT in at least 50% of my lessons since I began implementing the CBC.	0.851			
QITECH3: I make use of ICT in preparing learner reports.	0.677			
7. Individualised teacher support		1.42	3.381	0.758
TS1: I have received guidance in my implementation of CBC from my school administrators.	0.766			

Factor number and name	Factor loading	Eigen value	% variance	Cronbach's Alpha
TS2: The guidance I have received from my school administrators has supported me to improve my implementation of the CBC.	0.811			
8. Monitoring and evaluation		1.312	3.125	0.902
ME1: On a weekly basis, I receive supportive supervision from my school administrators as I implement the CBC.	0.767			
ME2: My lesson plans and schemes of work are checked by my supervisors on a weekly basis.	0.821			
ME3: Progress in implementation of the CBC is often an agenda item during staff/ departmental meetings.	0.605			
9. Workload management		1.182	2.815	0.608
QIWM1: I find it easy to prepare reports for learners as required by the new curriculum.	0.585			
QIWM2: The new teaching methods are effective even in my large classes.	0.623			
QIWM3: I can facilitate the CBC effectively as a part-time teacher.	0.578			
QIWM4: My teaching workload allows me time for effective lesson planning, lesson delivery, and learner assessment.	0.569			
10. Change management		1.022	2.434	0.688
CM1: There has been sufficient communication about the CBC since implementation began.	0.74			
CM2: The available policy documents about the CBC provide adequate information.	0.725			
CM3: I understand the philosophy behind the change from the previous curriculum to the CBC.	0.526			

Appendix N: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.658	22.995	22.995	9.658	22.995	22.995	4.324	10.296	10.296
2	4.449	10.592	33.587	4.449	10.592	33.587	3.529	8.402	18.698
3	2.136	5.085	38.672	2.136	5.085	38.672	2.710	6.452	25.150
4	1.792	4.266	42.938	1.792	4.266	42.938	2.656	6.325	31.475
5	1.776	4.228	47.165	1.776	4.228	47.165	2.651	6.311	37.786
6	1.592	3.791	50.956	1.592	3.791	50.956	2.348	5.589	43.375
7	1.420	3.381	54.337	1.420	3.381	54.337	2.200	5.238	48.613
8	1.312	3.125	57.462	1.312	3.125	57.462	2.188	5.211	53.824
9	1.182	2.815	60.277	1.182	2.815	60.277	1.909	4.546	58.369
10	1.022	2.434	62.710	1.022	2.434	62.710	1.823	4.341	62.710
11	0.938	2.232	64.943						
12	0.859	2.046	66.989						
13	0.828	1.971	68.960						
14	0.803	1.911	70.871						
15	0.761	1.812	72.684						
16	0.741	1.764	74.448						
17	0.690	1.642	76.090						
18	0.661	1.573	77.663						
19	0.631	1.503	79.166						
20	0.603	1.437	80.603						
21	0.576	1.371	81.973						
22	0.561	1.336	83.310						
23	0.546	1.299	84.609						
24	0.518	1.234	85.843						
25	0.498	1.186	87.029						
26	0.459	1.093	88.122						
27	0.443	1.054	89.176						
28	0.433	1.032	90.208						
29	0.428	1.018	91.226						
30	0.402	0.958	92.184						
31	0.379	0.902	93.086						
32	0.337	0.803	93.889						
33	0.336	0.799	94.688						

34	0.329	0.784	95.472
35	0.313	0.746	96.219
36	0.285	0.678	96.896
37	0.272	0.647	97.543
38	0.252	0.599	98.142
39	0.230	0.547	98.689
40	0.220	0.525	99.213
41	0.193	0.460	99.674
42	0.137	0.326	100.000

Extraction Method: Principal Component Analysis.

Appendix O: Rotated Component Matrix

	Component									
	1	2	3	4	5	6	7	8	9	10
CM1										0.740
CM2										0.725
CM3										0.526
TPD1		0.732								
TPD2		0.747								
TPD3		0.703								
TPD4		0.568								
TPD5		0.651								
TPD6		0.505								
RC1	0.557									
RC2	0.736									
RC3	0.812									
RC4	0.794									
RC5	0.745									
RC6	0.722									
RC7	0.596									
ME1								0.779		
ME2								0.821		
ME3								0.584		
TS1							0.741			
TS2							0.782			
QIWM1									0.585	
QIWM2									0.623	
QIWM3									0.578	
QIWM5									0.569	
QITECH1						0.813				
QITECH2						0.844				
QITECH3						0.658				
QIMAT1				0.568						
QIMAT2				0.762						
QIMAT3				0.685						
QIMAT4				0.697						
QITA1			0.630							
QITA2			0.735							
QITA3			0.749							
QITA4			0.662							
QIPT1					0.564					
QIPT2					0.632					
QIPT3					0.638					
QIPT4					0.635					
QIPT5					0.630					
QIPT6					0.508					

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 12 iterations.

Appendix P: Comparison of Lesson Observation Findings at NSS and MSS

Dimension of implementation	Observation element	Analysis of NSS Lessons	Analysis of MSS Lessons
Utilisation of instructional materials and technologies	Use of a lesson plan	Three teachers actually brought their lesson plans to the class.	None of the teachers used a lesson plan during the lesson.
	Use of a scheme of work	Two of the teachers had their schemes of work; the rest said they had them prepared in soft copy.	None of the teachers used a scheme of work during the lesson. Only one showed it afterwards but most were still preparing them.
	Use of evaluation grid (RACE)	Not observed.	Not observed.
	Use of teacher's guide	Only two teachers used it.	Most teachers used one.
	Use of learner's book	Most teachers used one.	Most teachers used one.
	ICT for learning stimulus, support and continuation.	Only one teacher actually used it during the lesson and the other referred learners to it. The latter teacher acknowledged that not all learners might be able to access a computer and gave an alternative.	None of the teachers used ICT, only one referred to it during the lesson likely because the lesson was on modern communication gadgets. Classroom environment could not facilitate ICT use (no sockets, rudimentary electricity connections).
Adoption of new teaching practices	Criterion-referenced assessment	This was not observed during the lesson.	It was only observed in the CRE lesson which was a revision exercise of the end of previous term's exam.
Adoption of new teaching practices	Setting of activities of integration	This is an end of unit exercise and it was only conducted by one teacher.	Only two teachers did it and for one it was in the previous term's examination that was being revised in the present lesson.
	Problem/activity-based teaching/learning	This was observed in all lessons.	It was evident in only two lessons.
	Learner self-assessment	Most teachers allowed learners to assess themselves.	It was evident in only one lesson where the teacher was conducting an experiment with learners.
	Multiple formative assessment (projects, portfolios, tests, essays, debates, experiments, research)	Most teachers employed various assessment strategies.	This was only evident in one lesson which involved practical experiments.

Dimension of implementation	Observation element	Analysis of NSS Lessons	Analysis of MSS Lessons
	Teacher learner interaction	This was observed in all lessons.	This was evident in most lessons. Teachers moved around the groups, talking to individual learners.
	Classroom environment: display of learners' work, cleanliness, desk organisation	Classroom environment was extremely neat, well aerated and illuminated. Suitable facilities to support technology use in the classroom (for teachers and learners to plug in their devices: laptops, projectors). Classroom was congested.	The classroom environment was well aerated and illuminated but untidy with unfinished walls, poor and exposed electric connections, no sockets for plugging gadgets, no designated spaces for learners' work. Congested classroom.
	Learner-centered teaching methodology	Mostly learner-centered methodology. The one teacher who used a teacher-centered methodology admitted to not having attended any official trainings.	Teaching methodology was learner-centered in as far as teachers were more intentional about getting learners to participate.
	Assessment by Triangulation (Observation, Conversation, Product)	Only seen in one lesson.	Only one teacher did this.
Transformation of pedagogical assumptions and theories	Active learner participation	Learners participated actively in all lessons. Most learners were eloquent in English and confident.	Learners participated actively in all lessons, offering their thoughts. Teachers availed learners opportunity to express themselves, sometimes in vernacular (Luganda). Learners were often shy and needed much coaxing to participate.
	Grouping of learners/ classroom organisation	Learners seemed to be in fixed groups delineated by seating arrangement. Two teachers curated learner groups for the purposes of their lesson.	Learners seemed to be in fixed groups delineated by seating arrangement. Only teacher of English attempted to mix learners up.
	Teacher as facilitator of learning	Teachers attempted to step back and allow learners to take more control of their learning. However, there was still evidence of lecturing in all but one.	Teachers attempted to step back and allow learners to take more control of their learning. However, there was still evidence of lecturing in all lessons.

Dimension of implementation	Observation element	Analysis of NSS Lessons	Analysis of MSS Lessons
	Integration of cross-cutting issues, values, and generic skills	None of the teachers integrated cross-cutting issues into their lessons. However, teachers endeavored to inculcate values and generic skills in the learners, especially communication and collaboration.	None of the teachers integrated cross-cutting issues into their lessons. However, teachers endeavored to inculcate values and generic skills in the learners, especially communication and collaboration.
	Authentic assessment (task, context, criteria)	This was not observed in any of the lessons.	Only one teacher provided learners with an activity that closely resembled authentic assessment.

Appendix Q: Letter of Introduction from Moi University

MOI UNIVERSITY
Office of the Dean School of Education

Tel: (053) 43001-8
(053) 43555
Fax: (053) 43555

P.O. Box 3900
Eldoret, Kenya

REF: DPEM/5879/22 **DATE:** 21st October, 2022

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: RESEARCH PERMIT IN RESPECT OF BARASA MERCY CHEMUTAI – DPEM/5879/22

The above named is a 1st year PhD in Educational Research and Evaluation student at Moi University, School of Education, Department of Educational Management and Policy Studies.

It is required of her PhD studies to conduct a research project and produce a research report. Her research topic is entitled:

"Leveraging Teacher Concerns in Curriculum Reform: A Mixed Methods Case Study of Selected government Schools in Uganda."

Any assistance given to enable her conduct research successfully will be highly appreciated.

Yours faithfully,

24/10/22

MOI UNIVERSITY
SCHOOL OF EDUCATION
DEAN
24 OCT 2022
P. O. Box 3900-30100, ELDORET

PROF. J. K. CHANG'ACH
DEAN, SCHOOL OF EDUCATION

(ISO 9001 – 2015 Certified Institution)

Appendix R: Permission from SEDL for use of SoCQ and LoU

AIR Copyright Help Desk <AIRCopyright@air.org> Tue, 11 Jan, 02:32

to Jane, Helen, Kim, me, AIR

Dear Mercy:

The American Institutes for Research is pleased to grant you permission to use the Stages of Concern Questionnaire and the Levels of Use protocol as specified in your copyright permission request.

Our preferred citations for these research instruments are as follows. However, feel free to modify the citations according to the editorial style required for your thesis.

> George, A. A., Hall, G. E., & Stiegelbauer, S. M. (2013). *Measuring implementation in schools: The stages of concern questionnaire*. SEDL. https://sedl.org/cbam/socq_manual_201410.pdf
>
> Hall, G. E., Dirksen, D. J., & George, A. A. (2006). *Measuring implementation in schools: Levels of Use*. SEDL. https://sedl.org/cbam/lou_manual_201410.pdf

If you have any questions or would like to use any other SEDL resources, feel free to contact us.

Kind regards,
Kim O'Brien

Editor and Copyright Specialist

Publication and Creative Services

kobrien@air.org

Appendix S: Research Ethical Clearance

UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

17/11/2022
To: Barasa Chemutai
Moi University Kenya
0779654069

Type: Initial Review

Re: UCUREC-2022-402: LEVERAGING TEACHER CONCERNS IN CURRICULUM REFORM: A MIXED METHODS STUDY OF SELECTED GOVERNMENT SCHOOLS IN UGANDA, 1, 2022-10-28

I am pleased to inform you that the Uganda Christian University REC, through expedited review held on **16/11/2022** approved the above referenced study.
Approval of the research is for the period of **17/11/2022** to **17/11/2023.**
As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for review and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **17/11/2023** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Uganda Christian University REC:

No.	Document Title	Language	Version Number	Version Date
1	Informed Consent forms	ENGLISH	1	2022-10-28
2	Informed Consent forms	ENGLISH	1	2022-10-28
3	Data collection tools	ENGLISH	1	2022-10-28
4	Data collection tools	ENGLISH	1	2022-10-28
5	Data collection tools	ENGLISH	1	2022-10-28
6	Data collection tools	ENGLISH	1	2022-10-28
7	Protocol	English	1	2022-10-28

Yours Sincerely

Peter Waiswa

For: Uganda Christian University REC

Appendix T: Approval from Uganda National Commission for Science and Technology (UNCST)

Uganda National Council for Science and Technology

(Established by Act of Parliament of the Republic of Uganda)

Our Ref: SS1541ES **8 December 2022**

Barasa Chemutai

UGANDA MANAGEMENT INSTITUTE

Kampala

Re: Research Approval: LEVERAGING TEACHER CONCERNS IN CURRICULUM REFORM: A MIXED METHODS STUDY OF SELECTED GOVERNMENT SCHOOLS IN UGANDA

I am pleased to inform you that on **08/12/2022**, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of **08/12/2022** to **08/12/2023**.

Your research registration number with the UNCST is **SS1541ES**. Please, cite this number in all your future correspondences with UNCST in respect of the above research project. As the Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. Keeping all co-investigators informed of the status of the research.
2. Submitting all changes, amendments, and addenda to the research protocol or the consent form (where applicable) to the designated Research Ethics Committee (REC) or Lead Agency for re-review and approval **prior** to the activation of the changes. UNCST must be notified of the approved changes within five working days.
3. For clinical trials, all serious adverse events must be reported promptly to the designated local REC for review with copies to the National Drug Authority and a notification to the UNCST.
4. Unanticipated problems involving risks to research participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST notification after review by the REC.
5. Only approved study procedures are to be implemented. The UNCST may conduct impromptu audits of all study records.
6. An annual progress report and approval letter of continuation from the REC must be submitted electronically to UNCST. Failure to do so may result in termination of the research project.
7.

No.	Document Title	LanguageVersion Number	Version Date
1	INFORMED CONSENT FORM TEACHERS	ENGLISH 1	28 October 2022
2	DOCUMENT ANALYSIS GUIDE	ENGLISH 1	28 October 2022
3	INFORMED CONSENT FORM SCHOOL ADMINS AND NCDC OFFICIALS	ENGLISH 1	23 November 2022
4	INTERVIEW SCHEDULE SCHOOL ADMINS AND NCDC OFFICIALS	ENGLISH 1	24 November 2022
5	RISK MANAGEMENT PLAN	ENGLISH 1	24 November 2022
6	INTERVIEW SCHEDULE FOR TEACHERS	ENGLISH 1	24 November 2022
7	QUESTIONNAIRE	ENGLISH 1	24 November 2022
8	OBSERVATION CHECKLIST	ENGLISH 1	24 November 2022
9	Project Proposal	English 1	
10	Approval Letter	English	
11	Administrative Clearance	English	

Please note that this approval includes all study related tools submitted as part of the application as shown below:

Yours sincerely,

Hellen Opolot
For: Executive Secretary

UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

LOCATION/CORRESPONDENCE

Plot 6 Kimera Road, Ntinda
P.O. Box 6884
KAMPALA, UGANDA

COMMUNICATION

TEL: (256) 414 705500
FAX: (256) 414-234579
EMAIL: info@uncst.go.ug
WEBSITE: http://www.uncst.go.ug

Appendix U: Informed Consent Forms for Teachers, School administrators, NCDC, and MoES Officials

Title of the study: LEVERAGING TEACHER CONCERNS IN CURRICULUM REFORM: A MIXED METHODS STUDY OF SELECTED GOVERNMENT SCHOOLS IN UGANDA
Investigator(s): BARASA MERCY CHEMUTAI
Institution(s): MOI UNIVERSITY, KENYA

Introduction

Hello! My name is Barasa Mercy Chemutai, a PhD student at Moi University in Kenya. I am conducting a study investigating the role of teacher concerns in the recently implemented lower secondary curriculum in Uganda. This informed consent explains the study to you. After the study has been explained, any questions you may have are answered. When you have decided to participate in the study, you will be asked to sign a consent, which you will be given a copy to keep. This study has received ethical approval from the Uganda Christian University Research Ethics Committee under reference number **UCUREC-2022-402.**

A brief description of the sponsors of the research project

Purpose: The study seeks to investigate the role of teacher concerns in the implementation of the lower secondary curriculum in Uganda. The findings of this study will help to amplify the voices of the teachers in the curriculum reform process and also guide school administrators, NCDC and Ministry of Education officials as they prepare and conduct programs to support teachers to implement the curriculum effectively.

Procedures: Your participation in this study will involve a 40-minute classroom observation session with a brief interview before and after the lesson, and analysis of selected documents. The interview will last for approximately 10-15 minutes.

Who will participate in the study? You have been chosen to participate in this study because you are a Ugandan secondary school teacher implementing the lower secondary curriculum/ a change facilitator.

Risks/discomforts: There is no foreseeable risk of harm or discomfort that will arise from your participation in this study. You will not be expected to travel for the sake of this study hence you shall not incur any transport costs. The only risk or discomfort will be the inconvenience in terms of time spent during the interview. Should the interview exceed 90 minutes, you shall be compensated for your time with a sum of UgShs 10,000.

Benefits: You will be able to contribute an important voice to the discussion regarding the concerns of Ugandan secondary school teachers in this lower secondary curriculum. You will also contribute to the formulation of an effective teacher support framework to support fellow Ugandan teachers in the curriculum reform process.

At the end of the interview and observation session, you will be able to get some feedback and any important findings will be shared with you as a study participant.

Confidentiality: Your identity will not be revealed to any one as we shall only use codes to identify participants. Information obtained will only be accessible by the research team. Soft copies of the data will be protected by password and hard copy files will be kept under lock and key. Confidential information will only be accessed by the principal investigator.
Alternatives: You do not have to participate in this study if you are not interested. You will not lose any benefit in case of no participation.
Cost: There will not be any additional cost incurred as a result of participating in this study.
Study funding: This study is funded by by the East and South African-German Centre of Excellence for Educational Research Methodologies and Management (CERM-ESA), a program under DAAD.
Questions: If you have any questions related to the study as a research participant, you can contact the principal investigator, Barasa Mercy Chemutai on telephone number **0758262831** or via email on neema33yake@gmail.com .
Statement of voluntariness: Participation in the research study is voluntary and you may join on your own free will. You have a right to withdraw from the study at any time without penalty.
If you have any issues pertaining to your rights and participation in the study, please contact the Assistant Registrar, UCU Research Ethics Committee, Tel: No 0775 737627; email: oahimbisibwe@ucu.ac.ug ; or the Uganda National Council for Science and Technology, on plot 6 Kimera road, Ntinda, Kampala on Tel 0414705500.
Statement of consent
..... has described to me what is going to be done, the risks, the benefits involved and my rights as a participant in this study. I understand that my decision to participate in this study will not affect me in any way. In the use of this information, my identity will be concealed. I am aware that I may withdraw at any time. I understand that by signing this form, I do not waive any of my legal rights but merely indicate that I have been informed about the research study in which I am voluntarily agreeing to participate. A copy of this form will be provided to me.
Name …… Signature of participant…… Date ……...
Name……. Signature of interviewer…… Date

Appendix V: Plagiarism Certificate

SR506

ISO 9001:2019 Certified Institution

THESIS WRITING COURSE

PLAGIARISM AWARENESS CERTIFICATE

This certificate is awarded to

BARASA MERCY CHEMUTAI

DPHILERE/5879

In recognition for passing the University's plagiarism

Awareness test for Thesis **entitled: LEVERAGING TEACHER CONCERNS IN EDUCATIONAL CHANGE: A CASE OF THE UGANDA LOWER SECONDARY CURRICULUM REFORM** with similarity index of 3% and striving to maintain academic integrity.

Word count: 61882

Awarded by

Prof. Anne Syomwene Kisilu
CERM-ESA Project Leader Date: 30/04/2024